

# CFO Attributes and Corporate Risk Management: Evidence from Top 100 Firms in Malaysia

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## ABSTRACT

*The research aims to investigate the relationship between Chief Financial Officer (CFO) attributes and corporate risk management of the Top 100 Firms in Malaysia. A sample of 8 years from 2012 to 2019 with 704 observations excluding financial firms is used. Corporate risk management is measured by two proxies: hedging decisions and the usage of financial derivatives. The independent variables are CFO attributes (age, gender, education level, professional qualification, tenure, and nationality). This study is controlled with leverage, firm size, profitability, cost of financial distress, and capital expenditure. Panel logistic regression is conducted to analyse the relationship between the CFO attributes and hedging decisions. Based on the main findings, CFO age, gender, education level, and nationality significantly impact corporate risk management. In contrast, CFO professional qualification and tenure do not impact corporate risk management in this study. This research makes a*



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*valuable contribution to policymakers by enhancing their understanding of risk management regulations. The study provides crucial insights for Malaysian firms, helping them make informed decisions regarding capital raising, investments, and risk management. Moreover, the findings empower CFOs with valuable knowledge about the relevance of their attributes in effectively managing corporate risk through hedging activities.*

**Keywords:** *Chief Financial Officer; Corporate Risk Management; Hedging Decision; Financial Derivatives*

## **INTRODUCTION**

Sophisticated economic conditions have led to a massive range of risks organisations face that lead to significant impacts. As a result, corporate risk management has increased significantly over the last decade. The economic crisis and uncertainty's negative effects require companies worldwide to manage risk effectively. Consequently, corporate risk management is an important part of the business strategy. It is introduced as a risk reduction and mitigation approach to the lowest risk level for the organisation's survival (Ramlee & Ahmad, 2020).

It is assumed that using derivatives efficiently can decrease the degree of risk, raise the rate of return, and thus increase the company's financial stability (Rao, 2012). The role of corporate risk management is generally seen as the methods and practices by which managers define the types and levels of risk exposure faced by their companies. Thus, it equips the companies with the appropriate tools to better identify and deal with potential risks. It is believed that the practices of risk management can assist the firm in value creation, reduce the risk of going bankrupt (Servaes et al., 2009), increase the ability to identify, manage, and mitigate risks (Fraser & Simkins, 2016) and good governance practices (Kaen, 2005). These benefits attract firms to use derivatives as a tool to mitigate their firms' risks.

The Chief Financial Officer (CFO) 's role in risk management has rapidly expanded recently. ACCA Global (2012) survey revealed that 72% of financial executives had adopted organisational risk management

practices. Other than that, results from Deloitte's (2018) CFO Signals survey showed that over 60% of CFOs were responsible for internal auditing, with 55% of the CFOs claiming that they were responsible for corporate risk management of their companies. The CFOs also noted expanding their roles and responsibilities toward risks in the next three years (Deloitte, 2018).

CFO's roles and responsibilities have experienced a significant change in recent years. Traditionally, the CFO has three primary tasks: the company's books and accounts, financial statements, and regulatory enforcement. Today, CFOs use their experience and knowledge to guide and lead companies (Ismail et al., 2021). There is a demand for the active participation of CFOs in corporate decision-making, including disclosure of financial performance and other functional roles (Datta & Iskandar-Datta, 2014). However, CFOs' individual traits or qualities do not seem to influence their decisions regarding risky financial strategies for the company (Hecht, 2021). Hence, the extent to which CFO attributes will affect corporate risk management will be discussed in this study.

Nowadays, most firms face challenges in the competitive derivatives markets regardless of how big or stable. As a result, corporate consideration of using derivatives has grown in risk management strategy to shield themselves against risk. International Swaps and Derivatives Association (ISDA) claimed that the probability of hedging failure and misuse of derivatives in the firms causes the market to be volatile thus, the firms will face a higher level of risk. Financial hedging can cause entrenched managers to overinvest (Alexandridis et al., 2021). Therefore, firms should develop an effective risk management policy to benefit derivatives users (Bacha, 2004). Meanwhile, fewer studies focus on the CFO attributes towards corporate risk management using derivatives in the Malaysian context.

Hence, the main purpose of conducting this study is to fill the research gap between CFO attributes and corporate risk management. Instead of the CRO, this study focuses on the CFO, as the CFO is responsible for the firms' financial control and financial resource allocation. Thus, the CFO will know the firms' financial conditions better than other managers and can make better decisions regarding the need for derivatives. This research study attempts to contribute to the extent of top

firms in mitigating risks. In addition, this study also intends to highlight the CFO's role to policymakers. Policymakers should emphasise the CFO's role in making risk management policies and regulations.

## **LITERATURE REVIEW**

### **Theoretical Framework**

The paper discusses three theories: Prospect Theory, Upper Echelon Theory, and Agency Theory. Firstly, Prospect Theory was discovered by Kahneman and Tversky (2013) as an alternative model for expected utility theory. The theory posits that an individual tends to evaluate gains or losses value rather than the outcomes when making a decision.

Second, Hambrick and Mason (1984) introduced the Upper Echelon Theory based on the principle that the top management team's (TMT) managerial characteristics, particularly past experiences, beliefs, and personalities, can influence their decision-making in an organisation. They claimed that the TMT would perform according to their background knowledge, experiences, beliefs, and personal traits. Thus, they suggested that this theory would further assist an organisation in forecasting their firm's performance.

Agency Theory was introduced by Jensen and Meckling (2019) to identify and overcome agency problems that arise between principals and agents. Both parties were found to have different perspectives on interest and risk preferences (Eisenhardt, 1989) and would cause agency costs (Tufano, 1998). The principals (owners or shareholders) hire agents (managers) to manage the organisations on their behalf. The principals believe the agents would act in their best interest. However, since the agents have no firm ownership, they would not put more effort into increasing shareholder value. Thus, the shareholders would give ownership to the managers to maximise their wealth. As a result, the managers would be more motivated to increase the firm's profitability by mitigating and reducing risk by using derivatives to manage corporate risk. For example, a previous study pointed out that hedging could reduce agency problems and costs (Magnani et al., 2022).

## Empirical Evidence and Hypotheses Development

According to the Upper Echelon Theory, the personal characteristics of the top management team are strongly related to firm financing decision-making and attitudes towards risk (Hambrick & Mason, 1984). Johnson and Tversky's (1983) findings are consistent with cognitive psychology and economics that influence managerial risk aversion on corporate strategies and can be altered by personal attributes and human experience. This study adopted CFO personal attributes (age, gender, educational background, tenure, and nationality) to test whether these attributes have a significant relationship with corporate risk management in Malaysian firms.

Considering age, many studies found that the managers' age has a positive relationship with the company's productivity and thus increases the effectiveness in making the decision. Naranjo-Gil et al. (2009) indicated that older CFOs are less risk-taking in corporate decisions. According to previous studies, it is noticed that older managers are more risk-taking while younger managers are more risk-averse (Burg et al., 2013; Peltomäki et al., 2015; Entrop & Merkel, 2020). However, evidence also states that older managers are more risk-averse and thus, young managers are more risk-taking (MacCrimmon & Wehrung, 1990; Golec, 1996; Naranjo-Gil et al., 2009) towards corporate risk management. Overall, the findings reported a significant relationship between age and corporate risk management. Therefore, this hypothesis was posited:

*H1: There is a significant relationship between CFO age and corporate risk management in Malaysian firms.*

Gender diversity is not a new issue in the corporate world. It is believed that different gender has different risk preferences in making firm decisions. Several studies found that female managers are more risk-taking as compared to male managers in making derivative decisions (Bezzina & Grima, 2012; Peltomäki et al., 2015). On the other hand, Hurley and Chouhary (2020) claimed that women managers are risk-averse and thus use more derivatives. There are also scholars who include that male managers were risk-taking in using derivatives (Entrop & Merkel, 2020). Hence, the results show that gender impacts corporate risk management. The following hypothesis is set as below:

*H2: There is a significant relationship between CFO gender and corporate risk management in Malaysian firms.*

Many scholars claim that education level and professional qualification are associated with corporate risk management (Ojeka et al., 2019); education in business study without a Degree or Ph.D. (Entrop & Merkel, 2020) and managers with higher education level lead to risk-taking behaviour (MacCrimmon & Wehrung, 1990); those with MBA degree is more risk-taking (Golec, 1996); and managers with higher level education have better knowledge in derivatives (Bezzina & Grima, 2012). Ameer and Abdullah (2011) and Cummins et al. (2001) found that CFOs with professional qualifications tend to hedge against risk. Firms' CFOs can make better decisions with their educational knowledge. Therefore, it can be concluded that educational background is important in corporate risk management. Hence, the following hypothesis was developed.

*H3: There is a significant relationship between CFO education background and corporate risk management in Malaysian firms.*

As for tenure, several researchers found that long-tenured managers use fewer derivatives to hedge against risk (MacCrimmon & Wehrung, 1990; Huang et al., 2007; Entrop & Merkel, 2020). found that longer-tenure executive is more risk-averse, and their empirical results showed seniority positively correlates to risk preferences. On the other hand, Golec (1996) found that longer-tenure CFOs are risk-taking and significantly positive towards risk management. It can be concluded that a manager who has been working for a longer time in the company is more risk-taking. Therefore, this hypothesis was formulated:

*H4: There is a significant relationship between CFO tenure and corporate risk management in Malaysian firms.*

Previous research suggested a relationship between CFO nationality and corporate risk management. However, Chong et al. (2014) found no evidence to prove the usage of derivatives and hedging by the CFOs in their sample. Meanwhile, empirical studies also conclude that local and non-local managers tend to hedge, as shown in the studies conducted by Yau (2017) and Mendenhall and Oddou (1985). Foreign executives would face cultural toughness probably due to politics,

regulations, socio-economic conditions and the host country's environment. In terms of corporate decision-making, TMTs are strongly embedded in their respective cultures, and their nationality heavily influences their strategic approach. Therefore, the following hypothesis was developed.

*H5: There is a significant relationship between CFO nationality and corporate risk management in Malaysian firms.*

## **METHODOLOGY**

### **Corporate Risk Management**

Corporate risk management as the dependent variable is measured by derivatives in Malaysian firms. Previous research by El-Masry (2006), Servaes et al. (2009), and Bodnar et al. (2011) proved that most corporations used derivatives to minimise and mitigate risks. Research conducted by El-Masry (2006) shows that public firms tend to implement derivatives compared to private firms. Hence, Malaysian publicly listed companies are taken to identify corporate risk management practices. In this paper, corporate risk management is measured using two proxies, hedging decisions and usage of derivatives. This paper employed methodology from Iqbal (2015) and Yau (2017), which measures hedging decisions using dummy variables. For firms that hedge, it is coded as 1. Otherwise, 0 for firms that do not hedge. Another proxy used to measure corporate risk management is the magnitude of derivatives usage. It is calculated by the natural logarithm of total derivatives (Bartram, 2000; Kaen, 2005).

### **The Estimation Model**

This paper employed several control variables that potentially influence corporate risk management. Firstly, firms with higher leverage tend to hedge using derivatives (Bodnar et al., 2011; Netti, 2018). Warner (1977) theorises that as compared to larger firms, smaller firms face proportionally higher costs of financial distress; hence smaller firms have stronger incentives to implement risk management practices, thereby reducing the financial distress costs. Another argument is that firm size

and the usage of financial risk management are positively correlated because of the advantages of economies of scale in transaction and administration costs. Bartram (2000) predicts that firms with higher ROA tend to be hedged with derivatives. Firms with higher expected financial distress costs tend to hedge the risk, thus increasing the usage of derivatives. Firms with bigger capital expenditures normally have extra cash for business acquisitions (Opler et al., 1999). Therefore, the baseline model (1) is developed as below:

$$CRM_{i,T} = \beta_0 + \beta_1 LEV_{i,t} + \beta_2 FS_{i,t} + \beta_3 ROA_{i,t} + \beta_4 CFD_{i,t} + \beta_5 CAPEX_{i,t} + \varepsilon_{i,T} \quad (1)$$

The firm and time dimensions of data are represented by *i* and *t* symbols. As mentioned in the previous section, CRM represents the hedging decision measured using dummy variables. LEV is proxy by the total debt to total asset ratio. FS represents firm size measured by the natural logarithm of total assets. ROA indicates firm profitability, measured by dividing net income by total assets. The cost of financial distress is represented by CFD, controlled by the ratio of total debt to total sales. CAPEX is calculated by dividing capital expenditure by total sales to measure firms' investment growth opportunities.

## **CFO Attributes**

CFO age is expected to exhibit a positive relationship with corporate risk management. It indicates that as people age, they tend to be risk-averse and hedge against risk (MacCrimmon & Wehrung, 1990; Burg et al., 2013; Entrop & Merkel, 2020). Meanwhile, general beliefs and assumptions state that people's willingness to take risks declines with age (Dohmen et al., 2018). Following Johnsson and Vegelius (2018), age is measured by the manager's age in years at the time of measurement. Model 2 is developed as below:

$$CRM_{i,T} = \beta_0 + \beta_1 AGE_{i,t} + \beta_2 LEV_{i,t} + \beta_3 FS_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CFD_{i,t} + \beta_6 CAPEX_{i,t} + \varepsilon_{i,T} \quad (2)$$

Besides, gender is expected to show behavioural differences in making firm decisions. In this paper, it is expected that CFO gender has a positive relationship with corporate risk management (Entrop & Merkel,



2020; Hurley & Chouhary, 2020). It indicates that male CFOs tend to hedge and use more derivatives in managing corporate risk. Therefore, CFO gender is measured by a dummy variable, whereby the male is equal to 1 while the female is equal to 0 (Yau, 2017; Johnsson & Vegelius, 2018). Hence, model 3 is developed as shown below:

$$CRM_{i,T} = \beta_0 + \beta_1 GEN_{i,t} + \beta_2 LEV_{i,t} + \beta_3 FS_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CFD_{i,t} + \beta_6 CAPEX_{i,t} \quad (3)$$

As for the educational background, it is expected to show a positive sign in corporate risk management, and CFOs with higher education tend to hedge and use more derivatives. The first proxy, education level, is measured using a scale range with five different levels of education. The measurements are 1 for a Diploma, 2 for a Bachelor's degree, 3 for a Master's degree, 4 for a Doctoral degree, and 5 for a professional certificate (Han et al., 2015; Johnsson & Vegelius, 2018). Meanwhile, the second proxy, professional qualification, is measured by dummy variables, 1 for the CFO with a professional certificate and 0 otherwise (Ojeka et al., 2019). Hence, model 4 is set as shown below:

$$CRM_{i,T} = \beta_0 + \beta_1 EDU\_LEVEL_{i,t} + \beta_2 PRO\_Q_{i,t} + \beta_3 LEV_{i,t} + \beta_4 FS_{i,t} + \beta_5 ROA_{i,t} + \beta_6 CFD_{i,t} + \beta_7 CAPEX_{i,t} + \varepsilon_{i,T} \quad (4)$$

CFO tenure, on the other hand, is expected to exhibit a negative relationship with corporate risk management. This case shows that the long-tenured CFO tends to use less hedging and risk-taking in making derivative decisions. By following the method used by Golec (1996) and Yau (2017), tenure is measured by the number of years the executive is appointed as CFO. Model 5 is as shown below:

$$CRM_{i,T} = \beta_0 + \beta_1 TENURE_{i,t} + \beta_2 LEV_{i,t} + \beta_3 FS_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CFD_{i,t} + \beta_6 CAPEX_{i,t} + \varepsilon_{i,T} \quad (5)$$

Similarly, CFO nationality is expected to affect corporate risk management in this study negatively. Thus, it implies that non-local CFOs tend to hedge and use more derivatives than local CFOs. This paper employed the method Chong et al. (2014) and Yau (2017) used to measure nationality with a dummy variable, whereby Malaysian CFO is equal to 1, otherwise 0. Hence, model 6 is set as shown below:

$$CRM_{i,T} = \beta_0 + \beta_1 NAT_{i,t} + \beta_2 LEV_{i,t} + \beta_3 FS_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CFD_{i,t} + \beta_6 CAPEX_{i,t} + \varepsilon_{i,T} \quad (6)$$

Finally, a full model (7), which consists of all independent and control variables to measure the dependent variable, is developed as:

$$CRM_{i,T} = \beta_0 + \beta_1 AGE_{i,t} + \beta_2 GEN_{i,t} + \beta_3 EDU\_LEVEL_{i,t} + \beta_4 PRO\_Q_{i,t} + \beta_5 TENURE_{i,t} + \beta_6 NAT_{i,t} + \beta_7 LEV_{i,t} + \beta_8 FS_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CFD_{i,t} + \beta_{11} CAPEX_{i,t} + \varepsilon_{i,T} \quad (7)$$

This paper focuses on the Chief Financial Officers (CFOs) of the Top 100 Firms in Malaysia based on their market capitalization. A total of 800 observations from the year 2012 to 2019 have been selected to carry out this study. However, after excluding financial firms from the sample data, the number of observations decreased to 704 firms. Data on CFO attributes were collected manually from the annual reports which are accessible on Bursa Malaysia's official website as well as the respective company's website. The annual reports and Orbis database obtained data for dependent and control variables. All collected data were transformed into Excel format and then analysed using statistical analysis software SPSS and STATA16.

## RESULTS AND DISCUSSIONS

### Descriptive Statistical Analysis

Table 1 summarises all the variables consisting of the number of observations, means, standard deviations, and minimum and maximum values. The average total derivatives used is RM912 million, and 74.15% of the sample firms hedge against firms' risk. The average age of a CFO is 49.1956 years; the youngest and oldest are 35 and 67, respectively. Interestingly, 65.26% of them are male CFOs. Most of our sample CFOs have bachelor's degree education, with 90.22% possessing professional qualifications. Aside from that, the CFO has a mean tenure of 4.6 years. As for nationality, 86.17% of them are Malaysian. Based on Table 1, 36.74% of firm assets are financed by leverage (debt). Firm size and profitability have a mean value of 6.7271 and 7.7956%, respectively. As for the cost of financial distress, 8.3019% of total sales is used to pay off the firm's debt, while 6.2544% of the firm's total assets is used for capital expenditure.

**Table 1**  
*Summary of Descriptive Statistics Analysis*

<b>Variables</b>	<b>Obs.</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Min.</b>	<b>Max.</b>
Total Derivatives (RM'000)	366	912,292	5,407,785	0	74,298,721
Hedge or Not to Hedge	704	0.7415	0.4381	0	1
CFO Age	593	49.1956	6.2872	35	67
CFO Gender	593	0.6526	0.4765	0	1
CFO Education Level	593	3.2159	1.3571	1	5
CFO Professional Qualification	593	0.9022	0.2973	0	1
CFO Tenure	593	4.5616	3.6186	1	19
CFO Nationality	593	0.8617	0.3455	0	1
Leverage (LEV)	692	36.7443	106.5399	0	261.9265
Firm Size (FS)	692	6.7271	0.7042	0	8.2525
Return on Assets (ROA)	692	7.7956	9.4023	-42.289	75.3990
Cost of Financial Distress (CFD)	692	8.3019	126.9728	0	11.7576
Capital Expenditure (CAPEX)	671	6.2544	28.8220	-40.1397	293.7163

## Correlation Coefficient

Table 2 shows the correlation matrix of all variables used in the paper. From the result, CFO age, gender, and firm size are positively correlated and significant at a 1% significance level towards hedging decisions. However, CFO education level, nationality, and leverage have a significant negative relationship with hedging decisions at a 1% significance level. Aside from that, CFO professional qualification, tenure, profitability, cost of financial distress, and capital expenditure show an insignificant relationship towards hedging decisions. In the context of using derivatives, it is found that CFO gender, leverage, and capital expenditure are positively significant. On the other hand, CFO age, nationality, firm size, and profitability are significantly negative towards using derivatives. Several variables show an insignificant relationship with the usage of derivatives: education level, professional qualification, tenure, and cost of financial distress. It indicates that these variables have no relationship with the usage of derivatives.

**Table 2**  
Correlation Matrix of All Variables

	HEDGE_ NOT TO HEDGE	TDER	AGE	GEN	EDU LEVEL	PRO_Q	TENU-RE	NAT	LEV	FS	ROA	CFD	CAPEX
HEDGE_ NOT TO HEDGE	1												
TDER		1											
AGE	0.200***	0.131***	1										
GEN	0.187***	0.129**	0.095**	1									
EDU LEVEL	-0.216***	-0.083	0.147***	0.043	1								
PRO_Q	-0.065	0.053	-0.02	-0.073*	0.186***	1							
TENURE	0.007	0.014	0.329***	0.04	0.115***	-0.009	1						
NAT	-0.189***	0.168***	-0.072*	0.138***	0.197***	0.378***	0.13***	1					
LEV	-0.122***	0.289***	0.043	-0.07*	0.015	0.014	-0.032	0.003	1				
FS	0.283***	-0.128**	0.302***	0.006	0.156***	0.105**	0.105**	-0.072*	0.113***	1			
ROA	-0.042	-0.122**	0.231***	0.102**	-0.101**	0.192***	0.137***	0.245***	0.098**	0.345***	1		
CFD	-0.004	-0.024	-0.041	-0.088**	-0.029	0.192***	-0.025	0.025	0.005	-0.017	-0.064*	1	
CAPEX	-0.063	0.282***	-0.043	0.095**	-0.008	0.039	0.048	0.071*	0.084**	0.289***	0.085**	0.01	1

Significance level: p<0.01\*\*\*, p<0.05\*\*, p<0.1\*

## **Main Findings**

Table 3 describes panel logistic regression results for CFO attributes and hedging decisions. Model 1 consists of 644 observations, while the rest of the models consist of 529 observations. The pseudo-R-squared for all the models ranges between 0.2009 to 0.3169. The likelihood ratios for all the models range from 118.10 to 186.23. Initially, Model 1 includes all control variables used in this study. Of four control variables, only one variable, FS (firm size), is significant towards hedging decisions at a 1% significance level. It indicates that a larger firm size is more likely to hedge. Meanwhile, LEV, ROA, CFD, and CAPEX are insignificant in Model 1, showing no relationship towards hedging decisions.

The study added CFO age, gender, education level, tenure, and nationality into Models 2, 3, 4, 5, and 6, respectively. As shown in Table 3, CFO age and gender are positively significant towards hedging decisions at a 1% significance level. It can be implied that older CFOs have a higher likelihood to hedge. The study claimed that older CFOs and managers are more risk-averse than younger managers in making decisions (Beber & Fabbri, 2012; Burg et al., 2013; Entrop & Merkel, 2020). Thus, older CFOs tend to use derivatives as hedging tools. As for CFO gender, male CFOs have the likelihood to hedge. The result is consistent with Bezzina and Grima's (2012) and Entrop and Merkel's (2020) findings that male CFOs used more derivatives than female CFOs to hedge against firms' risk.

Model 4 is a proxy using education background and professional qualification, whereby both proxies are negatively significant towards hedging decisions at 1% and 5% significance level, respectively. This indicates that CFOs with higher education levels and professional qualifications tend not to hedge against firms' risk in corporate risk management. CFO tenure is positively insignificant in Model 5, thus, implying that CFO tenure does not affect the tendency to hedge against firms' risk. In contrast, CFO nationality in Model 6 is negatively significant at a 1% significance level with hedging decisions indicating that non-Malaysian CFOs tend to hedge as compared to local CFOs. Model 7, consists of all independent and control variables in the model. According to the result presented, CFO age and gender are significantly positive with hedging decisions. CFO education background and nationality show a significant negative relationship, while professional qualification and tenure do not affect hedging decisions.

**TABLE 3**  
Panel Logistic Regression Model Results

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)
AGE		0.0983*** (0.0244)					0.0936*** (0.0284)
GEN			1.2291*** (0.2779)				1.2440*** (0.3021)
EDU_LEVEL				-0.3175** (0.0982)			-0.4875*** (0.1116)
PRO_Q				-1.083** (0.4857)			-0.7426 (0.6147)
TENURE					0.0577 (0.0379)		0.0356 (0.0430)
NAT						-2.3574*** (0.7676)	-2.2588*** (0.8436)
LEV	0.0122 (0.0081)	0.0053 (0.0082)	0.0022 (0.0073)	0.0108 (0.0088)	0.0071 (0.0085)	0.0068 (0.0085)	0.0011 (0.0077)
FS	1.1949*** (0.2471)	0.6385** (0.2596)	1.0845*** (0.3179)	1.2247*** (0.3149)	0.9442*** (0.2910)	0.8431*** (0.2888)	0.7574** (0.3074)
ROA	0.0171 (0.0131)	0.0329** (0.0158)	0.0188 (0.0159)	0.0124 (0.0159)	0.0244 (0.0152)	0.0010 (0.0183)	-0.0043 (0.0205)
CFD	0.1757 (0.1497)	0.2780* (0.1568)	0.3226** (0.1548)	0.0264 (0.1587)	0.1937 (0.1532)	0.1651 (0.1533)	0.1947 (0.1638)
CAPEX	-0.0017 (0.0036)	0.0001 (0.0038)	-0.0028 (0.0041)	0.0024 (0.0040)	-0.0005 (0.0040)	-0.0006 (0.0039)	0.0031 (0.0046)
CONS	-9.3042*** (1.7919)	-10.6491*** (2.0885)	-9.2530*** (2.3325)	-6.6052*** (2.2001)	-8.1299*** (2.1246)	-4.2081* (2.2747)	-6.7419** (2.6450)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R <sup>2</sup>	0.2022	0.2261	0.2310	0.2309	0.2009	0.2255	0.3169
Likelihood ratio	150.75	132.86	135.79	135.70	118.10	132.50	186.23
No of obs.	644	529	529	529	529	529	529

Standard errors are reported in parentheses denoted as \*\*\*, \*\*, \* for 1%, 5%, and 10% significance level, respectively.

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**Table 4**  
 Panel Regression Model Results

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)
AGE		-0.0173 (0.0202)					-0.0244 (0.0200)
GEN			0.2634 (0.3140)				0.2840 (0.2974)
EDU_LEVEL				-0.1816 (0.1175)			-0.1255 (0.1109)
PRO_Q				0.3475 (0.3259)			0.7055** (0.3067)
TENURE					0.0068 (0.0325)		0.0368 (0.0373)
NAT						-0.8723** (0.3221)	-0.9785*** (0.3587)
LEV	0.0298*** (0.0092)	0.0294*** (0.0092)	0.0281*** (0.0089)	0.0320*** (0.0090)	0.0301*** (0.0090)	0.0281*** (0.0091)	0.0262*** (0.0859)
FS	-0.4514 (0.3355)	-0.6332* (0.3507)	-0.6949* (0.3628)	-0.6099 (0.3838)	-0.6711* (0.3607)	-0.7199** (0.3359)	-0.7159** (0.3471)
ROA	-0.0238** (0.0098)	-0.0317*** (0.0109)	-0.0340*** (0.0102)	-0.0289*** (0.0095)	-0.0290*** (0.0102)	-0.0410*** (0.0113)	-0.0408*** (0.0095)
CFD	-0.0226 (0.0804)	-0.0401 (0.0833)	-0.0176 (0.0761)	-0.0624 (0.08586)	-0.0342 (0.0822)	-0.0479 (0.0732)	-0.0244 (0.0646)
CAPEX	0.0176*** (0.0022)	0.0165*** (0.0025)	0.0163*** (0.0023)	0.0192*** (0.0030)	0.0169*** (0.0023)	0.0181*** (0.0025)	0.0181*** (0.0028)
CONS	6.5060*** (2.3598)	8.7564*** (2.6920)	8.1429*** (2.6098)	7.8816*** (2.5112)	8.0723*** (2.5154)	9.2901*** (2.4081)	9.9971*** (2.5663)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.2315	0.2526	0.2537	0.2722	0.2476	0.3003	0.3451
F-statistics	18.99	12.22	12.80	10.29	15.87	12.38	10.14
No of obs.	364	327	327	327	327	327	327

Standard errors are reported in parentheses denoted as \*\*\*, \*\*, \* for 1%, 5%, and 10% significance level, respectively.

## **Additional Test**

Table 4 displays the result of an additional test for the panel regression model. In this context, the dependent variable is measured by the total derivatives employed by the firm. Diagnostic tests such as multicollinearity, heteroscedasticity, and serial correlation were conducted to identify specification errors in the regression model. It is found that all 7 models have heteroscedasticity and serial correlation problems. However, the multicollinearity problem does not exist in all models. Lastly, fixed effect robust standard error is used to rectify the problems.

Similar to the panel logistic regression result, Model 1 consists of control variables. Models 2 to 6 consist of CFO attribute variables, and Model 7 is built with all variables. In Model 1, the study shows that LEV and CAPEX are significantly positive, ROA is significantly negative, while other control variables are insignificant towards using derivatives. The result shows that the significance of control variables towards using derivatives after adding independent variables is consistent. F-statistics and R2 of Model 1 are 18.99 and 0.2315, respectively. It implies that 23.15% of total derivatives variation can be explained with the control variables. As for CFO attributes in Model 6, only nationality shows a significant negative relationship with the usage of derivatives at a 1% significance level. Meanwhile, other CFO attributes show no relationship with the magnitude of derivatives used. In Model 7, only two CFO attributes are significant to the usage of derivatives. Professional qualification is positively significant with using derivatives at a 5% significance level. It can be concluded that CFOs with professional qualifications will use more derivatives in corporate risk management as compared to those who do not have professional qualifications. On the other hand, nationality is negatively significant with the usage of derivatives at a 1% significance level. It seems to imply that non-Malaysian CFOs tend to use more derivatives than Malaysian CFOs.

## **DISCUSSIONS**

CFO age exhibits a positive significant relationship with hedging decisions. The result is aligned with the studies by Beber and Fabbri (2012), Burg et al. (2013), and Entrop and Merkel (2020), which found that older CFOs are risk-averse, tend to use derivatives, and also more likely to hedge



against firms' risks. Hence, we do not reject H1 and conclude that there is a significant positive relationship between CFO age and corporate risk management in Malaysian firms.

Our result also revealed that male and female CFOs have different behaviours and risk preferences in making a financial decision including hedging. According to the result, CFO gender has significance positively related to the likelihood of hedging. Therefore, it implies that male CFOs tend to be more risk-averse, use more derivatives, and are more likely to hedge (William & Narendran, 1999; Entrop & Merkel, 2020; Hurley & Chouhary, 2020). H2 is not rejected, thus, proving a significant positive relationship between CFO male and corporate risk management.

Aside from that, education level has a significant negative association with hedging decisions in corporate risk management. It indicates that CFOs with a higher education level are likely to hedge compared to those with a lower education level. A study conducted by MacCrimmon and Wehrung (1990) revealed that education is negatively associated, and higher education level executives are more risk-averse than other executives with lower education levels, hence they take less risk, and thus the need to hedge is less. However, professional qualification shows a different result which is negative and insignificant with hedging decisions in corporate risk management. This indicates that CFO professional qualifications do not have any effect on hedging decisions. The finding is consistent with that of Ojeka et al. (2019) which claims that CFO knowledge (professional qualification) is passively relative to the implementation of risk management. It can be concluded that there is a significant negative relationship between CFO education level and corporate risk management, but no significant evidence for professional qualification in Malaysian firms. As for CFO tenure, it reveals an insignificant positive relationship with hedging decisions. This indicates that the independent variables do not contribute to the dependent variable. Thus, H4 is rejected, and it can be concluded that there is no sufficient evidence to prove the significant relationship between CFO tenure and corporate risk management in Malaysian firms.

Last but not least, the study found a significant negative relationship between CFO nationality and corporate risk management. It indicates that non-Malaysian CFOs are more likely to hedge against firms' risk. Mendenhall and Oddou (1985) suggested that different national origins may cause

cognitive conflict and communication, which may alter the interpretation of important details, including uncertain perceptions in strategic decisions. TMT, which consists of multiple nationalities, is more likely to perceive risk than local TMT. Thus, it might be difficult for executives from other nations to adapt to different cultures and regulations. As a result, they tend to be less confident and risk-averse towards hedging decisions. Hence, we do not reject H5 and conclude that there is a significant negative relationship between CFO nationality and corporate risk management in Malaysian firms.

## **CONCLUSION AND RECOMMENDATIONS**

The study intended to contribute in-depth knowledge of corporate risk management in Malaysian firms. To our knowledge, there is limited research conducted to examine the relationship between CFO attributes and corporate risk management. Thus, our study is unique and differs from previous studies conducted by other researchers. The study focuses on the Top 100 Firms in Malaysia as the sample to make the research more attractive. This research attempts to contribute to the extent of top firms in mitigating risks. Thus, other firms may take this opportunity to obtain useful information regarding other resources to finance their firms. Our findings suggest that older, male, longer-tenured, and non-Malaysian CFOs tend to hedge against risk in our sample. Generally, firms need CFOs to oversee the company's risks. Thus, the findings contribute to their knowledge that these attributes will encourage more hedging activities in managing corporate risk. In addition, the study contributes to policymakers' knowledge in strengthening risk management policy regulations. Thus, the policymakers should emphasise the roles of the CFO other than the CRO in the risk management policy as the CFOs can assist their firms in recognising risks, mitigating adverse exposure and seizing investment opportunities. In short, this study has been significant in helping Malaysian firms have a clearer picture of raising capital, investment and risk management.

## **CONTRIBUTIONS OF AUTHORS**

The authors confirm equal contribution in each part of this work. All authors reviewed and approved the final version of this work.

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## CONFLICT OF INTEREST

All authors declare that they have no conflicts of interest.

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