

Ethnic Malays, Family Ownership and Institutional Ownership and its Effect on Firms' Risks in Malaysian Family Manufacturing Firms

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Abstract

Purpose: The purpose of this study is to investigate the roles of board ethnicity in reducing firms' risk in Malaysian manufacturing firms.

Design/methodology/approach: The effect of board ethnicity is investigated via 930 firm-year observations between the fiscal years of 2004 and 2009 of Bursa Malaysia listed firms during the global financial crisis. Panel data regression analysis is used to analyse the relationship.

Findings: In both measures used to proxy for firms' risk, negative association is found between board ethnicity and firms' risk. But when we used family ownership and institutional ownership as interaction terms, none of the results are significant. Thus, we fail to associate ownership structure on firm's propensity to take risks. However, additional analysis also shows that family firms prefer less risk.

Research limitations/implications: The analysis is confined to Malaysian manufacturing sectors during global financial crisis 2007-2008.

Originality/value: This study offers insights into the effect of culture and ownership structure on firms' risk.

Keywords: Board ethnicity, firms' risk, family ownership, institutional ownership, manufacturing firms

1.0 Introduction

Malaysia is known to be a country with diverse ethnic. Studies have shown that ethnic Malay as the biggest ethnic in Malaysia, scores low in both uncertainty avoidance and individualism. The low scores define Malaysia as country with high degree of collective society manifest in strong relationship with family members or collective group, where everyone has responsibilities over fellow members (Hofstede, 2001). In a society like Malaysia where family and institutional ownership form a significant part of the firm ownership, there is different level of risk associated with different types of ownership in the highly dominated Chinese manufacturing industry in Malaysia (Mihet, 2013).

Nonetheless, very few studies focus on the effect of ethnic Malays appointment in these Chinese dominated manufacturing sector. Department of Statistics Malaysia in year 2011, claimed Malaysia's manufacturing industry as one of the highest growth sectors in Malaysian economy which are predominantly controlled by Chinese family firms. Thus, this sector forms a good basis in understanding the influence of ethnic Malays on firms' risk. Ethnic Malays being the largest

ethnic occupied most of the directorship in listed firms in Malaysia (KPMG, 2013). Comparatively, ethnic Malays are attached to the cultural tradition and very conservative in their entrepreneurship activities, thus they prefer to take less risks as compared to the Chinese (Tehseen and Anderson, 2020). Also, due to their attitude for collectivism, and concern for family values, ethnic Malays are more inclined to steer away from excessive risk due to fear of losing family wealth (Tehseen and Anderson, 2020; Manogna et al. 2020).

Aside from that, ethnic Malays are found to practice better disclosures which are founded by Islamic business ethics that encourages transparency in business (Abdul Rahman & Ali, 2006; Haniffa & Cooke, 2002). Due to their transparency and disclosures, ethnic Malays firms are found to have better internal corporate governance practices as compared to their non-ethnic counterparts (Yatim et al., 2006). A firm with strong internal governance led to less risk-taking activities as every decision are made transparent and follows specified guidelines required by the board members (Mohammad, 2020).

Nonetheless, ethnic Malays dominant over the Malaysian politic, and the active roles of institutional investors may also influence the extent to which ethnic Malays make decision to align with the government strategic plans (Dixon, 2020). Thus, the involvement of ethnic Malays with strong political network, may lead to inefficient management of firms' asset and increases firms' risks due to poor allocation of resources when the interest is skewed towards the political objective of the government (Wahab et al., 2020). The appointment of ethnic Malays with strong political networks are means adopted by institutional investors to effectively execute their strategic development plan. Evidence from previous studies also associate ethnic Malays appointment on the board with those who are either retired government officer or those with political networks with the ruling party (KPMG, 2013; Abdul Wahab et al., 2017; Wahab et al., 2020).

Even though board ethnicity may influence firms risk taking activities, but the concentrated ownership structure of most Malaysian firms also has an indirect influence over firm's risk raking activities. The distinction between culture and ownership is difficult as culture does not exist in a vacuum and are affected by the various types of ownership (Claessens et al., 2000). For instance, studies have shown that family firm is more risk averse than non-family firms (Manogna et al. 2020). In the same vein, the influence of institutional investors over senior executives may deter firms risk taking as firms assimilate the institutional investors' interest into their future risk undertaking (Edgley and Holland, 2020).

Based on the evidences proposed, the uniqueness of Malaysia with diverse ethnics and being one of the emerging markets in Asia has motivated this research to explore the link between board ethnicity, family and institutional ownership on firms' risk. This study differs from previous other studies by focusing on the board ethnicity and its effect over firms' risk in Malaysia manufacturing sectors during the Asian Financial Crisis 2007-2008. Also, we focus on the moderating effect of ownership structures in Malaysia, namely the family ownership and institutional ownership in understanding the interactive effect of culture and ownership structure. The findings of the study support consistent evidence on the negative effect of ethnic Malays on firm risks. But when direct family ownership, indirect family ownership and institutional ownership are used as interaction terms, none of the results are significant. This indicates that even though culture may influence firms' risk, there is no evidence to suggest that ownership structure influence firms' risk activities in Malaysian manufacturing firms.

The paper is structured as follows: Section 2.0 presents theoretical framework. Section 2.1 is literature review and hypotheses development. Section 3 is model specification. Section 3.1 is data and sample selection. Section 3.2 is definition of key variables. Section 3.3 is descriptive statistics.

Section 3.4 is tests of multicollinearity, heteroscedasticity and autocorrelation. Section 4.0 is empirical results and discussion. Section 5.0 is the conclusion and discussion.

2.0 Theoretical framework

Cultures guides human behavior and belief, and serve as a guiding principle in making decisions (Hofstede, 2001). Individual subjectivity in forming their decisions are contextually determined by social environment and conditions that relatively influence the structures and form of their behavior (Bhimani, 1999). Studies in these areas have found several implications of cultural influence on firms risks. Tse et al. (1988) find that home culture affects international marketing decision, openness in globalization and firms' willingness to take risks. Thus, firm's openness in trade and globalization are purely founded by the culture of their countries and their risk tolerance. Previous literatures argue that most South East Asian countries including Malaysia, scores low in both uncertainty avoidance and individualism, favor less rules and regulation, and operate in an environment with ambiguity and uncertainty (Hofstede, 2001). Since countries categorized under low uncertainty avoidance scores tend to prefer fewer rules and regulation and have preference for unstructured environment, there is tendency that they will take on more risks than countries that scores high in uncertainty avoidance. Ashraf et al. (2016) find that bank risk taking is higher in countries with low uncertainty avoidance. The values held by the society may influence how the corporation engaged in their risk-taking activities. Nonetheless, low uncertainty avoidance is not necessarily an indicator of high tolerance for risks. In fact, due to the unknown risk, low uncertainty avoidance countries may be engaged on less risk-taking activities than high uncertainty avoidance countries, to avoid negative repercussion of their decisions (Ashraf et al.,2016).

Also, even though Malaysia is a country with low scores on uncertainty avoidance, it is essentially a collectivistic country that values loyalty, extended long term family relationship in making decisions (Sumaco et al., 2014). Furthermore, in a highly concentrated family ownership where family firms make decisions to increase firms' long-term value, there is tendency for family firms to avoid taking excessive risk. Family firms' in emerging market such as Singapore and Indonesia are more focused on gaining market recognition, minimizing agency conflicts and prefer less risk (Siregar and Utama,2008). Some family firms believe that taking on more risks will decrease the survivorship of the company and long-term firms' sustainability.

Aside from the influence of family ownership, collective society is also driven by institutional ownership which influence the cultural values and attitude (De Jong and Semenov, 2006). Institutional investors formed a major part of East Asian corporate community and have strong relationship and networks, between firms' managers and government. Some studies also interpreted the strong ownership and control, and close relationship between firms' directors and institutional investors as an indicator of cronyism. The outcome of cronyism through government agencies' lobbying, trade barriers, and preferential treatment may lead to higher firms' risk (Claessens,2000). In the next section, we will discuss more on the effect of ethnicity on firms risks.

2.1 Literature review and hypotheses development

Several studies suggest that non ethnic Malays such as Chinese are more secretive and practice more entrepreneurship skills than ethnic Malays (Haniffa and Cooke, 2002). Whilst ethnic Malays practice more voluntary disclosures and have better internal corporate governance practices as compared to their non-ethnic counterparts (Abdul Rahman & Ali, 2006; Haniffa & Cooke, 2002). With good internal governance there is less tendency for ethnic Malays to undertake risks as risk management committees will overlook firms' investment and its risk. Furthermore, internal

governance in the form of more active audit and independence board members involvement in firms, results in effective measures to curtail excessive risk taking at the expense of stakeholders' interest.

Though previous studies claim that better governance is practiced by ethnic Malays, there is evidenced to suggest that ethnic Malays is also politically influenced (Gomez & Jomo, 1997; Johnson & Mitton, 2003)¹. Ethnic Malays are argued to be involved in rent seeking activities to gain major government projects (Yoshihara 1988; Wan Jan 2011). Further, politically connected firms are also prone to pay higher audit fees because of the higher risk associated with it (Abdul Wahab, Zain, James, & Haron, 2009). Also, few studies claim ethnic Malays appointment are shadowing the interest of political leaders' objectives via directors' networking, rather than the best interest of the stakeholders (Wahab et al., 2020). Thus, ethnic Malays appointment in a firm symbolize cronyism and high risks associated with the firms. We posit that:

H1A: Ethnicity influences firms' risk

Though mixed findings were found on the effect board ethnicity on risks, another strand of studies also recognized institutional investors as one of the most effective external monitoring mechanisms in monitoring shareholders' interest (Edgley and Holland, 2020). For instance, due to the influence of institutional investors, firms may reduce risk taking activities to protect the long-term interest of the institutional investors. Previous studies also associate the influence of institutional investors on firm's performance and find that distracted institutional investors may lead to ineffective directors. Not only that, the distraction faced by institutional investors in monitoring the directors may have an adverse effect on performance and increases firms' risk (Liu et al., 2020). The governance mechanism and disciplinary power of institutional investors over senior executives may guide firms into withdrawing excessive risk that may draw attention from the regulators and act as an independent monitoring party to reduce misappropriation of firm's funds (Edgley and Holland, 2020).

In addition, institutional investors have a strong influence on firms' tendency to provide higher disclosures as a mean to attract more investment in their companies and improve the firms' governance (Hashim and Devi, 2012). Malaysia five largest institutional investors advocate for better disclosures and positively encourages diligent monitoring. Thus, better disclosures are found in companies that are heavily invested by institutional investors. There are several reasons to this, firstly institutional investors are well connected to the government and the need to protect the interest of investors are the main concern of most institutional investors, as misappropriation of those funds has severe implication on their reputation (Abdul Wahab et al., 2008). Secondly, institutional investors are active investors who have better resources and expertise in monitoring and ensuring delicate measures are taken over their investment (Hoelscher & Seavey, 2015).

For instance, in China, Haider and Fang (2018) study the roles of firms' and corporate risk taking and the influence of large shareholders in state-owned enterprises (SOEs) and non-state-owned enterprises (NSOEs). Their studies conclude that even in the presence of more CEO power, large institutional shareholders are negatively associated with firms' risk. Jumreornvong et al. (2020)

¹ The Malaysian government intends to address the socio-economic imbalance among ethnic groups in the country, following riots in 1969 among the three dominant ethnic groups: Malays (known as Bumiputeras), Chinese, and Indians. The policy instruments used were the New Economic Policy (NEP) from 1970 to 1990 and the National Development Policy (NDP) from 1991 to 2000. The objective of both the NEP and NDP was to promote and encourage Bumiputera participation in the corporate ownership of Malaysia. The social policy to support firms with Bumiputera ownership resulted in another group of firms "picked" by the government to receive NEP/NDP motivated patronage (Fraser et al., 2006, pp. 1293, paragraph 2).

studies corporate governance and the extent of risk-taking in Thailand and find that institutional investors are more risk-averse and prefer less risky corporate policies and strategies.

In contrast, Chakraborty et al. (2019) using Canadian firms as sample, find large institutional investors aims to maximize profits and exerts pressure on the directors to increase firms risk taking. Consistently, Hutchinson et al. (2015) report similar finding that institutional shareholdings increases Australian firms' risk. In another UK-based study of FTSE 350 index, Mathew et al. (2016) find higher risks are found when high equity ownership amongst executive board directors and institutional investor ownership are present. Consistent with this notion, we hypothesize that institutional investors influence firms' risks.

H1B: Ethnicity moderated by institutional ownership influences firms' risk

Aside from the influence of institutional investors, family ownership is also associated with low level of risks risk taking (Lehrer and Schmid,2019; Jumreornvong et al. 2020; Ali et al.,2020). Family firms crave for long term sustainability goal, establishing the family firms' footing in the industry and safeguarding the family reputations (Chau and Gray, 2010; Morck and Yeung 2004; Siregar and Utama,2008; Duran and Ortiz 2020). Another stream of studies associates higher disclosures, more earnings quality and lower risks in family firms (Ali et al. 2007; Wan-Hussin 2009; Wang 2006). Effective disclosures will minimize degree of agency conflicts between minority interest, and lead to convergence of interest between family members and minority interests (Chau and Leung 2006). Since streams of studies have focused on family firms' risk aversion, a question is raised as to whether high family ownership lower firms risk-taking activities in Malaysian manufacturing firms, where board ethnicity is more profound. Both institutional and family ownership are a good method of indirect governance over firms' risk. Though the interests differ, firms under the influence of strong institutional and family ownership tend to prioritize the needs of both institutions and safeguard the investment made and maintain the trust of stakeholders.

We propose that uncertainty avoidance in a collective society will reduce firms' risk taking. In a collective society, particularly in extended family firms, any decisions are collectively made as the implication of those decisions will have severe repercussions on firms' creditors, institutional shareholders and to some extent, the government investment interest. The effect of a wrong decision deter risk taking activities in most family manufacturing firms. Since manufacturing remains one of Malaysia's most important sector and majority owned by family members, firms will try to avoid taking excessive risks to ensure that family ownership are well protected. Thus, we hypothesize that:

H1C: Ethnicity moderated by direct and indirect family ownership reduced firms' risk

3.0 Model specification

To achieve the aims of this study, we analyze the effect of ethnicity, with different types of ownership (direct family ownership, indirect family ownership and institutional ownership) as interaction terms on the level firms risks. We employ Panel Corrected Standard Errors (PCSEs) (Beck and Katz,1995) to correct for heteroskedasticity issues. There are four models used to test the effect of ethnicity on firms' risk. In the first model, regression without the interaction effect is conducted on ethnicity, institutional ownership, direct family ownership and indirect family ownership on firms risks. In the second model, we used institutional ownership as interaction effect

for ethnicity. In the third and fourth model we test interaction effect of both direct and indirect family ownership on firms risks.

To test the three hypotheses, H1A, H1B and H1C, we use 4 models and a set of control variables

Model 1 (Without Interaction Effect)

$$\begin{aligned}
 TOTAL\ RISKS_{it}/SYSTEMATICRISK_{it} = & \beta_0 + \delta_1 ETHNICITY_{it} + \delta_2 DFOWN_{it} + \\
 & \delta_3 IDFWN_{it} + \delta_4 INSTOWN_{it} + \delta_5 FAMPERCENT_{it} + \delta_6 BIG4_{it} + \delta_7 BSIZE_{it} + \\
 & \delta_8 LEVERAGE_{it} + \delta_9 TENURE_{it} + \delta_{10} ASSET_{it} + \delta_{11} MBRATIO_{it} + \delta_{12} MARKETCON_{it} + \\
 & \delta_{13} MARKETCAP_{it} + \delta_{14} ROA_{it} + \eta_i + \mu_t + \varepsilon_{it}
 \end{aligned} \tag{1}$$

In model 1, we run separate regression on the effect of ethnicity on firms’ total risks and systematic risks. Also, we test the effect of institutional ownership, direct family ownership and indirect family ownership and on firms’ risk. This is to investigate the moderating effect of different types of ownership structure and firms risks.

In model 2, 3 and 4, we run separate regression of ethnicity and firms’ risk using institutional ownership, direct family ownership and indirect family ownership as interaction terms. We include a set of control variables to control for family firms, types of audit firms, board size, leverage, tenure, size of the company, firms’ growth, ownership concentration, market share and profitability (Refer Section 3.3 for further explanation of control variables).

Model 2 (With Interaction Effect)

$$\begin{aligned}
 TOTAL\ RISKS_{it}/SYSTEMATICRISK_{it} = & \beta_0 + \delta_1 ETHNICITY_{it} + \delta_2 ETHNICITY * INSTOWN_{it} + \delta_3 DFOWN_{it} \\
 & + \delta_4 IDFWN_{it} + \delta_5 INSTOWN_{it} + \delta_6 FAMPERCENT_{it} + \delta_7 BIG4_{it} \\
 & + \delta_8 BSIZE_{it} + \delta_9 LEVERAGE_{it} + \delta_{10} TENURE_{it} + \delta_{11} ASSET_{it} \\
 & + \delta_{12} MBRATIO_{it} + \delta_{13} MARKETCON_{it} + \delta_{14} MARKETCAP_{it} + \delta_{15} ROA_{it} + \eta_i \\
 & + \mu_t + \varepsilon_{it}
 \end{aligned} \tag{2}$$

Model 3 (With Interaction Effect)

$$\begin{aligned}
 TOTAL\ RISKS_{it}/SYSTEMATICRISK_{it} = & \beta_0 + \delta_1 ETHNICITY_{it} + \delta_2 ETHNICITY * DFOWN_{it} + \delta_3 DFOWN_{it} \\
 & + \delta_4 IDFWN_{it} + \delta_5 INSTOWN_{it} + \delta_6 FAMPERCENT_{it} + \delta_7 BIG4_{it} \\
 & + \delta_8 BSIZE_{it} + \delta_9 LEVERAGE_{it} + \delta_{10} TENURE_{it} + \delta_{11} ASSET_{it} \\
 & + \delta_{12} MBRATIO_{it} + \delta_{13} MARKETCON_{it} + \delta_{14} MARKETCAP_{it} + \delta_{15} ROA_{it} + \eta_i \\
 & + \mu_t + \varepsilon_{it}
 \end{aligned} \tag{3}$$

Model 4 (With Interaction Effect)

$$\begin{aligned}
 TOTAL\ RISKS_{it}/SYSTEMATICRISK_{it} = & \beta_0 + \delta_1 ETHNICITY_{it} + \delta_2 ETHNICITY * IDFWN_{it} + \delta_3 DFOWN_{it} \\
 & + \delta_4 IDFWN_{it} + \delta_5 INSTOWN_{it} + \delta_6 FAMPERCENT_{it} + \delta_7 BIG4_{it} \\
 & + \delta_8 BSIZE_{it} + \delta_9 LEVERAGE_{it} + \delta_{10} TENURE_{it} + \delta_{11} ASSET_{it} \\
 & + \delta_{12} MBRATIO_{it} + \delta_{13} MARKETCON_{it} + \delta_{14} MARKETCAP_{it} + \delta_{15} ROA_{it} + \eta_i \\
 & + \mu_t + \varepsilon_{it}
 \end{aligned} \tag{4}$$

3.1 Data and sample selection

All the information is collected from emerging market information system (EMIS) and firms' annual reports. Initially, the population consists of 772 firms as of 31 December 2009. However, given the missing data from the annual reports downloaded from EMIS, incomplete data to estimate firms risk, and exclusion of non-manufacturing firms the samples are finally reduced to 155 manufacturing firms in Malaysia between the fiscal years of 2004 and 2009 resulting in 930 firm-year observations. We chose this period to capture the effect of Asian Financial crisis in year 2007-2008.

3.2 Definition of key variables

Table 1: Definition of variables

Variables	Sign	Definition
<i>Dependent Variable</i>		
TOTALRISKS		The daily annual standard deviation of stock returns
SYSTEMATICRISK		The daily annual standard deviation of stock returns minus the annual standard deviation of the residuals, e_{it} , over the 12 months period
<i>Experimental Variables</i>		
ETHNICITY	+/-	Ratio of Bumiputera directors (ethnic Malay directors) to the total number of directors on the board
INSTOWN	+/-	Total percentage made up of the top 5 institutional investors (Employees Provident Fund, Lembaga Tabung Angkatan Tentera, Permodalan Nasional Berhad, Lembaga Tabung Haji and National Social Security Organization of Malaysia (PERKESO)
DFOWN	-	Percentage of direct family managerial ownership
IDFOWN	-	Percentage of indirect family managerial ownership
<i>Control Variables</i>		
FAMPERCENT	-	Percentage family members on the board over total number of directors on the board
BIG4	+/-	Indicator variable with the value of "1" if audited by Big 4 and "0" indicates otherwise
BSIZE	+/-	Log of the number of directors in the board
LEVERAGE	+/-	Current liabilities over total assets
TENURE	+/-	Log total number of years of service of the chief executive officer
ASSET	+/-	Log of total assets (MYR'000)
MBRATIO	+/-	Market value of equity/book value of equity
MARKET CONCENTRATION	+/-	Combined number of significant shareholders (more than 5% shares ownership) over total number of ordinary shares.
MARKETCAP	+/-	Log market capitalization (MYR'000)
ROA	+/-	Return on Assets

3.3 Descriptive statistics

Table 2: Descriptive statistics

	Obs	Mean	Std. Dev.	Min	Max
TOTALRISK	930	0.1013	0.1763	0	1.98
SYSTEMATICRISK	930	-0.0436	0.1891	-1.97	0.72
ETHNICITY	930	0.3286	0.2346	0	1
INSTOWN (%)	930	5.9432	12.3188	0	74.58
DFOWN(%)	930	6.8911	13.3626	0	59.06
IDFOWN (%)	930	17.3389	21.5932	0	98.42
FAMPERCENT	930	0.2450	0.2371	0	0.83
BIG4	930	0.6311	0.4827	0	1
BSIZE	930	7.445	0.1084	3	16
LEVERAGE (%)	930	0.2941	0.1908	0.01	2.89
TENURE (Year)	930	7.7600	0.3712	0	44
ASSET(RM'000)	930	268287	0.5499	25703	102329299
MBRATIO (%)	930	1.2489	3.4777	-43.23	66.6
MARKETCON(%)	930	40.9800	0.2737	0	97.72
MARKETCAP(RM'000)	930	531114	1600884	2400	18400000
ROA (%)	930	3.6569	12.7652	-182.22	142.34

TOTALRISKS is calculated as the annual standard deviation of the 12 months' daily stock returns and the mean is 0.1013 (Yasuda, Okuda, and Konishi,2004; Hatane et al.2019; Jumreornvong et al.2020; Haider and Fang 2018). Whilst the mean for SYSTEMATICRISK is -0.0436 and approximately similar to Haider and Fang (2018).ETHNICITY is measured as the ratio of ethnic Malay directors or bumiputra directors to the total number of directors on the board and the mean is 32.86% (Rahman & Ali, 2006; Haniffa & Cooke, 2005; Marimuthu, 2008). Roughly one third of the board comprised of ethnic Malays who provide a check and balance on highly dominated Chinese manufacturing firms.

INSTOWN is computed as total percentage of the top 5 institutional investors (Employees Provident Fund, Lembaga Tabung Angkatan Tentera, Permodalan Nasional Berhad, Lembaga Tabung Haji and National Social Security Organization of Malaysia (PERKESO). The mean for INSTOWN is 5.94% which is almost similar to Hashim and Devi (2012) and much lower as compared to Abdul Wahab et al. (2008).

DFOWN is measured as percentage of direct family managerial ownership. IDFOWN is computed as the percentage of indirect family managerial ownership. In this study, direct family ownership is 6.89%, with the highest being 59.06%, whereas indirect family ownership percentage is ranging from the mean of 17.34% to 98.42%. The indirect family ownership percentage is much higher

than direct family ownership, indicating the complexity of family ownership in Malaysian family firms. Among Australian samples, the mean for family ownership is 39%, which is higher than Malaysian family firms (Setia-Atmaja et al., 2011).

FAMPERCENT mean is 24.50% (maximum = 83%, minimum = 0) which is slightly higher than Madah and Abdul Wahab's (2016) but almost similar to Wan-Hussin's (2009) study. Family data is collected from firms' annual report. BIG4 means is 0.6311 with majority of the firms employ Big 4 auditors. BSIZE mean is 7.445 (maximum = 16, minimum = 3). LEVERAGE mean is 0.2941 (maximum = 2.89, minimum = 0.01). Similar to Mohammad et al. (2016) leverage is measured by current liabilities over total assets. TENURE mean is 7.76 years which slightly lower than the recommended tenure of 9 years (maximum = 44, minimum = 0). Following Jumreornvong et al. (2020), we control for firms' size of the company, firms' growth and profitability. The mean for ASSET is RM 268,287,000. MBRATIO mean is 1.2445 per cent. MARKETCON mean is 40.98% (maximum = 97.72%, minimum = 0) which measures combined number of significant shareholders with more than 5% shares ownership over total number of ordinary shares. This control for large investors influence on firms' risk taking. Similarly, Jumreornvong et al. (2020) measure ownership concentration by computing the total percentage of ownership held by the five largest stockholders, and found that large investors are more risk-averse. MARKETCAP is market capitalization (MYR'000) and the mean is RM 531,114,000. ROA is the return on assets and the mean is 3.65%.

3.4 Tests of multicollinearity, heteroscedasticity and autocorrelation

Table 3 presents the correlation matrix of the variables for the sample which show negative correlation between SYSTEMATICRISK, ETHNICITY (1% significant level) and INSTOWN (10% significant level). All the correlation is below 60% indicating no multicollinearity issues. With the highest correlation between FAMPERCENT with DFOWN(45.51%) and IDFOWN(58.27%). Multicollinearity is only considered to be severe if the correlation coefficient between the independent variables is greater than 0.8 (Gujarati and Porter, 2009).

Table 3: Correlation Matrix

	SYSTEMATICRISK	TOTALRISK	ETHNICITY	INSTOWN	DFOWN	IDFOWN	FAMPERCENT	BIG4	BOARD SIZE
SYSTEMATICRISK	1.0000								
TOTALRISK	-0.8322 0.0000** *	1.0000							
ETHNICITY	-0.1074 0.0010** *	0.0713 0.0297**	1.0000						
INSTOWN	-0.0622 0.0578*	0.1349 0.0000** *	0.3231 0.0000***	1.0000					
DFOWN	0.0777 0.0178**	-0.1295 0.0001** *	-0.1897 0.0000***	-0.1107 0.0007***	1.0000				
IDFOWN	0.0150 0.6480	0.0204 0.5336	-0.1691 0.0000***	-0.0752 0.0219**	0.0856 0.0090***	1.0000			
FAMPERCENT	0.1043 0.0014** *	-0.1220 0.0002** *	-0.3244 0.0000***	-0.1325 0.0001***	0.4551 0.0000** *	0.5827 0.0000***	1.0000		
BIG4	-0.1456 0.0000** *	0.1202 0.0002** *	0.0487 0.1375	0.1603 0.0000***	-0.1163 0.0004** *	-0.0818 0.0127**	-0.1053 0.0013** *	1.0000	
BOARDSIZE	0.0005 0.9890	0.0257 0.4335	-0.0662 0.0436**	0.1352 0.0000***	-0.0299 0.3630	0.0902 0.0060***	0.0823 0.0120**	0.0551 0.0929*	1.0000
LEVERAGE	0.0117 0.7209	-0.0015 0.9646	0.0927 0.0047***	-0.0696 0.0339**	-0.0785 0.0167**	-0.1193 0.0003***	-0.1105 0.0007** *	0.0105 0.7490	-0.0857 0.0089**
TENURE	0.0737 0.0247**	-0.0364 0.2678	-0.1019 0.0019***	0.0235 0.4737	0.0509 0.1213	0.3085 0.0000***	0.2881 0.0000** *	-0.0894 0.0064** *	-0.0528 0.1076
ASSET	-0.1943 0.0000** *	0.2769 0.0000** *	0.2421 0.0000***	0.3879 0.0000***	-0.1662 0.0000** *	0.1044 0.0014***	-0.0697 0.0336**	0.2488 0.0000** *	0.2713 0.0000** **
MBRATIO	-0.2241 0.0000** *	0.2460 0.0000** *	-0.0220 0.5022	0.0161 0.6234	-0.0297 0.3658	0.0092 0.7806	-0.0321 0.3284	0.0740 0.0240**	0.0321 0.3281
MARKETCON	-0.0648 0.0483**	0.0843 0.0101**	0.1408 0.0000***	0.2488 0.0000***	-0.0122** 0.7104	0.1729 0.0000***	-0.0216 0.5105	0.1391 0.0000** *	0.1279 0.0001** **
MARKETCAP	-0.5497 0.0000** *	0.6453 0.0000** *	0.0573 0.0808*	0.2259 0.0000***	-0.1258 0.0001** *	0.0185 0.5729	-0.0719 0.0283**	0.1774 0.0000** *	0.1333 0.0000** **
ROA	-0.1859 0.0000** *	0.1865 0.0000** *	-0.0867 0.0082***	0.0087 0.7907	0.0006 0.9856	0.0693 0.0348**	0.0992 0.0025** *	0.0869 0.0080** *	0.1175 0.0003** **

	LEVERAG E	TENURE	ASSET	MBRATIO	MARKETCO N	MARKETCA P	ROA
LEVERAGE	1.0000						
TENURE	0.0264 0.4216	1.0000					
ASSET	0.0617 0.0599*	0.0884 0.0070** *	1.0000				
MBRATIO	-0.0986 0.0026***	-0.0682 0.0374**	0.0852 0.0093***	1.0000			
MARKETCON	-0.1282 0.0001***	-0.0713 0.0297**	0.0866 0.0082***	0.0606 0.0645*	1.0000		
MARKETCAP	-0.0718 0.0286**	-0.0819 0.0124**	0.4854 0.0000***	0.1388 0.0000***	0.0917 0.0051***	1.0000	
ROA	-0.3603 0.0000***	0.0092 0.7783	0.1411 0.0000***	0.1141 0.0005***	0.0623 0.0577*	0.3045 0.0000***	1.0000

TOTALRISKS is the annual standard deviation of the 12 months' stock returns. SYSTEMATIC RISK is the daily annual standard deviation of stock returns minus the annual standard deviation of the residuals, e_{it} , over the 12 months period. ETHNICITY is ratio of Bumiputera directors (ethnic Malay directors) to the total number of directors on the board. DFOWN is percentage of direct family managerial ownership. IDFOWN is percentage of indirect family managerial ownership. INSTOWN is total percentage made up of the top 5 institutional investors (Employees Provident Fund, Lembaga Tabung Angkatan Tentera, Permodalan Nasional Berhad, Lembaga Tabung Haji and National Social Security Organization of Malaysia (PERKESO). FAMPERCENT is the percentage family members on the board over total number of directors on the board. BIG4 is the indicator variable with the value of "1" if audited by Big 4 and "0" indicates otherwise. BSIZE is the number of directors in the board. LEVERAGE is the current liabilities over total assets. TENURE is the total number of years of service of the chief executive officer. ASSET is the total assets (MYR'000). MBRATIO is the market value of equity/book value of equity. MARKETCAP is log market capitalization (MYR'000). MARKETCONCENTRATION is the combined number of significant shareholders (more than 5% shares ownership) over total number of ordinary shares. ROA is the return on assets.

Table 4: Regression Output (PCSEs)(TOTALRISK)-Ethnicity, institutional ownership and family ownership

		No moderating effect	
	Exp.	Coefficient	z
ETHNICITY	+/-	-0.0756***	-4.75
INSTOWN	+/-	0.001	1.42
DFOWN	-	-0.00060***	-3.09
IDFOWN	-	-0.0002*	-1.66
FAMPERCENT	-	-0.0407***	-2.84
BIG4	+/-	-0.0055	-1.55
BSIZE	+/-	0.0282	1.06
LEVERAGE	+/-	-0.0102	-0.74
TENURE	+/-	0.0139	1.08
ASSET	+/-	-0.0077	-0.53
MBRATIO	+/-	-0.0002	-0.72
MARKETCON	+/-	0.0074	1.32
MARKETCAP	+/-	0.0065	1.22
ROA	+/-	-0.0001	-1.28
CONSTANT		0.0259	0.28
R-squared		0.1751	

TOTALRISKS is the annual standard deviation of the 12 months' stock returns. SYSTEMATIC RISK is the daily annual standard deviation of stock returns minus the annual standard deviation of the residuals, e_{it} , over the 12 months period. ETHNICITY is ratio of Bumiputera directors (ethnic Malay directors) to the total number of directors on the board. DFOWN is percentage of direct family managerial ownership. IDFOWN is percentage of indirect family managerial ownership. INSTOWN is total percentage made up of the top 5 institutional investors (Employees Provident Fund, Lembaga Tabung Angkatan Tentera, Permodalan Nasional Berhad, Lembaga Tabung Haji and National Social Security Organization of Malaysia (PERKESO). FAMPERCENT is the percentage family members on the board over total number of directors on the board. BIG4 is the indicator variable with the value of "1" if audited by Big 4 and "0" indicates otherwise. BSIZE is the number of directors in the board. LEVERAGE is the current liabilities over total assets. TENURE is the total number of years of service of the chief executive officer. ASSET is the total assets (MYR'000). MBRATIO is the market value of equity/book value of equity. MARKETCAP is log market capitalization (MYR'000). MARKETCONCENTRATION is the combined number of significant shareholders (more than 5% shares ownership) over total number of ordinary shares. ROA is the return on assets.

Table 5: Regression Output (PCSEs)(TOTALRISK)- Ethnicity, institutional ownership and family ownership

	Exp.	Model 2 <i>ETHNICIT</i> <i>Y*</i> <i>INSTOWN</i>		Model 3 <i>ETHNICITY*</i> <i>IDFOWN</i>		Model 4 <i>ETHNICITY*</i> <i>IDFOWN</i>	
		Coefficient	z	Coefficient	z	Coefficient	z
ETHNICITY	+/-	-0.0529***	0.000	-0.0764***	-4.80	-0.0708***	0.000
INSTOWN	+/-	0.0014**	0.024	0.0012	1.42	0.0013	0.139
DFO WN	-	-0.0005***	0.000	-0.0001	-0.49	-0.0005***	0.005
IDFOWN	-	-0.0001	0.553	-0.0002	-1.54	-0.00001	0.942
ETHNICITY*DFO WN/IDFOWN/INS TOWN	-	-0.0013	0.288	-0.0012	-1.47	0.00004	0.922
FAMPERCENT	-	-0.0558***	0.000	-0.0444***	-2.95	-0.0499***	0.001
BIG4	+/-	-0.0067	0.109	-0.0033	-0.96	-0.0044	0.154
BSIZE	+/-	0.0411	0.106	0.0265	1.00	0.0335	0.210
LEVERAGE	+/-	-0.0212	0.123	-0.0107	-0.76	-0.0100	0.472
TENURE	+/-	0.0120	0.229	0.0137	1.06	0.0112	0.375
ASSET	+/-	-0.0034	0.726	-0.0071	-0.61	-0.0084	0.543
MBRATIO	+/-	-0.0002	0.447	-0.0002	-0.83	-0.0003	0.258
MARKETCON	+/-	0.0046	0.471	0.0078	1.40	0.0057	0.341
MARKETCAP	+/-	0.0060	0.287	0.0067	1.24	0.0050	0.325
ROA	+/-	-0.0001	0.157	-0.0001	-1.30	-0.0001	0.196
CONSTANT		0.0032	0.962	0.0204	0.24	0.0436	0.623
R-SQUARED		0.1357		0.1811		0.1798	

Table 6: Regression Output (PCSEs) SYSTEMATICRISK- Ethnicity, institutional ownership and family ownership

No moderating effect			
	Exp.	Coefficient	z
ETHNICITY	+/-	-0.0817***	-3.02
INSTOWN	+/-	-0.0010	-1.63
DFOWN	-	0.00001	0.06
IDFOWN	-	-0.0004	-1.51
FAMPERCENT	-	0.0591	1.62
BIG4	-	-0.0283***	-3.13
BSIZE	+/-	0.1230**	2.11
LEVERAGE	+/-	-0.0629	-1.59
TENURE	+/-	0.0117	0.91
ASSET	+/-	0.0578***	2.78
MBRATIO	+/-	-0.0034	-0.66
MARKETCON	+/-	0.0023	0.14
MARKETCAP	+/-	-0.0566***	-5.06
ROA	+/-	-0.0002	-0.71
CONSTANT	+/-	0.2372***	3.30
R-squared			0.1840

TOTALRISKS is the annual standard deviation of the 12 months' stock returns. SYSTEMATIC RISK is the daily annual standard deviation of stock returns minus the annual standard deviation of the residuals, e_{it} , over the 12 months period. ETHNICITY is ratio of Bumiputera directors (ethnic Malay directors) to the total number of directors on the board. DFOWN is percentage of direct family managerial ownership. IDFOWN is percentage of indirect family managerial ownership. INSTOWN is total percentage made up of the top 5 institutional investors (Employees Provident Fund, Lembaga Tabung Angkatan Tentera, Permodalan Nasional Berhad, Lembaga Tabung Haji and National Social Security Organization of Malaysia (PERKESO). FAMPERCENT is the percentage family members on the board over total number of directors on the board. BIG4 is the indicator variable with the value of "1" if audited by Big 4 and "0" indicates otherwise. BSIZE is the number of directors in the board. LEVERAGE is the current liabilities over total assets. TENURE is the total number of years of service of the chief executive officer. ASSET is the total assets (MYR'000). MBRATIO is the market value of equity/book value of equity. MARKETCAP is log market capitalization (MYR'000). MARKETCONCENTRATION is the combined number of significant shareholders (more than 5% shares ownership) over total number of ordinary shares. ROA is the return on assets.

Table 7: Regression Output (PCSEs) SYSTEMATICRISK - Ethnicity, institutional ownership and family ownership

	Exp.	Model 2 <i>ETHNICITY*</i> <i>INSTOWN</i>		Model 3 <i>ETHNICITY*</i> <i>DFOWN</i>		Model 4 <i>ETHNICITY*</i> <i>IDFOWN</i>	
		Coefficient	z	Coefficient	z	Coefficient	z
ETHNICITY	+/-	-0.0637**	-2.26	-0.0774***	-2.65	-0.0833**	-2.59
INSTOWN	+/-	-0.00005	-0.08	-0.0009	-1.54	-0.0010*	-1.67
DFOWN	-	0.00006	0.21	0.0004	1.27	-0.000001	-0.01
IDFOWN	-	-0.0002	-1.03	-0.0004	-1.48	-0.0005	-1.29
ETHNICITY*DFOWN/IDF OWN/INSTOWN	-	-0.00201	-1.07	-0.0007	-0.70	0.0001	0.16
FAMPERCENT	-	0.0582*	1.67	0.0564	1.58	0.0586*	1.66
BIG4	-	-0.0240***	-2.84	-0.0291***	-3.20	-0.0279***	-3.10
BSIZE	+/-	0.1229**	2.08	0.1192**	2.08	0.1261**	2.16
LEVERAGE	+/-	-0.0677*	-1.71	-0.0627	-1.58	-0.0639	-1.59
TENURE	+/-	0.0076	0.58	0.0110	0.84	0.0112	0.84
ASSET	+/-	0.0627***	2.86	0.0588***	2.83	0.0557***	2.76
MBRATIO	+/-	-0.0035	-0.67	-0.0034	-0.66	-0.0034	-0.65
MARKETCON	+/-	-0.0040	-0.24	0.0026	0.17	0.0013	0.08
MARKETCAP	+/-	-0.0584***	-5.01	-0.0569***	-5.10	-0.0562***	-5.05
ROA	+/-	-0.0003	-0.76	-0.0002	-0.73	-0.0002	-0.71
CONSTANT		0.2362***	3.58	0.2371***	3.25	0.2433***	3.16
R-SQUARED		0.1883		0.1837		0.1843	

4.0 Empirical results and discussion

Table 4 and 5 report the regression analysis when TOTALRISK is the dependent variables. Whereas Table 6 and 7 report the regression analysis when SYSTEMATICRISK is the dependent variables. Both Table 4 and 6 report the regression analysis without the moderating variables. In Table 4, when TOTALRISK is the dependent variable, our results support the first hypothesis of the study (*Ethnicity influences firms' risk*). The estimated coefficient of ETHNICITY is -0.0756 and is statistically significant at 1% level (z-statistics= -4.75). Consistently in Table 6, when SYSTEMATICRISK is the dependent the result is still significant at 1% level (Coefficient =-0.0817, z-statistics= -3.02). Therefore, our findings consistently support hypothesis H1A. The r-square for both analysis when TOTALRISK and SYSTEMATIC RISK is the dependent variable are 17.51% and 18.40% consequently.

Our results support the previous studies that due to ethnic Malays attitude for collectivism, ethnic Malays prefers to take less risks and preserve the long-term interest of the stakeholders. Further due to unknown risks, ethnic Malays prefers less risks to avoid negative publicity of their actions (Ashraf et al.,2016). Not only that, due to strong family values, ethnic Malays are more inclined to steer away from excessive risk to preserve the family business (Tehseen and Anderson, 2020; Manogna et al. 2020).The Islamic finance principles practice by most ethnic Malays encourage transparency, disclosures and ethical business principles led them to be more prudent in their investment(Abdul Rahman & Ali, 2006; Haniffa & Cooke, 2002).

This finding also support previous studies that ethnic Malays are conservative entrepreneurs, risk averse and are attached to the family cultural tradition (Tehseen and Anderson, 2020). Table 5 and 7 reports the results of hypothesis H1B (*Ethnicity moderated by institutional ownership influences firms' risk*) and H1C (*Ethnicity moderated by direct and indirect family ownership reduced firms' risk*). All the results are statistically insignificant at 10% significant level. Accordingly, we fail to support the moderation effect of DFWN, IDFWN, INSTOWN on ETHNICITY. Our results indicate that ownership structure in the form of both institutional and family, fail to influence board ethnicity and firms' risks. Though culture and ownership work interchangeably, but the influence of culture is more prevalent in Malaysia manufacturing firms. Thus, high concentrated ownership in the form of family and institutional, have no effect of ethnic Malays risk taking activities.

5.0 The conclusion and discussion

The purpose of this study is to investigate the roles of board ethnicity in reducing firms' risk in Malaysian manufacturing firms. The effect of board ethnicity is investigated via 930 firm-year observations between the fiscal years of 2004 and 2009 of Bursa Malaysia listed firms during the global financial crisis. During this period, manufacturing firms are affected due to slower demand from the global market and there is great tendency for firms to take more risks. We explore the effect of culture and ownership structure by using family and institutional ownership as the interaction variables. Our results conclude that ethnic Malays prefer less risks and more conservative in their decision.

Even though Malaysia is highly concentrated with both institutional and family ownership, there is no evidence to suggest ownership influence firms' risk. There is stronger effect of culture whereby ethnic Malays attitude for collectivism and concern for family values led to lower risks (Tehseen and Anderson, 2020; Manogna et al. 2020). The attitude for better disclosures and Islamic business ethics encourages ethnic Malays to be more judicious in their decisions and activities (Abdul Rahman & Ali, 2006; Haniffa & Cooke, 2002).

The findings of these studies have several implications. Firstly, the business ethics and culture influence firms' activities. Though Malaysia is one of the countries with low uncertainty avoidance and prefer less rules and regulations, the nature of thinking for most ethnic Malays are highly dominated by their attitude towards collectivism. Secondly, since our study are restricted on manufacturing firms, there is evidence to suggest that manufacturing industry are not influence by the ownership structure, and operate conservatively to ensure protection over investors' investment. Thirdly, Malaysia as a country with low uncertainty avoidance, have their own internal measures of rules and guidance in investment, and not influence by institutional environment in which it operates.

Future studies should look into the effect of other ethnics and industry in Malaysia where strong ownership of family and institutional ownership is observed. Corporate risks taking differs for firms that operate globally and locally, thus future studies should focus on these characteristics to further understand the implication of culture on firms' risk.

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