

Impact of Foreign Exchange Exposure and Shariah-compliant Status on Malaysian Firms' Hedging Practice

(Kesan Pendedahan Matawang Asing dan Status Patuh Shariah terhadap Amalan Lindung Nilai Syarikat Malaysia)

Adilah A. Wahab
Ruzita Abdul-Rahim
Hawati Janor

(Faculty of Economics and Management, Universiti Kebangsaan Malaysia)

ABSTRACT

This study investigates the impact of foreign exchange (forex) exposure and Shariah-compliant status on firms' decision to practise hedging. It employs panel multiple and multinomial logistic regression on 702 firm-year observations from 117 non-financial listed firms over the period from 2010 to 2015. The sample consists of 70% Shariah-compliant firms, representative of the 74%-85% Shariah-compliant firms listed on Bursa Malaysia during the study period. From the multinomial logistic regression, this study finds total and net foreign currency exposures are significant in predicting hedging for firms that practice one and two hedging instruments. Moreover, the results also reveal that Shariah-compliant status always significantly and directly influence firms that hedge, except for firms that use four hedging instruments. This study contributes to the literature by introducing direct measurements of foreign currency exposure which prove to be significant indicators of forex exposure. Accurate measurement of forex exposure is crucial as it has implications on the firms' ability to predict its cash flows, commit to future projects, and subsequently, increase its value. Since firms do not disclose whether the instruments used are conventional or Shariah-compliant, this study assumes that all instruments are conventional and therefore, being Shariah-compliant hinder the firms from practising hedging. However, the results reveal those firms that hedge are indeed Shariah-compliant. This finding should raise a great concern among the Islamic capital market regulators to require stricter rules and greater transparency among Shariah-compliant firms.

Keywords: Foreign currency exposure; foreign currency hedging; Shariah-compliant status; foreign cash flows; Malaysia non-financial firms

ABSTRAK

Kajian ini mengkaji kesan pendedahan matawang asing dan status patuh Shariah terhadap keputusan syarikat mengamalkan lindung nilai. Ia menggunakan kaedah analisis regresi panel logistik dan multinomial terhadap 702 tahun-pemerhatian dari 117 syarikat bukan kewangan yang tersenarai di Bursa Malaysia bagi tempoh 2010 hingga 2015. Sampel mengandungi 70% syarikat patuh Shariah, mewakili 74%-85% syarikat patuh Shariah yang tersenarai di Bursa Malaysia sepanjang tempoh kajian. Dari regresi logistik multinomial, kajian ini mendapati jumlah keseluruhan dan jumlah bersih aliran tunai asing adalah signifikan dalam meramal lindung nilai bagi syarikat yang menggunakan satu dan dua instrumen lindung nilai. Selain itu, hasil kajian juga menunjukkan status patuh Shariah sentiasa mempengaruhi keputusan firma untuk mengamalkan lindung nilai secara signifikan dan langsung, kecuali bagi syarikat yang menggunakan empat instrumen lindung nilai. Kajian ini menyumbang kepada literatur dengan mengemukakan ukuran pendedahan matawang asing yang langsung, yang terbukti berfungsi sebagai indikator pendedahan matawang asing yang signifikan. Ukuran pendedahan matawang asing yang tepat adalah kritikal kerana ia memberi implikasi terhadap kemampuan syarikat meramalkan akiran tunainya, komited kepada projek di masa hadapan, dan seterusnya nilai firma. Memandangkan syarikat tidak melaporkan sama ada instrumen lindung nilai yang digunakan adalah konvensional atau patuh Shariah, kajian ini mengandaikan semua instrumen lindung nilai adalah konvensional dan dengan itu, status patuh Shariah menyebabkan syarikat menjauhi amalan lindung nilai. Bagaimanapun, hasil kajian menunjukkan syarikat patuh Shariah termasuk antara syarikat yang mengamalkan lindung nilai. Penemuan ini wajar menimbulkan kebimbangan dalam kalangan pengawal selia pasaran modal Islam kerana ia menggambarkan wujud keperluan untuk menetapkan kriteria dan peraturan dan meningkatkan ketelusan pelaporan dalam kalangan syarikat patuh Shariah.

Kata kunci: Pendedahan matawang asing; lindung nilai matawang asing; status patuh Shariah; aliran tunai asing; syarikat bukan kewangan Malaysia.

INTRODUCTION

The modern corporate financial management has gone through various opportunities and challenges as a result of globalization and trade liberalization that have dramatically changed the landscape of world market environment. Companies are no longer confined to operate within their national borders as they are actively performing international transactions. As reported by the World Trade Organization (2016), the value of merchandise trade and commercial services in 2015 is approximately twice higher than in 2005. Throughout the 11 years from the year 2005 to 2015, international transactions consistently contribute up to 20% to 25% of the world's GDP (WTO 2016). Interestingly, the World Trade Statistical Review (2016) also reported that the merchandise trade to developing economies is increasing in 2015.

As shown in Figure 1, the percentage of merchandise trade to developing economies has increased from 41 % to 52%, while to developed countries, it has decreased by 12%. This trend shows that in 2015, the developing economies were more active in doing trade as compared to the developed economies. The positive development in international transactions for the developing economies, however, might need to be monitored closely. Developing economies are more commonly associated with foreign exchange (henceforth, forex) exposure compared to the developed economies (Parsley & Popper 2006; Rim & Mohidin 2005). As asserted by Rim and Mohidin (2005), firms in developing economies experience greater forex exposure because the small and open economies are more sensitive to; 1) changes in the exchange rate of their trading partners, 2) impact of strong and weak currencies, or 3) crisis happening in their trading partner countries. In line with the growing importance of international trades to developing countries in particular Malaysia, the present study proposes that forex exposure must be managed efficiently because it has a high potential risk to affect a firms' value adversely.

Forex exposure takes place when the firms' contractual cash flows are in foreign currency

denominations (Eun & Resnick 2007) resulting from firms' involvement in international transactions (Booth & Rotenberg 1990; Chaieb & Mazzotta 2013; Jorion 1990). As reported in Malaysia Department of Statistics (2018), Malaysia portrays an increase in international trade during the period from the year 2015 to 2018 which was 28.38% and 28.00% in total exports and imports, respectively. Hence, the growth of these international trade indicators supports the indications that Malaysia is actively engaged in international trade. As Malaysian companies are becoming more prone to forex exposure, it is only natural to expect, many of them are engaging in hedging activities. This relationship is due to the theoretical argument that hedging is the most widely acknowledged tool for managing forex exposure (Mishkin & Eakins 2017; Moffett, Stonehill & Eiteman 2017; Shapiro 2014).

One theory that has been frequently applied to explain the relationship between forex exposure and hedging is underinvestment cost theory. Froot, Scharferstein and Stein (1993) demonstrated that firms that do not practice hedging would be more inclined to experience variabilities in their internal cash flows: (1) variability in funds raised externally and (2) variability of the firm's capital investment amount. Furthermore, Salvary (2005) affirmed that variability of either type of cash flow might act as a driver for practising hedging, and subsequently reducing firms' dependency on costly external funds, such as bonds, bank borrowings, and stocks.

Past studies (Ameer 2010; Fazillah, Azizan & Hui 2008) found a small percentage of Malaysian firms practice hedging. Ameer (2010) found that from the year 2003 to 2007, there was only 26% (112 out of 427) of his sample firms that practice foreign currency derivatives. Similarly, Fazillah et al. (2008) also found there were only 101 out of 352 Malaysian non-financial listed firms use hedging over the period from the year 2001 to 2005. The low usage of forex hedging can be due to the measurement of forex exposure. Bae, Kim and Kwon (2017) and Jeon, Zheng and Zhu (2017) mentioned that inaccurate measurement of forex exposure could lead to insignificant forex exposure. As a consequence, this

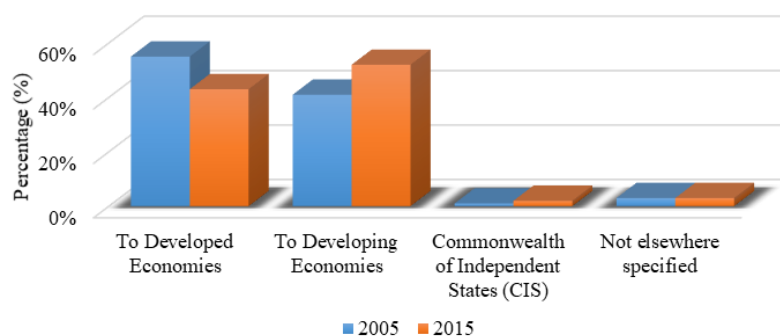


FIGURE 1. Merchandise trade between developed economies, developing economies, and Commonwealth of the Independent States, 2005 and 2015

Source: World Trade Statistical Review 2016

could give a negative impact on the firm's decision to practise hedging.

This paper has taken an effort to overcome the issue involving the inaccurate forex exposure measurement by introducing two new measurements of forex exposure (total and net foreign currency exposure, henceforth TOTFCR and NETFCR) using data reported in firm's annual reports published by Malaysian firms. Moreover, starting from 1 January 2010 Malaysia Accounting Standard Board (MASB) has enforced FRS 7 Financial instrument: Disclosure (the equivalent of IFRS 7) and FRS 139 Financial Instruments: Recognition and Measurement (the equivalent of IAS 39) to Malaysian listed firms (Zadeh & Eskandari 2012). Thus, data on TOTFCR and NETFCR are only applicable after 2010 in the annual reports under items 31, 36, or 37 of Financial Risk Management Policies reported in the section Notes to the Financial Statements.

This new reporting standard (FRS 7 and 139) binds all Malaysian firms involved in foreign markets and/or international transactions. TOTFCR is in line with one of the forex exposure measurements applied by Bartram (2008). He measured forex exposure using operational cash flows, investment cash flows, and financing cash flows, individually and also in total (similar to TOTFCR in this study). From the study result, Bartram (2008) proved that the cash flow indicators could measure forex exposure. This finding is similar to Cuestas, Huang and Tan (2018) and Wahyudi et al. (2019) that also showed a significant relationship between cash flow indicators and forex exposure. However, Prasad and Suprabha (2015) claimed that although the cash flow method is an efficient tool for measuring forex exposure, most studies preferred using the capital market approach due to data availability. This study begins in 2010 to curtail the issue of data availability on forex exposure utilizing the firm's cash flow method. FRS 7 Financial instrument: Disclosure (the equivalent of IFRS 7) and FRS 139 Financial Instruments: Recognition and Measurement (the equivalent of IAS 39) were only enforced beginning from the 1 January 2010 (Zadeh & Eskandari 2012). Thus, data on TOTFCR and NETFCR are only applicable after 2010 in the annual reports under item 31, 36 or 37 Financial Risk Management Policies reported in the section Notes to the Financial Statements in those reports.

This paper contributes to the existing forex hedging literature by examining the relationship between forex exposure and hedging practices among Malaysian non-financial listed firms, using two new measurements of forex exposure; TOTFCR and NETFCR. Firms need to have an accurate indicator in measuring forex exposure, as it will determine the firm's decision to practise hedging. The next section explains the review of past studies on forex exposure, hedging and other related aspects. Next, the methodology part is explained. Finally, the result analysis is reported and discussed, followed by a section that presents the managerial implication and conclusion and of study.

LITERATURE REVIEW

This study suggests that one of the reasons that make a firm decides to practise hedging is due to its forex exposure, which can be measured from several indicators of forex exposure concerning the firm's foreign transactions. Most of the past studies measured forex exposure using foreign sales (Afza & Alam 2011; Allayannis & Ofek 2001; Ameer 2010; Clark et al. 2006; Jorion 1990; Judge 2006; Marshall, Kemmitt & Pinto 2013; Nydahl 1999; Vural-Yavas 2016; Wahyudi et al. 2019; Wong 2000). There is a mixed result on foreign sales as forex exposure indicators, Wahyudi et al. (2019) who referred to Ameer (2010) for the usage of foreign sales in measuring forex exposure found a contradicting result to Ameer (2010). One of the reasons for the insignificant effect is, measuring forex exposure solely on foreign sales might not capture the total amount of forex exposure as it will deduct foreign cash flows other than those due to operations. Although there are mixed results on foreign sales, there are still limited past studies (Ameer 2010; Butt et al. 2018; Vural-Yavas 2016) that proved foreign sales as one of the hedging determinants in developing countries, particularly Malaysia. Thus, the first hypothesis statement of this paper is:

H₁ Foreign sales increases a firm's tendency to adopt forex hedging

Apart from foreign sales, other indicators are proven to have a significant relationship with forex exposure. For example, Bae et al. (2017), Geczy, Minton and Schrand (1997) and Judge (2006) showed that firms could be exposed to forex exposure through export or import activities. Nevertheless, import and export data have a limitation, of which the data are limited to the industry or country level. Thus, both indicators might not reflect the total amount of forex exposure experienced by the firm because they do not recognize the forex exposure at a firm's level. Other than foreign sales, import and export, Prasad and Suprabha (2015) mentioned one of the effective methods in measuring forex exposure is by using cash flow indicators. Their argument is consistent with the definition of forex exposure itself that specified the relationship between cash flow and foreign exchange (Bacha et al. 2013; Jeon et al. 2017). There are a few past studies that used cash flow indicators, Ameer (2010), Bartram (2008), Cuestas et al. (2018) and Wahyudi et al. (2019). Bartram (2008) highlighted how operational cash flows, investment cash flows, and financing cash flows, individually and total cash flows have significant relationships with forex exposure. However, Bartram (2008) measured forex exposure based on the regression between cash flow and stock return. It is important to note that Bartram (2008) had not used cash flow indicators as a direct indicator of forex exposure.

Other than Bartram (2008), Ameer (2010) and Wahyudi et al. (2019) also used cash flow in measuring forex exposure. Similar to Ameer (2010), Wahyudi et

al. (2019) used a general cash flow volatility which is measured by the standard deviation. Other than that, Cuestas et al. (2018) also used cash flow indicator, which is in the form of a ratio to total assets. Only Ameer (2010) showed cash flow to be an insignificant indicator for forex exposure, while the other two studies (Cuestas et al. 2018 and Wahyudi et al. 2019) proved a significant result. Previous studies used a general cash flow which means it is not limited to only cash flows that are denominated by foreign currency. In other words, those past studies included cash flows that are not likely to be exposed to the uncertainty of foreign exchange. To the best of the authors' knowledge, no investigation has used the total amount of foreign currency exposure (TOTFCR) and the net amount of foreign currency exposure (NETFCR). These values are now disclosed under item 37 "Financial Risk and Management Policies" in the "Notes to the Financial Statements", item 36 "Financial Instruments" or item 31 "Derivatives Assets and Liabilities" as the forex exposure measurement. For that reason, in foregrounding the importance of forex exposure concerning hedging practices among Malaysian firms, this paper extends the parameters of earlier studies by introducing two new measurements of forex exposure; namely the total amount of foreign currency exposure (TOTFCR) and the net amount of foreign currency exposure (NETFCR). This proposition is tested in the following hypotheses:

- H₂ Total amount of foreign currency exposure increases a firm's tendency to adopt forex hedging.
 H₃ Net amount of foreign currency exposure increases a firm's tendency to adopt forex hedging.

Furthermore, this paper also proposes that Shariah-compliant status is one of the critical factors in determining hedging practices among companies in Malaysia. In 2017, more than 70% of the companies listed in Malaysia held Shariah-compliant status. The Shariah-compliant status is earned upon certification by Malaysia's Securities Commission's (SC) Shariah Advisory Council (SAC). The SAC certification requires businesses to abide by the Islamic principles as outlined in the SAC's Shariah screening criteria (refer to Appendix A). As the business activity benchmark of five per cent of the profit contribution listed among the prohibited activities including *riba*'-based activities (based on SAC Shariah screening methodology), these companies need to be more cautious in considering the use of conventional hedging instruments. Conventional hedging instruments violate the conditions of currency exchange terms, *al-sarf* (spot delivery) which means any transaction between currencies must occur in spot basis. This argument is supported by many scholars (e.g. Ahmad et al. 2012; Ahmad & Yaacob 2012; Mohamad, Ahmad & Shamimi 2011; Mohamad & Tabatabaei 2008). They posited that the concept of conventional hedging contradicts the basic Shariah rules because the exchange of currencies (promised items) takes place in the future. The Shariah rule specifies certain items (gold, silver

and other forms of currencies to be done on the "spot" (Ahmad et al. 2012). The major implication of breaching terms in *al-sarf* is the transaction can be considered as practising *riba'an-nashiya*.

Riba'an-nashiya occurs due to a deferral of either one or both of the following conditions; 1) the time of the transaction (which should be on the spot), and 2) an unequal quantity of exchange (Bakar 2008). The Shariah screening criteria version 2013 (Appendix A) indicate that to be awarded and remain a Shariah-compliant, companies must limit the percentage of their profits and business activity that are associated with clearly prohibited elements as well as *riba'* to a maximum of 5 per cent. Besides, Bank Negara Malaysia (BNM) had officially introduced the first Islamic hedging structure (*wa'd*) in 2010, and a few financial institutions are offering Islamic hedging products since 2007. However, based on past studies, none had examined the impact of Shariah status on hedging practice in Malaysia. Most of the previous studies focused on investigating the structure or concept of Islamic hedging (Dusuki 2009; Dusuki 2012; Mohamad & Tabatabaei 2008; Nordin, Ab. Rahman & Oman 2014). Thus, this is a pioneering study to determine empirically whether Shariah status has an impact on hedging practice in Malaysia. Malaysia needs to have preliminary research on the role of Shariah status on hedging practice in Malaysia. The study can provide a complete view of how Malaysian firms (Shariah or Non-Shariah) deciding to practice hedging. This proposition was tested in the following hypothesis:

- H₄ Shariah status decreases a firm's tendency to adopt forex hedging.

METHODOLOGY

This section reports the two models used in this study, model (1) and (2). Model 1 represents the panel multiple logistic regression which tests the hypothesis that the decision to practise hedging (hedge = 1, not hedge = 0) is a function of the following factors – foreign sales ratio (FSR), total foreign currency exposure (TOTFCR), net foreign currency exposure (NETFCR), Shariah-compliant status (SHARIAH), firm size (SIZE), financial distress (FID), and growth opportunities (GOP). The use of multiple panel logistic regression analysis is consistent with past studies (Butt et al. 2018; Buyukkara et al. 2018; Danila & Huang 2016; Vural-Yavas 2016; Wahyudi et al. 2019) in testing the relationship between forex exposure and firm's decision to practice hedging. The logistic regression is used to suit the dichotomous dependent variable. The relationship is expressed in the form of a general function as follows:

$$\frac{(\text{Probability to hedge})}{(\text{Probability not to hedge})_{i,t}} = \alpha_t + \beta_0 + \beta_1 FSR_{i,t} + \beta_2 TOTFCR_{i,t} + \beta_3 NETFCR_{i,t} + \beta_4 SHARIAH_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 FID_{i,t} + \beta_7 GOP_{i,t} + \eta_i + v_{it} \quad (1)$$

The second model is a panel multinomial logistic regression that estimates the likelihood that the same factors influence firms' decision to hedge using a certain number of instruments. To the best of the authors' knowledge, there is only one past study (Judge 2006) that used multinomial logistic analysis in forex hedging studies. The probability of a firm selecting total hedging instrument k ($k = 0, \dots, J$) is illustrated as below:

$$Prob(TotalHI_{i,t} = j) = \frac{e^{\beta_j x_i}}{1 + \sum_{k=0}^J e^{\beta_k x_i}}$$

$$\text{for } j = 1, 2, \dots, J$$

$$Prob(TOHI_{i,t}) = \alpha_t + \beta_0 + \beta_1 FSR_{i,t} + \beta_2 TOTFCR_{i,t} + \beta_3 NETFCR_{i,t} + \beta_4 SHARIAH_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 FID_{i,t} + \beta_7 GOP_{i,t} + \varepsilon_i \quad (2)$$

This study extracts a firm's hedging practice status from section (item 37) entitled "Financial Risk and Management Policies" in its annual report. In some cases, companies report this information under item 36 "Financial Instruments" or item 31 "Derivatives Assets and Liabilities". Next, this study uses the "Find" command to search for hedging practice in those sections. The keywords used are "hedge", "forward", "futures", "options", "swap", "money market" or "derivatives". Upon hit of any of those keywords, the firm will be awarded a value of "1" to identify it as a firm practising hedging and "0" as not practice hedging.

For independent variables, this study uses the summation of trade receivable and payable that originally are denominated in foreign currencies to measure TOTFCR, while NETFCR is the absolute difference between trade receivables and trade payables. The Shariah-status (SHARIAH) of the firms is based on the list of Shariah-compliant companies published by the Securities Commission of Malaysia on November

of each respective year during the study period (2010 to 2015). Value of "1" represents Shariah-compliant firm and "0" represents non-Shariah compliant firm. For other variables, this study followed Allayannis and Ofek (2001), Judge (2006) and Vural-Yavas (2016) in measuring foreign sales using the ratio of foreign sales to total sales. For firm size, this paper is consistent with other past studies (Ameer 2010; Butt et al. 2018; Buyukkara et al. 2018; Vural-Yavas 2016; Wahyudi et al. 2019) that used the natural logarithm of total asset. The natural logarithm of interest coverage ratio is the measurement of financial distress, following Bartram, Brown and Fehle (2009); Buyukkara et al. (2018) and Vural-Yavas (2016). Market-to-book value indicates the growth opportunity, similar to past studies (e.g., Ameer 2010; Bae et al. 2017; Buyukkara et al. 2018; Wahyudi et al. 2019). This study finally has a sample of 117 non-financial multinational firms listed on Bursa Malaysia from 2010 to 2015. This final sample provides 702 firm-year observations in a balanced-panel data structure.

RESULTS AND DISCUSSIONS

The descriptive analysis of this research is presented in Table 1. The first dependent variable, hedging status (HS), has a mean value of 0.4516. It shows that less than half of the observations prefer not to practise hedging. It is consistent with the yearly trend of HS, illustrated in Figure 2. The annual trend shows the number of non-hedge firms is higher compared to hedge firms. The difference between the number of hedgers and non-hedgers ranges from 4 to 10 firms. Furthermore, since 2012 until 2015, the number of hedging firms shows a decreasing trend.

This trend is indeed similar to those in emerging markets (Kozarevic, Jukan & Civic 2014; Martin et

TABLE 1. Descriptive analysis of the research

	Obs	Minimum	Maximum	Mean	Std Dev.
HS	702	0.0000	1.0000	0.4516	0.4980
TOTHI	702	0.0000	4.0000	0.6225	0.8214
SHARIAH	702	0.0000	1.0000	0.8191	0.3852
FSR (%)	702	0.0000	100.0000	36.7626	25.6116
TOTFCR <i>RM mil</i> (Ln)	702	1358000 (14.1220)	7.66e+11 (27.3640)	2.61e+10 (20.5839)	6.94e+10 (2.9889)
NETFCR <i>RM mil</i> (Ln)	702	12000 (9.3927)	1.13e+11 (25.4525)	1.70e+09 (16.4451)	9.00e+09 (2.9374)
SIZE <i>RM mil</i> (Ln)	702	3.23e+07 (17.2910)	8.90e+10 (25.2120)	4.27e+09 (20.6760)	1.02e+10 (1.6210)
GOP	702	0.1500	15.2400	1.3140	1.6127
FID <i>RM mil</i>	702	-366.406	20,557.47	173.4899	1517.5260

Notes: HS = hedging status, TOTHI= total number of hedging instruments, SHARIAH= Shariah status FSR = foreign sales ratio, TOTFCR = total amount of foreign currency exposure, NETFCR= net amount of foreign currency exposure, SIZE = firm size measured by the natural log of total asset, GOP = growth opportunity measured by market-to-book value, FID = financial distress measured by the natural log of interest coverage ratio.

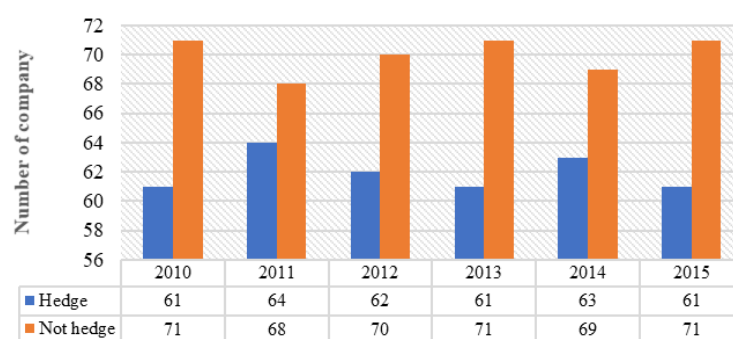


FIGURE 2. Hedger and non-hedger of Malaysian firms from 2010 to 2015

al. 2009) and Malaysian market (Ameer 2010; Chong, Chang & Tan 2013; Danila & Huang 2016; Isa, Ismail & Abd Rahman 2017). Most of the past studies suggest two main reasons that lead to a higher number of not hedge firms. First is due to lack of knowledge and second, lack of expertise on the utilization of hedging in managing forex exposure (Ameer et al. 2011; Bailly et al. 2003; Bezzina & Grima 2012; Chong et al. 2013; Kozarevic et al. 2014; Martin et al. 2009). The second dependent variable is the total amount of hedging instruments (TOTHI). Table 1 shows the maximum of TOTHI used by the sample company is four. Meanwhile, there are four main variables (FSR, TOTFCR, NETFCR and SHARIAH) reported in the descriptive analysis results. The mean of foreign sales ratio is about 36.76%; the total amount of foreign currency exposure is 20.58 (ln), and the net amount of forex exposure is 16.45 (ln). The mean of FID is RM173.49 million, SIZE 20.68 and GOP is 1.31.

Table 2 presents the results obtained from panel multiple logistic regression results on hedge status. The $prob > chi^2$ of Hosmer and Lemeshow result show insignificant result (p -value > 0.05), which proved this equation is a good model fits with the data used in this study. Furthermore, we detect no specification error involved in the model. The specification error test used in this study is the link test, and its hat and $hatsq$ results show the model has no specification error ($p < 0.10$). The results (Table 2) are generated from the random effect of panel logistic regression, after the Hausman test rejects null hypothesis of fixed effect model ($p > \chi^2$ is < 0.01). The random effect model is reliable in addressing the issue of heteroscedasticity of the pool model ($p > 0.05$). Furthermore, none of the forex exposure variables shows significant results. This finding seems to suggest that disclosure of TOTFCR and NETFCR in the annual report may not bear any information about the firms' forex exposure. The only variable that shows a significant effect of HS is SIZE (firm size). Concerning the odds ratio, for each unit increase in the total asset, the odds of firms to practise hedging increase by 7.3760 times. This relationship is consistent with most of past studies that proved firm size as one of the hedging determinants

(Ameer 2010; Butt et al. 2018; Buyukkara et al. 2018; Vural-Yavas 2016; Wahyudi et al. 2019). The odds ratio of SHARIAH variable is positive and insignificant. An increase of each unit in SHARIAH increases the odds of firms to practise hedging by 1.0058 times. In short, the result does not support the hypothesis of this study (H1: Shariah-compliant status decreases firms' tendency to practise hedging).

TABLE 2. Panel multiple logistic regression results on hedge status (HS)

Independent variables	Coefficient	t-value	Odds Ratio
FSR	0.0087	0.4900	1.0087
TOTFCR	0.1535	0.7800	1.1660
NETFCR	-0.0697	-0.4600	0.9326
SHARIAH	0.0058	0.0100	1.0058
SIZE	1.9983***	5.8000	7.3760
FID	-0.0002	-0.3900	0.9998
GOP	-.0433	-0.1800	0.9575
Hosmer and Lemeshow	Prob > chi2	0.0808	
Linktest	_hat	0.0000	
	_hatsq	0.0600	

Notes: The logistic regression model is run on four main IVs (FSR, TOTFCR, NETFCR and SHARIAH) and several control variables which SIZE (measured by LnTA), FID (measured by LnICR), and GOP (measured by MTBV). Sample size (N) = 117. Asterisks ***, ** and * indicate significant at 1%, 5% and 10% respectively.

Testing the role of hedging determinants on a dichotomous hedging variable (i.e., hedge or not hedge) does not determine the extensiveness of the hedging practise. This study follows Judge (2006) that used multinomial logistic regression in assessing factors that influence hedging practice. Judge (2006) used three categories in defining the choice of hedging strategies (non-hedgers, the misclassified firms, and hedgers). This study differs from Judge (2006) as it uses the total number

of hedging instruments (TOTHI). Table 3 summarizes the multinomial logistic regression results.

The overall fit of the model as measured by McFadden's pseudo R-squared is 0.2665, representing a very good fit. Louviere, Hensher and Swait (2000) stated 0.2 to 0.4 pseudo R-squared represent the model with very goodness-of-fit. The Hosmer and Lemeshow result, which has an insignificant p-value of 0.1177, also shows the binary logistic model is appropriate. TOTHI is the response variable in multinomial logistic regression. In this instance, STATA, by default set TOTHI 0 (not hedging at all) as the referent group. With four levels of TOTHI, the resulting models estimate TOTHI 1 relative to TOTHI 0, TOTHI 2 relative to TOTHI 0, TOTHI 3 relative to TOTHI 0 and TOTHI 4 relative to TOTHI 0.

The results show the first variable that turns out highly significant in these multinomial tests (TOTHI=1 model) is the foreign sales ratio (FSR). The resulting odd

ratio from TOTHI=1 model suggests that a unit increase in FSR leads to a 1.0243 times higher chance of firms using one hedging instrument (TOTHI=1). Overall, Malaysian firms that have a higher percentage of foreign sales tend to prefer using one or two hedging instruments. This finding is consistent with one previous study that mentioned forward contract is the most likely derivative used for corporate hedging because a forward contract is simpler to apply compared to other types of hedging instruments (Madura 2000). Furthermore, Allayannis and Ofek (2001) argued that the foreign sales ratio is the only determinant of firms practising hedging. Having FSR significant in this analysis, while insignificant in the earlier multiple logistic regression, suggests that the binary method of categorizing firms as either practise or not cannot capture the picture in detail. This argument is proven as foreign sales turn out to be an important factor when the analysis considers the extensiveness of hedging

TABLE 3. Panel multinomial logistic regression results on the number of total hedging instruments

	TOTHI 1	TOTHI 2	TOTHI 3	TOTHI 4
FSR	0.0240*** (6.2300) 1.0243 ^b	0.0170** (2.3100) 1.0171	0.0140 (1.4700) 1.0141	-0.2296 (-0.6500) 0.7949
TOTFCR	0.0820*** (2.3700) 1.0855	0.1961*** (2.4900) 1.2167	0.0430 (0.4200) 1.0440	-0.1476 (-0.1800) 0.8628
NETFCR	-0.1556*** (-4.1700) 0.8559	-0.1036 (-1.4200) 0.9016	-0.0586 (-0.6200) 0.9431	0.2942 (0.2300) 1.3421
SHARIAH	1.0422*** (3.8500) 2.8355	2.0442*** (3.8100) 7.7231	1.3047** (2.1600) 3.6865	1.7132 (0.0200) 5.5466
SIZE	0.5715*** (7.1100) 1.7709	1.5770*** (10.5500) 4.8406	1.9445*** (8.5800) 6.9900	4.5990 (1.0000) 99.3820
FID	-0.0003 (-0.6000) 0.9997	0.0004* (1.7900) 1.0004	-0.0001 (-0.0900) 0.9999	-0.0002 (-0.0300) 0.9998
GOP	-0.0891 (-1.0600) 0.9148	0.1969** (2.0200) 1.2177	0.1328 (0.9700) 1.1420	-1.0904 (-0.5700) 0.3361
Log Likelihood			-538.6171	
Number Of Observations			702	
LR Chi-Squared (28)			391.42	
P-value			0.0000	
Pseudo R ²			0.2665	
Hosmer And Lemeshow			0.1177	

Notes: The choice of hedging strategy presented in the table is expressed in the total hedging instruments (TOTHI). Specifically, TOTHI1 represents firms that use only one hedging instrument. TOTHI 2 are firms that use two hedging instruments, followed by TOTHI 3 and 4. Other variables are as defined in Table 2. In each cell, the first value is the coefficient, the last is the odds ratio, while t-value is in the parentheses. Asterisks ***, **, * denote significant at the 1%, 5%, and 10% levels, respectively

practice. This finding is also more consistent with Ameer (2010) who examined foreign sales as one of the hedging determinants for Malaysian non-financial firms.

Another variable that shows a significant result is the total amount of foreign currency exposure (TOTFCR). Similar interpretation for FSR applicable on results for TOTFCR except that the firms show their preference for using 1 and 2 hedging instruments. The net amount of forex exposure (NETFCR) also shows a significant result, but the firm's choice is TOTH1. This finding is consistent with the underinvestment cost theory, which suggests that firms engaged in a hedging practice to protect their cash flows from the unfavourable impact of forex rate fluctuations. The result of this study also provides support to Bartram's (2008) explanation about the absence of forex exposure on financing, investing and total cash flows. In the study, he found that because hedging was effectively used to protect those cash flows, the effect of forex fluctuations becomes insignificant.

Meanwhile, the result of SHARIAH seems to be most drastic among all variables. Recall that the result from logistic regression shows the insignificant impact of SHARIAH on the tendency of firms to practice hedging. In contrast, the multinomial regression tests show that SHARIAH is consistently positive and also significant, except for TOTH4. The difference, however, is because, in multinomial regression, the focus is on firms that hedge with a different number of instruments. In contrast, in logistic regression, it is testing on two categories, those that hedge versus not-hedge. In short, the result of Shariah status is similar to FSR in that it becomes significant when the extensiveness of hedging practice is considered rather than just practising hedging or not. Overall, the multinomial logistic regression prove firms with Shariah-compliant status tend to practise hedging.

This study interviews Mr Faozi Shaari, the Head of Islamic Banking of BNP Paribas Asia Pacific. He explained that there is no requirement or accounting standard imposed on firms in Malaysia to disclose whether the hedging instruments are Islamic or conventional. However, he acknowledged the fact that most Malaysian firms still adopt conventional hedging instruments because of several reasons. First, Shariah-compliant firms are lacking awareness and knowledge about Islamic hedging instruments. He also stated that there is more documentation needed in dealing with the Islamic hedging instruments. Both of these drawbacks are also documented in Mohamad, Othman and Roslin (2014). They explained that corporate clients have difficulties in understanding the justifications of the Islamic principles, including the Arabic terms. Documentations are also cumbersome, and they need to be done before and after the transactions are complete.

Second, since most companies that adopt forex hedging are multinational firms (MNCs), their international operations are most of the times done in foreign countries. Malaysia's major trading partners are

the US, Australia, Europe, Singapore, China, Thailand, Indonesia, Japan and Korea. Except for Indonesia, the Islamic banking industry in these markets is small and young as compared to that in Malaysia. In short, since it is difficult to find banks that offer Islamic hedging products, and these *Shariah*-compliant MNC firms end up adopting conventional hedging instruments. Banks in Malaysia that provide Islamic hedging instruments, specifically BMMB and CIMB Islamic, also recognize the need to offer more products to meet better the various demand of their clients (Mohamad et al. 2014).

MANAGERIAL IMPLICATIONS

The main results of this research should provide insights into the management of the firms about the importance of TOTFCR and NETFCR in determining the practice of hedging. Since contractual hedging has costs, firms that do not have enough resources to adopt those hedging instruments must use other alternatives to minimize the total amount of forex exposure through natural hedging. These firms could also try to match their cash inflows and outflows by arranging risk-sharing agreements, bank-to-back loans, lead and lag payment terms, and so on. To maximize matching, firms should try to use the same foreign currency when dealing with their foreign trading partners. As implied by the significant result on NETFCR, the more matching or off-setting that can be done, the more critical for firms to conduct hedging. Also, TOTFCR is significant in determining hedging practice. Firms with large TOTFCR should be more responsible to their investors by disclosing details about their hedging activities.

This study has proven that *Shariah*-compliant status is also an essential determinant of hedging practice. In specific, *Shariah* status has a significant effect on the number of hedging instruments the firms are using to hedge their forex exposure. The virtue of *Shariah*-compliant firms should lie on how they are conducting their business activities. It is widely known that conventional hedging instruments are not permissible according to *Shariah* principles because of the presence of *riba' an-nasyia* as a result of the delay in delivery and difference in the actual forex value being exchanged. Therefore, the management of *Shariah*-compliant companies is responsible to the stakeholders to disclose the forex hedging instruments that they use. As far as this study is concerned, none of the *Shariah*-compliant firms reports in the annual report that they are adopting Islamic hedging instruments. Until today, there is no such disclosure requirement on *Shariah*-compliant firms, that does not free them from their responsibility to their stakeholders, especially the Muslim investors who are religious. The disclosure is important such that the stakeholders can evaluate whether or not the firms abide by the limit of 5% on profits from clearly prohibited activities, including *riba'* from using conventional instruments.

CONCLUSION

This paper examines the relationship between forex exposure and shariah status on hedging practice among 117 non-financial firms in Malaysia in a period of 6 years from 2010 to 2015. The evidence from the study shows that TOTFCR and NETFCR are relevant in influencing firms to practise hedging. This finding is new in forex hedging literature since it is founded from employing a new measurement of forex exposure. The result also suggests that investors should pay attention to information disclosed in items 31, 36 or 37 in the firm's annual reports to gauge the forex exposure that is experienced by Malaysian firms. However, this study also finds Malaysian firms are not consistent in reporting hedging practice (hedging status and the total number of hedging instrument used) while others are not being transparent in reporting those items.

Furthermore, from the analyses (panel multiple logistic regression), Shariah-compliant status shows insignificant results. However, the coefficient of Shariah-compliant status in panel multiple logit regression is positive, and the odds ratio (1.0058) of practising hedging indicates that firms prefer to practice hedging than not. This latter finding is consistent with the prediction in the study (Ho: Shariah-compliant status increases a firm's tendency to practise forex hedging). Specifically, the result from the multinomial logistic regression indicates SHARIAH is consistently positive and also significant, except for TOTHI 4.

The findings regarding the involvement of Shariah-compliant companies in hedging activities are alarming if these companies are using conventional hedging instruments. It should be given immediate attention because, as laid out earlier in this study, conventional forex hedging instruments involve *riba' an-nasyia* (the worst kind of *riba'*). Therefore, hedging must be considered exclusively in the accounting of the 5% limit of income contribution from clearly prohibited businesses. Note that in Appendix A, the list includes *riba'*-based activities, gambling, liquor and pork, interest income from conventional accounts and instruments, and tobacco-related activities). As stated by Arif et al. (2019), one of the main concerns that could disrupt the Islamic risk management instruments in the financial market is the attitude of depending on the existing conventional instruments structure. These instruments have been constructed years before the interest-free Islamic instruments were introduced. In complying the 5% limit of income contribution, Malaysia Shariah firms might encounter the challenges mentioned by Arif et al. (2019). This study opines, Shariah-compliant firms should be required to exclusively disclose the use of Islamic versus conventional hedging, just as they are required to do when issuing *sukuk* as opposed to a conventional bond.

ACKNOWLEDGEMENT

The authors wish to acknowledge that this paper is part of a research project funded under the Research University Scheme of the Universiti Kebangsaan Malaysia (GUP-2016-049).

REFERENCES

- Afza, T. & Alam, A. 2011. Corporate derivatives and foreign exchange risk management. A case study of non-financial firms of Pakistan. *The Journal of Risk Finance* 12(5): 409-420
- Ahmad, A.A., Ahmad, S., Tahir, M.H., Shahimi, S., Mohamad, S. & Mat Zain, M. 2012. Islamic forward exchange contracts as a hedging mechanism: An analysis of wa'd Principle. *International Business Management* 6(1): 47-54.
- Ahmad, A.A. & Yaacob, E.S. 2012. The principle of risk management: Sharia perspectives. *Journal of Applied Sciences Research* 8(7): 3335-3343
- Akpan, O.E. 2015. Exchange rate exposure and foreign exchange rate of Malaysian consumer product listed companies. *International Journal of Management Science and Humanities* 3(1): 17-32.
- Allayannis, G. & Ofek, E. 2001. Exchange rate exposure, hedging, and the use of foreign currency derivatives. *Journal of International Money and Finance* 20: 273-296.
- Ameer, R. 2010. Determinants of corporate hedging practices in Malaysia. *International Business Research* 3: 120-130.
- Arif, N.A, Muda, R, Alam, M.M & Mohamad, S. 2019. The impact of interest rate changes on the Islamic foreign exchange forward in the Malaysian derivative market. *Jurnal Pengurusan* 56: 26-37.
- Bacha, I.O., Mohamad, A., Syed Mohd Zain, R.S. & Mohd Rasid, E.M. 2013. Foreign exchange exposure and impact of policy switch – The case of Malaysian listed firms. *Applied Economics* 45: 2974–2984.
- Bae, C.S., Kim, S.K. & Kwon, H.T. 2017. Currency derivatives for hedging: New evidence on determinants, firm risk, and performance. *Journal Futures Market* 38: 446- 467
- Bailey, N., Browne, D., Hick, E. & Skerrat, L. 2003. UK Corporate use of derivatives. *The European Journal of Finance* 9: 169-193.
- Bakar, D.M. 2008. Hedging instruments in Islamic finance paper .7th conference of the Shariah Boards of Islamic Financial Institutions, Kingdom of Bahrain.
- Bartram, M.S. 2008. What lies beneath: Foreign exchange rate exposure, hedging and cash flows. *Journal of Banking & Finance* 32(8): 1508-1521.
- Bartram, M.S., Brown, W.G. & Fehle, R.F. 2009. International evidence on financial derivatives usage. *Financial Management* 38(1): 185-206.
- Berkman, H. & Bradbury. M.E.1996. Empirical evidence on the corporate use of derivatives. *Financial Management* 25(2): 5-13
- Bezzina, Frank & Grima, Simon. 2012. Exploring factors affecting the proper use of derivatives: An empirical study with active users and controllers of derivatives. *Managerial Finance*. 38. 414-435.

- Booth, L. & Rotemberg, W. 1990. Assessing foreign exchange exposure: Theory and applications using Canadian firms. *Journal of International Financial Management and Accounting* 2(1): 1-23.
- Butt, A.A., Nazir, S.M., Arshad, H. & Shahzad. A. 2018. Corporate derivatives and ownership concentration: Empirical evidence of non-financial firms listed on Pakistan Stock Exchange. *Journal of Risk Financial Management* 11(33): 1-15.
- Buyukkara, G., Karan, B.H., Temiz. H. & Yildiz, Y. 2018. Exchange rate risk and corporate hedging: Evidence from Turkey. *Emerging Markets Finance and Trade* 55(8): 1737-1753.
- Chaieb, I. & Mazzotta, S. 2013. Unconditional and conditional exchange rate exposure. *Journal of International Money and Finance* 32c: 781-808.
- Chong, L., Chang, X. & Tan, S. 2013. Determinants of corporate foreign exchange risk hedging. *Managerial Finance* 40: 176-188.
- Clark, E., Judge, A. & Ngai, S.W. 2006. The determinants and value effects of corporate hedging: An empirical study of Hong Kong and Chinese Firms. Available at <https://ssrn.com/abstract=929317>
- Cuestas, J.C., Huang, S.Y. & Tang. B. 2018. Does internationalization increase exchange rate exposure? Evidence from Chinese financial firms. *International Review of Financial Analysis* 56: 253-263.
- Danila, N. & Huang, C.H. 2016. The determinants of exchange rate risk management in developing countries: Evidence from Indonesia. *Afro-Asian Journal of Finance and Accounting* 6(1): 53-67.
- Dusuki, W.A. 2009. Syariah parameters on Islamic foreign exchange swap as hedging mechanism in Islamic Finance. *International Conference on Islamic Perspectives on Management and Finance*, University of Leicester, 2-3 July 2009.
- Dusuki, W.A. 2012. Principle and Application of Risk management and Hedging Instrument in Islamic Finance. Available at <http://iefpedia.com/english/wp-content/uploads/2012/07/Asyraf.pdf>.
- Eun, C. & Resnick, B. 2007. *International Financial Management*. New York: McGraw-Hill Series in Finance, Insurance and Real Estate.
- Fazillah, M., Azizan, A.N. & Hui, S.T. 2008. The relationship between hedging through forwards, futures and swaps and corporate capital structure in Malaysia. *ICFAI Journal of Derivatives Markets* 5(2): 37-52.
- Froot, A.K., Scharfstein, S.D. & Stein, C.J. 1993. Risk Management: Coordinating corporate investment and financing policies. *The Journal of Finance* 48(5): 1629-1658.
- Geczy, C., Minton, A.B. & Schrand, C. 1997. Why firms use currency derivatives. *Journal of Finance* 52: 1323-1354.
- Graham, J.R. & Rogers, D.A. 2002. Is corporate hedging consistent with value maximization? An empirical analysis. *Journal of Finance* 57(2): 815-840.
- Isa, A.M., Ismail. N. & Abd Rahman, H.N. 2017. Derivative use in hedging risk for plantation and property companies in Malaysia. *e-Academia Journal* 6(1): 38-47.
- Jeon, B.N., Zheng, D. & Zhu, L. 2017. Exchange rate exposure: International evidence from daily firm-level data. *Journal of Economic Integration* 32(1): 112-159.
- Jorion, P. 1990. The exchange-rate exposure of U.S. multinationals. *The Journal of Business* 63: 331-345.
- Judge, A. 2006. Why and How UK firms hedge. *European Financial Management* 12(3): 407-441.
- Kozarevic, E., Jukan, M.K. & Civic, B. 2014. The use of financial derivatives in emerging market economies: An empirical evidence from Bosnia and Herzegovina's non-financial firms. *Research in World Economy* 5(1): 39-48.
- Louviere, J.J., Hensher, D.A. & Swait, J.D. 2000. *Stated Choice Methods: Analysis and Application*. Cambridge, UK: Cambridge University Press.
- Marshall, A., Kemmitt, M. & Pinto, H. 2013. The determinants of foreign exchange hedging in Alternative Investment Market firms. *The European Journal of Finance* 19(2): 89-111.
- Martin, A.M., Rojas, W., Eráusquin, L.J. & Édgar Vera, Y.D. 2009. Derivatives usage by non-financial firms in emerging markets: The Peruvian case. *Journal of Economics, Finance and Administrative Science* 14: 73-86.
- Mishkin, S.F. & Eakins, S. 2017. *Financial Markets and Institutions*. 9th Edition. London: Pearson Education
- Mohamad, S., Ahmad, A. & Shahimi, S. 2011. Innovative Islamic hedging products: Application of Wa'd in Malaysian banks. *SSRN Working paper No.2070754*
- Mohamad, S., Othman, J. & Roslin, R. 2014. The use of Islamic hedging instruments as non-speculative risk management tools. *Venture Capital: An International Journal of Entrepreneurial Finance* 16(3): 207-26.
- Mohamad, S. & Tabatabaei, A. 2008. Islamic Hedging: Gambling or Risk Management? *21st Australian Finance and Banking Conference*.
- Moffett, H.M., Stonehill, I.A. & Eiteman, K.D. 2017. *Fundamental of Multinational Finance*. 6th Edition. New York: Pearson International Edition.
- Nordin, N., Ab. Rahman, A. & Oman, H.H. 2014. The Islamic hedging management: Paving the way for innovation in currency options. *International Journal of Management Studies (IJMS)* 21(1): 23-37.
- Nydahl, S. 1999. Exchange rate exposure, foreign involvement and currency hedging of firms: Some Swedish evidence. *European Financial Management* 5(2): 241-257.
- Parsley, C.D. & Popper, A.H. 2006. Exchange rate pegs and foreign exchange exposure in East and South East Asia. *Journal of International Money and Finance* 25: 992-1009.
- Prasad, K. & Suprabha, K.R. 2015. Measurement of exchange rate exposure: Capital market approach versus cash flow approach. *Procedia Economics and Finance* 25(15): 394-399.
- Rim, H. & R. Mohidin. 2005. On the dynamic relationship between exchange rates and industry stock prices: Some empirical evidence from Malaysia. *Journal of Applied Business Research* 21: 49-60.
- Salvary, W.S. 2005. The underinvestment problem, risk management, and corporate earnings retention. *Journal of Business & Economic Studies* 11(2): 87-102.
- Shapiro, C.A. 2014. *Multinational Financial Management*. Wiley Asia Student Edition.
- Vural-Yavas, C. 2016. Determinants of corporate hedging: evidence from emerging market. *International Journal of Economics and Finance* 8(12): 151-162.
- Wahyudi, S., Goklas, F., Rita, R. M., Hersugondo, H. & Laksana, R. 2019. The determinants of corporate hedging

- policy: A case study from Indonesia. *International Journal of Economics and Business Administration* 6(1):113-129.
- Wong, F.H.M. 2000. The association between SFAS No. 119 derivatives disclosures and the foreign exchange risk exposure of manufacturing firms. *Journal of Accounting Research* 38: 387-417.
- World Trade Statistical Review. 2016. World Trade Organization (WTO). Available at https://www.wto.org/english/res_e/statis_e/wts2016_e/wts2016_e.pdf
- Zadeh, F.O. & Eskandari, A. 2012. Looking forward to financial risk disclosure practices by Malaysian firms. *Australian Journal of Basic and Applied Sciences* 6(8): 208-214
- Adilah A. Wahab
Faculty of Economics and Management
Universiti Kebangsaan Malaysia
43600 UKM Bangi, Selangor, MALAYSIA.
E-Mail: adilahraul@yahoo.com
- Ruzita Abdul-Rahim (corresponding author)
Faculty of Economics and Management
Universiti Kebangsaan Malaysia
43600 UKM Bangi, Selangor, MALAYSIA.
E-Mail: ruzitaar@ukm.edu.my
- Hawati Janor
Faculty of Economics and Management
Universiti Kebangsaan Malaysia
43600 UKM Bangi, Selangor, MALAYSIA.
E-Mail: hawati@ukm.edu.my

APPENDIX A

SCREENING CRITERIA FOR MALAYSIAN SHARIAH-COMPLIANT STATUS COMPANY

Quantitative assessment	Previous screening methodology (before May 2013)	New screening methodology (effective November 2013)
Business activity benchmarks	5% <ul style="list-style-type: none"> To assess the level of mixed contributions from activities that is clearly prohibited such as <i>riba</i>'-based activities, gambling, liquor and pork, interest income from conventional accounts and instruments and tobacco-related activities. 	5% <ul style="list-style-type: none"> To assess the level of mixed contributions from activities those are clearly prohibited such as <i>riba</i>'-based activities, gambling, liquor and pork, interest income from conventional accounts and instruments and tobacco-related activities.
	10% <ul style="list-style-type: none"> To assess the level of mixed contributions from the activities that involve the element of "<i>umum balwa</i>" which is a prohibited element affecting most people and difficult to avoid. For example the contribution of interest income derived from fixed deposits in conventional banks. This benchmark is also used for tobacco-related activities 	20% <ul style="list-style-type: none"> To assess the level of contributions of mixed rentals from Shariah non-compliant activities; to assess the level of mixed contributions of mixed contributions from activities that are generally permissible according to Shariah and have an element of <i>maslahah</i> (public interest), but there are other elements that may affect the Shariah status of these activities e.g. hotel and resort operations.
	20% <ul style="list-style-type: none"> To assess the level of contribution from mixed rental payment from Shariah non-compliant activities such as the rental payment from the premise those are involved in gambling, sale of liquor etc 	
	25% <ul style="list-style-type: none"> To assess the level of mixed contributions from the activities that are generally permissible according to the Shariah and have an element of <i>maslahah</i> to the public, but there are other elements that may affect the Shariah status of these activities. Among the activities that belong to this benchmark are hotel and resort operations, share trading, stockbroking and others, as these activities may also involve other activities that are deemed non-permissible according to the Shariah. 	
Financial ratio benchmark	NA	33% <ul style="list-style-type: none"> Compute the financial ratios: <ul style="list-style-type: none"> Debt/ Total Assets; Cash and Cash Equivalent/ Total Assets Each ratio, which is intended to measure <i>riba</i>' and <i>riba</i>'-based elements within a company's statements of financial position, must be less than 33 percent.

Source: Malaysia Islamic Financial Centre (MIFC) at <http://www.mifc.com>.

APPENDIX B

This is the example of odds ratio – logistic regression interpretation. Firstly, these odds ratios are the exponential of the corresponding regression coefficient: Odds ratio = e^{β}

For example, if the logistic regression coefficient is $\beta = 0.36$ the odds ratio is 1.4333

$$e^{0.36} = 1.4333$$

The odds ratio shows how the odds change for a one-unit increase in the value of the X . For the example above, if the odds are 1.4333, then the interpretation will be

“ increasing the X variable by 1 unit will increase the odds of 1.4333.....”

Similar to this paper;
Refer to Table 3;

The odds ratio for firm size is 7.3760, Thus the interpretation:
“When each/one unit increase in total asset, it increases the odds of firms to practise hedging by 7.3760”