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Article

A Study on the Efficiency and Stability of Different Categories of Banks in Malaysia

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ABSTRACT – This paper aims to gain new insights on efficiency and stability in a dual banking system. It evaluates the efficiency level and stability performance of two types of bank operating in Malaysia, i.e. conventional and Islamic, between 2012 to 2017. The data was extracted from Central Bank of Malaysia (BNM) and annual reports of individual banks. Z-score and data envelopment analysis (DEA) were employed to evaluate bank efficiency and stability, respectively. T-test and panel data regression were used in determining the disparity in stability performance. Interestingly, the results reveal different impacts of efficiency and stability on both types of banking system. It is found that conventional banks are less likely to experience bankruptcy and have better financial health. The Islamic banks, however, are found to be inefficient and more unstable compared to conventional banks. The results suggest that Islamic banks need to capitalize the effect of leverage, cost and production efficiency and economies of scale.

INTRODUCTION

The banking structure is part of every country's financial machinery and is vital for economic progress. The two banking systems that are common in Malaysia are the conventional (that is based on western financial system) and the Islamic (which follows the Shariah law) banking system. The dual banking system practices by the Malaysian banking industry allows both Islamic and conventional banks to operate symbiotically. Both categories of banks are fully supported by the Malaysian government by ways of providing conducive financial ecosystem, establishing an efficient financial and legal infrastructure, as well as supplying human capital and resources (Kassim et al., 2009).

Basically, conventional banks provide loans to enterprises or individuals by borrowing from depositors. The difference in the borrowing and lending rates in conventional banks is the source of their profit. Conversely, the Islamic banks operations and products must adhere to Shariah-based principles. In short, Islamic banking financial transactions and instruments are to be free from *riba'* (interest), *gharar* (ambiguity), and forbidden (*haram*) activities (for example; pork, pornography, liquor, gambling, casino etc). Essentially, all financial transactions must be supported by real economic activities (Prima Sakti & Mohamad, 2018).

In Islamic banks, the Shariah Committee (SC) that acts as the Shariah advisor was first established by Bank Islam Malaysia under the Islamic Banking Act 1983. SC of Islamic bank is a

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committee set up with the purpose to ensure all Islamic financial institutions (IFIs) operations and products comply to Shariah principles. This statutory requirement can be found in Central Bank of Malaysia Act 2009 and the Islamic Financial Services Act 2013 (IFSA 2013) (Laldin & Furqani, 2018).

The banking industry is a key agent in a developing country's financial system such as Malaysia. Bank efficiency signifies bank's aptitude to convert its resources into revenues, whereby a bank is thought to be more efficient when its output production (revenues) is optimal, given limited or minimum level of resources. On the other hand, bank stability refers to a bank's ability to remain resistant despite financial shocks and unfavourable economic conditions or the ability to fulfill obligations without external interferences (Miah & Uddin, 2017). To date, a number of studies have looked at bank efficiency, with most of them using non-parametric DEA analysis (see, Qureshi & Shaikh, 2012; Rosman et al., 2013; Gishkori & Ullah, 2015; Prima Sakti & Mohamad, 2018; among others). However, empirical evidence on Malaysia's Islamic and conventional banks stability using the Z-score and non-performing loan (NPL) measurements are still limited.

Since banks have to compete with each other locally and internationally, the banking sector is under extraordinary strain to perform well in the current worldwide banking environment. Islamic banks not only have to contend among themselves, but also compete with other types of banks and non-banking financial institutions. Both types of banks need to satisfy their stakeholders and ensure their survival by operating efficiently, displaying stability, minimizing costs and maximizing revenues as well as profits. Essentially, the economic advancement of a country relies on the performance of financial institutions. In the past, there were many studies that explored efficiency in both Islamic and conventional banks (Qureshi & Shaikh, 2012; Gishkori & Ullah, 2015; Ahmad & Rahman, 2012). In Malaysia, the findings are mixed, with a few studies (Kamarudin et al., 2014; Ismail et al., 2013) concluding conventional banks being less efficient at controlling costs and generating profits and a few others believing that conventional banks are more effective at operational and managerial level than that in Islamic banks (Mohd Zamil, 2007).

Furthermore, efficiency comparison studies between both banking systems in Malaysia found a significant dissimilarity in their degree of efficiency (Yahya et al., 2012). In a stability study of Malaysian Islamic and conventional banking systems in 2005-2010, Rahim and Zakaria (2013) indicated that Islamic banks pose lower risks compared to conventional banks. In contrast, according to Wahid and Dar (2016), huge conventional banks are more steadfast compared to huge Islamic banks. Different findings using different methods were found in past research. The present study attempts to answer two main questions. Firstly, is there any difference with regards to efficiency level and stability between Islamic and conventional banks in Malaysia? Secondly, is there any association between bank efficiency and stability for these two types of banks?

The objectives are outlined as follows. First, to assess the efficiency of the two types of bank, Islamic and conventional. Second, to relate stability levels between the two bank classes. Third, to examine the relationship between efficiency level and bank stability. The study scope includes comparisons of efficiency and stability between two categories of Malaysian domestic banks, namely Islamic and conventional. The data gathered is for 6 years, between 2012 until 2017. The banking sector data were extracted from the Malaysian Central Bank (BNM) and individual banks' annual reports. The sample data were sourced from a total of ten Islamic banks and eight conventional banks in Malaysia. The independent variable of this study is efficiency, while the dependent variable is stability.

LITERATURE REVIEW
Bank Efficiency

In general, the banks' degree of efficiency is determined by their long-term sustainability and highly competitive environment. Bank stability and efficiency are important pre-requisites for financial markets' operation (Serdarevic & Teply, 2011; Cernohorsky & Cernohorska, 2014). According to Sathye (2005), economic progress of a country hinges on banking efficiency that acts as a catalyst. In addition, better asset quality is a result of efficient institutions that maintain good screening and monitoring procedures (Wheelock & Wilson, 1995).

Existing studies on banks efficiency can be categorized into two groups. The first group looks at Islamic bank's efficiency. The second group includes efficiency studies of two categories of banks, Islamic and conventional. For the first group, Rosman et al. (2014) examined the efficiency of 79 Islamic banks in the Middle East and Asia during the global financial crisis (2007-2010), using data envelopment analysis (DEA). The findings have shown evidence that Islamic banks remained stable despite the crisis. However, according to this research (Rosman et al., 2014), most of Islamic banks were inefficient, scale wise. This study also discovered that Islamic banking efficiency has significant positive effect on both profitability and capitalization.

Alam (2013) did a research on Islamic banks across 11 countries on whether bank law, management, and supervision enhance technical efficiency and risk-inclined behavior. The result suggested that technical efficiency of Islamic banks increased due to banking operation regulations and monitoring, and better role played by the authorities. However, these have led to some downsides whereby strict restrictions in Islamic banks have led to reduction in risk-taking behavior. Ada and Dalkilic (2014), analyzed efficiency of Islamic banking in Malaysia and Turkey from 2009 to 2011. In the study, Malmquist Total Factor Productivity Index was used to gauge efficiency and total factor productivity changes. The findings suggested that Turkish banks were less efficient than the Malaysian banks in 2010 and 2011, but outrun them in 2009.

In line with the second group of study, Qureshi and Shaikh (2012) examined relative efficiency of both types of banks in Pakistan. The sample consisted of 43 Islamic and 37 conventional banks. This study used two methods: the first was a ratio analysis that looks at efficiency in terms of study cost, revenue and profit; while the second was DEA that analyses efficiency based on technical, pure technical and scale. Their study found that Islamic bank is more efficient but less revenue efficient. There was an inverse link between size and scale efficiency for the two bank types. In addition, Ahmad and Rahman (2012) employed DEA to examine technical, pure and scale efficiency of both types of bank in Malaysia from 2003 to 2007. The sample involved two Islamic banks and eight conventional banks. It was found that managerial efficiency and technological environment cause Islamic banks to be substantially less efficient than conventional banks.

Ismail et al. (2013) presented analysis on the efficiency of both bank categories between 2006 and 2009 in Malaysia. Investigation on the cost efficiency of the Malaysian banking sector was carried out using DEA. It shows that the cost efficiency of conventional banks is contributed by technical efficiency, while that of Islamic banks was contributed by allocative efficiency. This suggests inadequate use of information technology and electronics among Islamic banks, unlike the conventional counterparts. Their findings are also supported by more recent studies (Miah & Uddin, 2017; Prima Sakti & Mohamad, 2018).

On the one hand, Wahid (2016) investigated the technical efficiency of both types of bank operating in Malaysia between 2004 and 2013 by employing DEA. As many as 38 banks comprising of 21 conventional banks and 17 Islamic banks were taken as samples. In this study, efficiency was evidently influenced by bank size when it comes to Islamic banks, but not for conventional. On the other, Rahim & Zakaria (2013) discovered higher Z-scores and lower nonperforming loans (NPL) among Islamic banks compared to that of the conventional banks.

Bank Stability

Financial stability contributes to a well-functioning and efficient banking system. An important element of bank stability is market share. According to Schwartz (1995), economic growth and price stability are vital for financial stability. Similarly, Crockett (1997) proposed that stability is key for institutions and market financial stability. Beck et al. (2013) found that stability leads to higher market share. Martinez-Miera and Repullo (2010) noted that competition between banks and stability are non-linearly connected. There are many definitions of stability. According to Shinasi (2004), stability is a broad concept, incorporating the diverse aspect of financial system, institutions, infrastructure and market. Eventually, stability is contributed by efficiency improvements, while inefficiencies in banking industry are due to weak lending decision, seizures and disposals of security (Berger & DeYoung, 1997).

Rahim and Zakaria (2013) provided a comparison analysis on stability between both types of bank in Malaysia. The proxies used for bank stability are non-performing loan (NPL) and Zscore. With regards to NPL measure, conventional banks were relatively less stable compared to Islamic banks. Factors affecting both types of banks stability are similar. This study also investigates whether a financial crisis is a barrier for both Islamic and conventional banks to remain stable.

Measurements of bank stability should also consider bank size. The relationship between bank size and stability varies in the academic literature (Korbi & Bougatef, 2016). Trad et al. (2016) and, Rashid et al. (2017) found that banks' performance stability is significantly affected by bank size. These studies also discovered a significant association between bank size and financial stability. Wahid and Dar (2016) provided analysis on stability of both types of bank in Malaysia. A sample of small and large banks were used to conduct the analysis. The findings imply that only large conventional banks were secure. However, small conventional banks were found to be less stable compared to small Islamic banks. Furthermore, the results disclosed that important factors affecting stability of Malaysian banks are bank size, market capitalization and diversification of income.

Hamdi et al. (2019) and Trad et al. (2016) investigated the stability of both types of bank in the MENA region throughout the recent global financial turmoil (2007-2013). According to Hamdi et al. (2019) using z-score, Islamic banks are more stable than the conventional banks. Meanwhile, Trad et al. (2016) using samples for the 2006-2013 period suggested that the degree of performance and stability for both bank types are explained by several variables. Inflation has an adverse bearing on Islamic banks performance but not conventional banks, whereby their profitability has a direct effect with macroeconomy. Sakarya (2016) examined the financial firmness of Islamic banks in Turkey. The findings suggested that Islamic banks in Turkey possess a similar efficiency profile and stability perspective. Thus, stability incorporates both profitability and leverage using Z-score. According to Beck et al. (2013), business models for both types of banks do not exhibit meaningful discrepancies in terms of efficiency, quality of asset and stability.

Islamic vs. Conventional Banking

Both al-Quran and al-Hadith are used as main sources of reference in developing the Islamic banking system. Islamic banking is a system of financial activities that are based on Shariah law (El Tiby, 2011). According to Shariah law, there are three main unlawful activities in finance, *riba* (usury), *gharar* (ambiguity) and financing of unlawful activities involving alcohol, drugs, pork and weapons (Yahya et al., 2013). El-Gamal (2006) stated that Islamic banking is growing in financial sectors worldwide. Islamic banking has begun to be accepted with more Islamic financial products making its mark in financial institutions in developed countries (Yudistira, 2004).

Conventional banking institutions constitute most of the retail banking services. Conventional banking system is usury-based with an obligation to pay interest to customer (Kayed & Hassan, 2011). In other words, conventional banking principal follow the financial

model, in which, banks lend to enterprises or individuals by borrowing from depositors. However, conventional banks are barred from any kind of dealings in the shareholding of borrowing concern (Shahid et al., 2010). According to Santos (2000), conventional banking theories are based on the assumptions that banks earn profits by offering financial instruments at greater interest rates whilst paying minimal interest rates to depositors.

Theories Applied
**Theory of Cost and Production Functions**
Production function reveals the functional relationship between inputs and outputs. The theory of production concerns the ideal allocation of production factors that are able to reduce total cost for each output, and the type of cost curves, derived from production process (Samuelson, 1958). A firm's capability to produce maximum possible output with a known input is known as technological efficiency. Meanwhile, the lowest possible total cost producing a given output is called economic efficiency. On the other hand, cost function refers to a mathematical relationship between cost and its determinants. Cost function is a function obtained from production function and market supply of inputs. In a cost function, the dependent variable is unit cost or total cost and efficiency is one of the independent variables. The dual determination of production functions from cost curves has been corroborated by Clough (1953). Cost and production function theory defines efficiency as the lowest possible total cost needed to produce a given output.

Theory of Financial Intermediation
The financial intermediation theory, which was introduced in the 1960s, centered on the theory of informational asymmetry and the agency theory. It highlights their role in accomplishing sustainable economic growth, the effect of regulatory financial intermediation, as well as the role played by central banks in regulatory, supervisory and control of financial intermediaries. Financial intermediaries provide a significant macroeconomic impact by promoting effective workings of markets and anything that affects credit flow. According to Gorton & Winton (1998), in underdeveloped financial markets, high intermediation spread behaves as a protection of bank franchise value and assists financial stability.

Conceptual Framework
Figure 1 demonstrates conceptual framework of this study. The relationships between dimensions are illustrated clearly in this conceptual framework. On the left side of the framework is efficiency (independent variable) and the right side of the framework include dimensions of stability (dependent variable). The study then makes comparison between two categories of banks in Malaysia, Islamic and conventional.
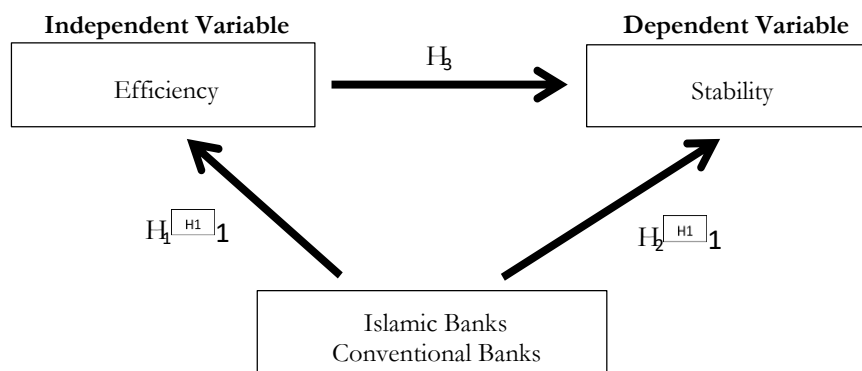
Figure 1: Conceptual Framework

METHODOLOGY
Population and Sampling
The population for this study is represented by Islamic and conventional banks in Malaysia for the period between 2012 and 2017. It covers small, medium and large domestic banks in Malaysia. In accordance to data obtained from the Malaysian Central Bank, there are ten domestic and six foreign Islamic banks, whereas the conventional banks have eight domestic and nineteen foreign banks operating in Malaysia. However, due to data availability, this study focuses only on 10 Islamic banks and 8 conventional banks as samples, all of which are domestic (Table 1). The study excludes foreign banks because they are operating at different levels, with big capitals. This study examined the relationships between banks stability and efficiency of two types of banks operating in Malaysia. In order to examine stability, the Z-score was used while the efficiency level was measured using efficiency score, calculated using DEA (data envelopment analysis).

Table 1: List of Banks in Malaysia According to Categories – Islamic and Conventional

No.	Islamic Banks	No.	Conventional Banks
1	Affin Islamic Bank Berhad	1	Affin Bank Berhad
2	Alliance Islamic Bank Berhad	2	Alliance Bank Malaysia Berhad
3	AmBank Islamic Berhad	3	Ambank (M) Berhad
4	Bank Islam Malaysia Berhad	4	CIMB Bank Berhad
5	Bank Muamalat Malaysia Berhad	5	Hong Leong Bank Berhad
6	CIMB Islamic Bank Berhad	6	Malaysia Banking Berhad
7	Hong Leong Islamic Bank Berhad	7	Public Bank Berhad
8	Maybank Islamic Berhad	8	RHB Bank Berhad
9	Public Islamic Bank Berhad		
10	RHB Islamic Bank Berhad		

Stability
This study adopted Z-score as a measurement for bank stability, which is more widely used in research (for example, Bourkhis & Nabi, 2013; Korbi & Bougatef, 2016; Rashid et al, 2017) compared to non-performing loan (NPL). Z-score is recommended by many researchers, as it relates directly to bank's insolvency. It is written as follows:

z-score = $1.2A + 1.4B + 3.3C + 0.6D + 1.0E$…………..……..…. *(1)*

A = *working capital ÷ total assets*
B = *retained earning ÷ total assets*
C = *earnings before income tax ÷ total assets*
D = *market value ÷ total assets*
E = *sales ÷ total liabilities*

Efficiency

This study adopted the commonly used Data Envelopment Analysis (DEA) to examine bank efficiency. DEA uses exact statistics making it suitable for this study. Decision Making Units (DMU), which transforms several inputs into outputs is an alternative approach to weighing the performance of a set of peer quantities, as compared to the stochastic frontier analysis. This study used operation and fixed cost as input variables and revenue and number of loans as output variable. In addition, DEA uses mathematical programming to implicitly estimate the trade-offs in the empirical efficient frontier analyses (Zhu, 2016). Thus, DEA is an apt tool in analyzing productivity.

The customary method for efficiency measurement is as below:

$$Efficiency = \frac{Output}{Input} \quad\text{……………………………} (2)$$

In DEA, linear programming is applied in order to maximize the equation above. The DEACCR model uses the model below (Charnes et al.,1978):

$$maximize : \theta = \frac{u_1 y_{1o} + u_2 y_{2o} + \cdots + u_s y_{so}}{v_1 x_{1o} + v_2 x_{2o} + \cdots + v_m x_{mo}} = \frac{\Sigma_{r=1}^{S} u_r y_{ro}}{\Sigma_{i=1}^{m} v_i x_{io}} \text{…………} (3)$$

$$subject\ to: v_1 x_{1o} + v_2 x_{2o} + \cdots + v_m x_{mo} = 1 \quad \text{………………………} (4)$$

$$u_1 y_{1j} + \cdots + u_s y_{sj} \le v_1 x_{1j} + \cdots + v_m x_{mj} \quad (j = 1, …, n) \text{………………...} (5)$$

$$v_{1,} v_2, …, v_m \ge 0 \text{…………………………………...} (6)$$

$$u_{1,} u_2, …, u_s \ge 0 \text{……………………….…} (7)$$

Where;

θ = *objective value(efficiency score)*
$u_i\ (i = 1, ….., s)$ = *output weights, s = number of inputs*
$y_{io}(i = 1, ….., s)$ = *output for DMU∘*
$v_i\ (i = 1, ….., m)$ = *input weights, m = number of outputs*
$x_{io}\ (i = 1, ….., m)$ = *inputs for DMU∘*
n = *number of DMUs*

Panel Data Regression

Panel data regression models are grounded on panel data, which are observations of the matching cross-sectional over numerous time periods. Bank efficiency and stability determinants were analyzed using this panel data. In a panel data, the model comprises of *n* cross-sectional units (denoted by *n=1, … … N*), discerned at each period, T (*t=1, … … T*). Overall, the sum of observations is $n \times T$. The basis for the panel data is defined in regression model below (Brooks, 2008):

$$y_{nt} = \alpha + \beta X_{nt} + \varepsilon_{nt} \text{………………...………..…} (8)$$

y acts as the dependent variable, representing stability, X is the independent variable on behalf of efficiency, α and β are coefficients, n and t are indices for time periods. The error term ε_{nt} determines whether they are fixed or random effects. Panel data regression is used to test H₃.

DATA ANALYSIS
Data Envelopment Analysis (DEA)
To establish the efficiency scores, the DEA method was adopted. Table 2 depicts the efficiency report, whereby average efficiency scores of all ten Islamic banks and eight conventional banks from 2012 to 2017 are reported. Equal efficiency scores are recorded for both types of bank in 2013 and 2014 with scores being 0.66 and 0.74 respectively (Table 2). However, in other of those years, the efficiency scores of conventional banks exceed that of Islamic.

Table 2: Efficiency Score Average of Islamic and Conventional Banks

Average Efficiency Score	2012	2013	2014	2015	2016	2017
Islamic Banks	0.66	0.66	0.74	0.74	0.72	0.66
Conventional Banks	0.73	0.66	0.74	0.84	0.83	0.77

In **Table 2** above, conventional banks efficiency scores are seen to fluctuate considerably year by year, whereas Islamic banks efficiency scores are more stable and showing improvement over the years. Whilst the scores generally improve for both types of banks, 2017 saw the scores to drop significantly.

Z-score
Z-score for both banks show different results in different years. High z-scores indicate that banks are in good financial health and are less likely to succumb from bankruptcy. The average z-scores from 2012 to 2017 are summarized in the following table (Table 3).

Table 3: Z-score Average of Islamic and Conventional Banks

Z-Score	2012	2013	2014	2015	2016	2017
Islamic Banks	0.31	0.24	0.43	0.22	0.21	0.22
Conventional Banks	0.34	0.34	0.31	0.28	0.42	0.38

The Z-score is a tool to gauge banks stability. The z-score averages of Islamic banks over the 6-year period are lower than conventional banks, except in 2014. The z-score average for conventional banks experiences a dip in 2014 and 2015 before rising again thereafter. The conventional banks recorded the highest average z-score in 2016 with a 0.42 score. The Islamic banks recorded the highest average z-score in 2014 with a score of 0.43. Apart from scores in 2012 and 2014, Z-scores for Islamic banks are rather consistent, within the 0.21-0.24 range, whereas for conventional banks scores are rather consistent in the 0.34-0.38 range (Table 3). This shows that for the 6-year given, conventional banks display higher stability than the Islamic banks.

T-Analysis
The T-test analysis comprises of comparisons of stability and efficiency between Islamic and conventional banks. Table 4 reveals that *p*-value is 0.011 for the difference in efficiency between both types of banks in Malaysia. Being less than 0.05, the null hypothesis of "*no difference in*

efficiency of both bank types" is rejected. There is a significant difference in efficiency between both types of bank.

Table 4: T-test for Hypothesis 1

Efficiency	N	Mean	SD	t value	p value
Islamic Banks	48	0.668	0.146	-2.651	0.011*
Conventional Banks	48	0.761	0.182		

*Significant at 5% level

As shown in the table above, Islamic Banks efficiency has a mean of 0.668 and standard deviation of 0.146. Meanwhile, conventional Banks efficiency a 0.761 mean and 0.182 SD. Since the mean for conventional banks is greater than that of Islamic banks, it can be concluded that conventional banks are more efficient than Islamic banks.

Stability Comparison between Islamic and Conventional Banking
Table 5 reveals a 0.000 p value for stability paired t-test between both types of bank in Malaysia. Since *p* value is less than 0.05, 5 percent level of significance, the null hypothesis is rejected. Hence, it is concluded that the difference in stability between both types of bank is significant.

Table 5: T-test for Hypothesis 2

Stability	N	Mean	SD	t value	p value
Islamic Banks Conventional Banks	48	0.234	0.132	-3.952	0.000*
	48	0.346	0.130		

*Significant at 5% level

The null hypothesis which states "*there is no significant difference in stability between Islamic banks and conventional banks*" is rejected, meaning that both banks are significantly distinct in terms of stability. As shown on Table 5, stability in Islamic Banks has 0.234 mean and 0.132 SD, suggesting a less stable banking system compared to the conventional, which has a 0.346 mean and 0.130 SD. Thus, conventional banks within the said period were more stable than Islamic banks in Malaysia.

Panel Data Regression Analysis
The results for the third hypothesis, "*a significant relationship exists between bank efficiency and bank stability for Islamic Banks in Malaysia*", are reported in Table 6 below.

Table 6: Panel Data Regression for Hypothesis 3 - Islamic Banks

Dependent Variable: Stability				
Variable	**Coefficient**	**SE**	**t value**	**p value**
Efficiency Islamic banks	0.368	0.054	6.761	0.000
	R = 0.242		$\mu = 0.271$	
	$R^2 = 0.0588$		$\sigma = 0.292$	

In Table 6, it shows that Islamic banks efficiency (independent variable) have a significant positive effect on its stability (dependent variable) with a parameter of 0.367823. This means

that for the said period, stability is expected to grow by 36.78 percent with every unit increase in efficiency. Therefore, the hypothesis which asserts that "*relationship exists between efficiency and stability for Islamic banks in Malaysia*" is accepted.

Efficiency and Stability of the Conventional Banks

To test the third hypothesis whereby, "*there is a significant relationship between bank efficiency and bank stability for conventional Banks in Malaysia*", panel data regression is employed. Table 7 shows that efficiency has significant positive effect on stability among conventional banks, with a parameter of 0.430985. It means that stability is expected to increase by 43.10 percent when efficiency increases by one unit.

Table 7: Panel Data Regression for Hypothesis 3 - Conventional Banks

Dependent Variable: Stability				
Variable	**Coefficient**	**SE**	**t value**	**p value**
Efficiency Conventional Banks	0.431	0.028	15.352	0.000
	R = 0.615		$\mu = 0.346$	
	$R^2 = 0.378$		$\sigma = 0.130$	

The null hypothesis which maintains that "*there is no significant relationship between efficiency and stability for conventional banks in Malaysia*" is rejected as p value is denoted by 0.000, less than 5 percent significance (< 0.05). The t value also has a positive direct relationship with the variable. Thus, it can be said that a significant relationship between stability and efficiency exists for conventional banks in Malaysia.

CONCLUSION

The study findings have shown that efficiency level between two categories of bank significantly differs from each other, with conventional banks being more efficient and effective than Islamic banks. This is comparable to the findings by a study which examined Malaysian Islamic and conventional banks in terms of their efficiency, from year 2003 to 2007 using DEA. Their findings indicated that, possibly due to better management and technological adoption, conventional banks were more efficient than the Islamic banks. However, a study had found that Islamic banks in Pakistan are more efficient and less revenue efficient compared to its conventional counterparts. The study used two methods: ratio analysis and DEA for comparative banks efficiency.

A local research by Ismail et al. (2013) also discovered that Malaysian conventional banks were more efficient than their Islamic counterparts for the 2006 to 2009 period. DEA was used to examine the efficiency levels of the Malaysian banking sector. The research supports this study's hypothesis that "*there is a significant difference in efficiency between Islamic banks and conventional banks*" in Malaysia from year 2012 to 2017.

The stability of conventional banks precedes that of Islamic banks significantly. This is similar to local findings by Wahid and Dar (2016) who found that huge conventional banks are more stable than huge Islamic banks in Malaysia. They; however, found the opposite to be true when it comes to the stability of smaller banks. Trad et al. (2016) and Rashid et al. (2017) also suggested that bank size has significant bearings on banks performance consistency.

A significant relationship between efficiency and stability is also found for both types of banks in Malaysia, with stability leads to bank efficiency positively. Apriadi et al. (2016) discovered that banks stability depends on cost efficiency whilst Beck et al. (2013) found no

significant difference in efficiency and stability for both banks. This study; however, found that efficiency is a channel promoting stability through competition, as found by Schaeck and Cihák (2014).

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