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Corporate governance and financial stability in Islamic banking

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Abstract

Purpose – The purpose of this paper is to examine the relationship between corporate governance and financial stability of the Islamic banking institutions in Malaysia. Indeed, we do not know much about the relationship between the corporate governance variables and the financial stability of the Islamic banks (IBs) in Malaysia.

Design/methodology/approach – In this case, the level of bank stability is individually measured using the *Z*-score indicator. The corporate governance dimension in this study includes the Shari'ah board size (SBS) in addition to the size of board members and the proportion of independent directors in the board. Using a yearly bank-level data of 16 IBs in Malaysia from 2005 to 2015, this paper utilizes the fixed effect, the GLS random-effect models and the OLS methods to provide empirical evidences. Moreover, this work aims to focus on the country-level data of Malaysia's banking sector and introduced the corporate governance variables in this model.

Findings – To the authors' knowledge, this is the first empirical analysis of country-level data in the Malaysia's banking industry with this research approach. The study found that the percentage of independent members in the board of directors has a significant positive impact on the financial stability of the IBs. However, the SBS and the size of board are found to have no influence toward financial stability.

Originality/value – With this paper, the authors hope to clarify the relationship between corporate governance and financial stability of the Islamic banking, and provide additional insights to the emerging literature of Islamic banking.

Keywords Corporate governance, Malaysia, Financial stability, Islamic banking institutions

Paper type Research paper

1. Introduction

Islamic banking has rapidly grown both in size and number in many countries throughout the world. Although the total assets of Islamic banks (IBs) worldwide are still very small compared to the whole world's total banking assets, their growth rate is phenomenal, particularly in the Middle East and Southeast Asia. Many studies have been developed around the inherent risk involved in IBs but are generally discussed from a theoretical point of view (Boumediene and Caby, 2009). Moreover, the existing theoretical studies have not provided clear views on whether and how banking aspects of IBs, including their stability, differ from the conventional banks. On the other hand, empirical studies have not been as much developed as theoretical studies. The first empirical study dealing with the topic of Islamic banking stability was conducted by Cihák and Hesse (2008), in which the stability of IBs is measured with an insolvency risk indicator and compared to those of conventional banks. This work has become an important reference used in many other empirical studies, such as Boumediene and Caby (2009). Those papers used cross-country data observation. Some important things related to this methodology – the cross-country data – should have been dealt more carefully since every country has its own regional and developmental backgrounds accounting for different definitions of banks and different characteristics of the banking industry. Moreover, different financial systems which encourage or limit the operation of IBs will also make the data of each country more difficult to compare.

JEL Classification — G18, G21, G32, G33

Therefore, it is suggested that a cross-country analysis should take appropriate control for heterogeneity across countries to gain reliable conclusions about financial stability of the Islamic banking sector.

The adoption of sound corporate governance standards and practices ensures safe and sound management of IBs, where risk-taking activities and business prudence are appropriately balanced so as to maximize the shareholders' returns and protect the interests of all stakeholders. In a liberalized and more competitive environment, where there is a constant pressure on management to deliver the required bottom line, strong corporate governance becomes the critical safeguards against all kinds of mismanagement and fraudulent activities. Effective corporate governance practices enhancing corporate accountability are the key elements in the working of market discipline and transparency. Past studies confirm that organizations which focus more on sustainability practices have higher financial performance compared to those without such commitments in some activity sectors (Rashid and Radiah, 2012). Multinational corporations are able to make significant contributions toward sustainable development practices. It is assumed that the sustainability practices will go on after they are put in place. Rapiah *et al.* (2009) found that the Malaysian Shari'ah-compliance-listed companies have grown more aware of the importance of sustainability practices. Amran and Che-Ahmad (2011) show the role of Islam as a vital factor behind a better disclosure of sustainability practices. In the case of Islamic corporate governance, the conflict is overcome by the organic participatory nature of the Shuratic process.

The Islamic corporate governance presents distinct characteristics in comparison with the conventional system. In addition, the Islamic corporate governance encourages honesty, integrity, transparency, accountability and responsibility amongst all stakeholders. Another obvious way to differentiate between Islamic banking and conventional banking is the existence of a Shari'ah Supervisory Board (SSB) as part of the internal governance structure of the institutions, whereas the conventional banking has only board of directors (BOD). Sound corporate governance in Islamic banking is crucial to ensure that depositors suffer no loss simply because it is easier to "fleece" them than depositors in conventional banks (Satkunasingam and Bala, 2004). Therefore, Islamic banking institutions (IBIs) could have advantages over conventional banks when its SSB play their role well. However, there is limited evidence on how the SSB existence would have an impact on the sustainability practices in the IBIs. With a bigger SSB size and board size, it will lead to better decision making and thus, more sustainability practices are expected. Independent directors' charisma will probably ensure the management to disclose more of business activities and participate in sustainability practices.

The general objective of this research is to study the stability issues of IBs in Malaysia. The specific objectives are to calculate the risk of IBs via Z-score methodology in addition to study the impact of the corporate governance variables on the stability of IBs. There are very few studies or research works conducted to look at the relationship of the stability of the IBs and the corporate governance of these banking institutions especially done in Malaysia. Therefore, this research aims to examine whether these stability issues could threaten the stability of the entire financial institutions. Different from the cross-country studies, this study will focus on the country-level data of Malaysia's banking industry. With this paper, we hope it can be used specifically to complement the existing cross-country studies on the stability of IB, and generally, to provide additional insights to the emerging literature of Islamic banking. Thus, this study examines three other independent variables, i.e. the Shari'ah board size (SBS), the board size and the independent directors, a dependent variable (Z-score) and some moderating significant variables. The remainder of this paper is structured as follows. Section 1 provides the overview of the literature reviews on the stability issues done by the past researchers. Section 2 provides the overview of the

governance issues of the Islamic banking sector in Malaysia. Section 3 discusses regarding the methodology parts, followed by Section 4 in which the empirical results are described. Finally, Section 5 concludes this paper along with policy implications.

2. Islamic banking and financial stability

Financial stability has proven to be a difficult term to define and even more harder to measure. Given the complexity of modern financial systems as well as the global trends, financial stability has been associated with multidimensional conditions connected to the well-functioning of financial systems. Allen and Wood (2006) provided the conceptual framework within which financial stability can be characterized. They stressed the importance of the measurability of financial stability. Given the ambiguity associated with defining financial stability, most authors associated the loss of stability with excessive risk. Hence, attempting to clearly define what financial instability is, one has to identify when the financial system is said to lose its stability. Mohamed *et al.* (2012) suggested both macro and micro theoretical approaches that can account for the occurrence of financial instability. In the macroeconomic approach, two key drivers are thought to trigger instability. These are intense fluctuations in prices and overleveraging in the economy. Minsky (1959) claimed that when the economy is booming, investors are encouraged to engage in more speculative activities. The microeconomic approach focuses on the importance of information asymmetry and irrational behavior of economic agents.

The literature focusing on Islamic finance from the insolvency is not abundant. A large body of descriptive literature discusses the risks and the regulatory challenges in Islamic banking but does so in theoretical terms not through data analysis; while empirical papers focus on Islamic and conventional banking efficiency. So far, there has been limited empirical research on the financial stability in Islamic banking systems. Boumediene and Caby (2009) agreed that due to the risk-sharing principle and asset diversity, IBs are more immune to negative shocks. However, this theoretical argument has to be tested empirically in order to assess the extent to which IBs are exposed to financial instability. The level of stability has been widely measured in the conventional literature using the Z-scores, and it has not been an exception in the Islamic banking literature. For instance, the Cihák and Hesse's (2008) investigation was one of the most influential empirical studies that looked at the stability of IBs. They measured financial stability using the Z-accounting scores. The authors claimed that the strength of such variable lies in that it is an objective variable as it intends to measure the insolvency risk regardless of the specific characteristics that frame the functioning of any bank Islamic or conventional. Unlike the theoretical studies, the findings of empirical research works are not so conclusive in one direction or the other.

The situation is rather mixed. Some support the theoretical "superiority claim," others disagree with that and a third category may be considered as "neutral." The role of IBs in financial stability has been analyzed in a consistent, cross-country, empirical fashion in 18 countries between 1993 and 2004. They analyze financial stability in using Z-scores. Their results indicate an interesting difference in the stability of larger and smaller IBIs. They allowed for differences such as balance sheet structure, bank size and other variables related to the system as a whole, hence these distinct features of IBs alone were presented. The suggested explanation for these characteristics is that IBs tend to have trouble in the monitoring of credit risk when the business becomes bigger and therefore more complex. The limits of this credit risk management at a larger scale mean problem with moral hazard. The smaller banks tend to focus on lower risk investments, whereas more financing is conducted by large IBs. By performing this analysis, this project is an extension of the studies begun by Cihák and Hesse (2008) and Bourkhis and Nabi (2013) that used cross-country bank data. More, this work aims to focus on the country-level data of Malaysia's banking industry and introduced the corporate governance variables in this model. To our knowledge, this is the

first empirical analysis of country-level data in Malaysia's banking industry with this research approach. Thus, we do not know much about the relationship between the corporate governance variables and the financial stability of the IBs in Malaysia.

3. Governance issues in the Malaysian Islamic banking

The importance of sound Shari'ah governance in IBIs has been duly recognized by the academia, the industry and research community. In an Islamic bank, there are two facets of governance – Shari'ah governance and corporate governance. The first is the unique feature of IBs, and the second is the traditional feature of conventional banks, but both are absolutely crucial in facilitating the functioning of IBs. The Shari'ah governance ensures the Shari'ah compatibility of Islamic banking operations and conduct, while corporate governance promotes accountability, robust performance and efficiency. Therefore, governance in the Islamic banking context is holistic and covers a wide range of issues. Hassan and Christopher (2005) discovered that IBs were not distinguished by better corporate governance records. Satkunasingam and Bala (2004) called for greater corporate disclosure requirements for IBs, citing the prevalence of poor corporate governance standards at the time. The importance of religiously enhanced corporate governance in Islamic banking organizations was also recognized by Alnasser and Muhammed (2012). The absence of harmonized accounting regulations for Islamic banking, as commented Shariff and Abdul Rahman (2003), affects the quality of accounting information pertaining to Islamic banking transactions. The comparison of reporting standards issued by Bank Negara of Malaysia (BNM) was performed by Abdullah (2012). The fulfillment of social obligations is another key element of Islamic corporate governance. As a legal entity conforming to the Shari'ah, an IB is obligated to pay *zakah*, argued Alhoul (2011). Perhaps, the most essential component of sound Shari'ah governance is the Shari'ah compliance of individual Islamic banking products and services. Much controversy surrounds this topic. For example, Chong and Liu (2009) held that Islamic banking was not any different from conventional banking due to the low usage of profit- and loss-sharing (PLS) mechanisms in the former.

For the Shari'ah governance framework to be effective, a vigorous Shari'ah audit needs to be set. Rosly (2010) investigated the quality of Shari'ah review processes in selected IBs in Malaysia. This is in line with the recent BNM-issued Shari'ah Governance Framework which makes it compulsory for IBs to be audited. Yussof (2013) looked at the necessity for IBs to develop an internal Shari'ah audit infrastructure. Rahman and Rahim (2011) detailed the efforts by the International Shari'ah Research Academy in Islamic finance to complement BNM's Shari'ah Governance Framework by preparing the Shari'ah Audit Framework. Kasim and Zuraidah (2012) recommended the regulators to reconsider the existing Shari'ah audit guidelines accordingly and highlighted some of the issues in the field of Shari'ah auditing. Meanwhile, a new format of disclosure guidelines was proposed by Ameer *et al.* (2012) to increase the Shari'ah-connected disclosure of profit-sharing investment accounts. Rosly (2010) urged that the Shari'ah audit to be conducted in an integrated manner by ensuring the Shari'ah adequacy in the four parameters of *Maqasid-al-Shari'ah*, legal documentation, financial reporting and contract. Hasan (2010) observed that the passing of the Central Bank of Malaysia Act 2009 improved the Shari'ah governance framework for IBs in Malaysia by creating a central Shari'ah governance body. BNM also issued a number of product-specific Shari'ah parameters aimed at harmonizing the Islamic banking market practices in Malaysia; one such parameter, on *musharakah*, was critically reviewed by Arshad and Ismail. (2010). In the similar context, Wilson (2009) discussed the merits of a centralized Shari'ah governance system vs its institutional relegation alternative. To examine the relationship between governance and the financial stability of the IBIs in Malaysia, we first, try to discuss this in the following section.

4. Banking insolvency risk methodology

This paper employs the panel data technique to identify the determinants of financial stability of Malaysian IBs. We estimate regressions including the variables while controlling for bank-specific and macroeconomic factors. To estimate the equation, we use the generalized least squares (GLS) random effects model and the fixed effects model to check the robustness of the results, and also we use ordinary least squares (OLS) estimation.

4.1 Financial stability measurement: Z-score

We describe the data, methodology, its key properties and the empirical model of insolvency (Z-score) used in the regression analysis. Insolvency is defined as being when a bank's losses exceed its total capital. Given a bank's capital position and its asset portfolio characteristics, defined by its expected return and its variance, an upper boundary can be estimated for the probability of failure. If a bank suffers severe losses so that the value of its asset portfolio declines below the level of its debts to depositors, it has a negative capital position and is then subjected to massive withdrawals, thus, it may fail. The risk of insolvency may be due to internal and external factors to the bank, such as macroeconomic factors, market structures, institutional factors such as regulations and governance indicators. Altman (1968) developed the Z-score model, which uses six ratios and a linear discriminant model. The Z-score is an objective measure of the risk of insolvency soundness across different groups of financial institutions, i.e., the risk that a bank will run out of capital and reserves. The Z-score indicates the distance from insolvency combining accounting measures of profitability, leverage and volatility. Z-score measures are also being applied at aggregate (sectoral, regional or country), rather than individual bank levels. Strobel (2010) demonstrates that aggregate bank insolvency risk measures that are constructed using the mean of individually calculated Z-score measures are inherently biased. Our modeling insolvency probability is focused on individual financial institutions. We propose the way to estimate upper limits of an individual bank's probability of insolvency implied by macro and micro indicators. The Z-score is negatively related to (the upper limit of) the bank's insolvency probability in order to estimate this probability as a function of a number of both macro and micro indicators.

Our primary dependent variable is the Z-score as a measure of an individual bank risk. We employ the Z-score used by Boyd and Runkle (1993). Meanwhile, the Z-score has become a popular measure of bank soundness. For that purpose and in order to get more insight into insolvency risk developments, we constructed a Z-score and estimate a robust regression in Malaysia. The Z-score is calculated by using individual banks. Dependent variable, Z-score of bank i at time t, is:

$$Z_{i,t} = \frac{E(ROAA)_{i,t} + (eq_{i,t}/ta_{i,t})}{\sigma ROAA_{i,t}} \ or \ Z_{i,t} = \frac{(\mu + K)}{\sigma_r} \tag{1}$$

where $E(ROAA)_{i,t}$ stands for expected return on average assets, $\sigma ROAA_{i,t}$ denotes standard deviation of return on assets ($ROAA$) as a proxy for return volatility $eq_{i,t}$ is the bank's equity and reserves $ta_{i,t}$ is bank's assets. The Z-score measures the number of standard deviations a return realization has to fall in order to deplete equity, under the assumption of normality of banks' returns. The main part of our approach is to test, using regressions of Z-scores as a function of a number of variables. We aim to define an insolvency model of the form:

$$Z_{i,t} = \alpha + \beta B_{i,t} + \gamma I_t + \omega M_t + \varepsilon_{i,t'} \tag{2}$$

where the dependent variable is the Z-score ($z_{i,t}$) for bank i at time t. ($B_{i,t}$) is a vector of bank-specific variables; (I_t) contains time-varying industry-specific variables; M_t denote macroeconomic variables; finally, $\varepsilon_{i,t}$ is the residual. The next step describes the data and the methodology used in the regression analysis and we will present the main results.

The bank-specific and country-specific variables used as control variables in the regression equation are provided in Table I.

We also create a restricted sample consisting of banks for which we are able to calculate the measure (Z-score). From these banks, we consider only 16 IBs in Malaysia that have observations for at least three consecutive years. After eliminating outliers from the sample, we obtain 165 bank-year observations in total.

4.2 Correlation analysis

The test identifies if there are variables that have a relatively high correlation with the correlation values above 0.8. In order to test the presence of a colinearity problem, we can use the correlation matrix (Table II).

In general, the matrix shows that the correlation between the variables is not strong and that the multicolinearity problems are not several. Kennedy (2008) points out that multicolinearity is a problem when the correlation is above 0.8 which is not the case here.

4.3 Regression results

We use the full sample to check the robustness of the results using both random-effect GLS estimation or the fixed effects model and OLS estimation. The best model is selected based on the Hausman test. The presence of individual effects leads us to test whether this effect is fixed or random. For this purpose, we will use the Hausman test. The Hausman test is to determine whether the coefficients for the two estimates (fixed and random) are statistically different. In this case, the random effects model is better for our case because the probability of this test (Prob $> \chi^2 = 0.5870$) is greater than the threshold of 5 percent. Among the control variables, some of the bank-specific and macroeconomic variables display a significant impact on credit risk. The estimation of the other coefficients associated with the various explanatory variables is given in Table III. To separate the financial stability impact of the Islamic nature of a bank from the impact of other bank-level characteristics, and from macroeconomic and other system-level influences, we turn to regression analysis, following the methodology described in Section 4.

4.3.1 For the deposit liquidity assets growth (V_7). This indicator displays a mixed relationship with the credit risk measure (Z-score). In all the specifications, we find a significant positive impact on Z-score, at the 1 percent level, when using the random effects regressions and the OLS techniques, respectively. For the ROA (V_2): whatever the sample, our econometric results indicate that a higher ROA ratio has a consistently positive link to

Variable	V	Description
Z-score	V_1	Z-score is negatively related to the bank's insolvency probability
Return on equity (ROA)	V_2	Banks cannot be permanently solvent if they are not profitable
Log of total assets (TA)	V_3	As a proxy of size
Capital to asset ratio (CR)	V_4	Determines its capacity to protect banks against unexpected losses
liquid assets to deposits and short-term funding (LAD)	V_5	The percentage of bank's loan portfolio is funded through customer deposits
Cost-to-income ratio (CIR)	V_6	How well banks manage their total costs relative to their income
Deposits-to-liquid assets ratio growth (DLA)	V_7	Annual deposit growth has an impact on the financial stability of banks
Real GDP growth rate (GDP)	V_8	Higher growth to reflect better conditions for financial stability
Inflation (INF)	V_9	An increase in inflation causes a decrease in the real rate of returns
Real interest rates (RIR)	V_{10}	We adjust for the impact of the macroeconomic cycle on bank stability

Note: The bank-specific and country-specific variables are used as control variables in the regression equation

Table I.
The description
of variables

	Z-score	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}
Z-score	1.0									
V_2	0.16	1.0								
V_3	−0.03	0.35	1.0							
V_4	0.36	−0.34	−0.53	1.0						
V_5	0.12	−0.27	−0.42	0.27	1.0					
V_6	−0.15	−0.70	−0.36	0.28	0.28	1.0				
V_7	0.11	−0.69	−0.19	0.35	0.13	0.39	1.0			
V_8	−0.19	−0.04	0.00	−0.01	−0.01	0.02	−0.05	1.0		
V_9	−0.06	−0.02	−0.09	−0.07	0.06	0.05	−0.11	0.29	1.0	
V_{10}	0.17	0.10	0.13	−0.02	−0.05	−0.02	−0.00	−0.77	−0.63	1.0

Note: This table presents the pairwise correlation coefficients between the variables used

Table II.
The pairwise
correlation matrix

Z-score (full)	Specification (1) (1) RE GLS	Islamic banks Specification (2) (2) FE	Specification (3) (3) OLS
log (Total assets) (V_3)	2.034 (0.19)	1.737 (0.30)	1.813 (0.21)
Cost-to-income (V_6)	0.592 (0.85)	2.065 (0.54)	−4.654 (0.21)
Deposit liquidity assets growth (V_7)	*18.372 (0.00)*	*17.833 (0.00)*	*20.691 (0.00)*
ROA (V_2)	*314.296 (0.00)*	*307.236 (0.00)*	*347.390 (0.00)*
Liquid asset ratio (V_5)	−3.337 (0.68)	−10.051 (0.26)	15.427 (0.42)
Capital to asset ratio (V_4)	*86.348 (0.00)*	*90.886 (0.00)*	*67.007 (0.00)*
GDP growth (V_8)	−1.356 (0.06)	−1.396 (0.05)	−1.157 (0.20)
Inflation (V_9)	−0.819 (0.52)	−0.870 (0.49)	−0.645 (0.69)
Real interest rate (V_{10})	−0.948 (0.13)	−0.998 (0.11)	−0.747 (0.34)
_cons	*−114.779 (0.00)*	*−110.647 (0.00)*	*−113.126 (0.01)*
n	165	165	165
Adj R^2			0.3550
R^2	0.3462	0.3148	0.4008
R^2 between	0.0336	0.0103	
R^2 within	0.5260	0.5291	
Hausman Prob $> \chi^2$	0.5870		

Note: Values between parenthesis indicate p values

Table III.
Regression results
of Z-score

the Z-scores in the specifications (1), (2) and (3) for all banks at 1 percent level. The impact of the profitability explains much of the variation in Z-scores, so we can clearly draw conclusions about the association between profitability and stability. The capital to asset ratio (V_4): whatever the sample, our econometric results indicate that a higher capital to asset ratio has a consistently positive link to the Z-scores in the specifications (1), (2) and (3) for all banks, when using the random and fixed effects regressions and the OLS techniques, respectively. Concerning the remaining variables, we notice that none of the regressions estimates indicates any significant impact on the determination of Z-score. We can mention, for example, the GDP growth, inflation and real interest rate.

5. The impact of corporate governance on risk insolvency

In this section which is based on an econometric model similar to that of Cihák and Hesse (2008), we study to what extent insolvency risk which is measured by Z-scores can be captured through dynamics of various corporate governance bank-specific variables. First, we present some hypotheses that we are trying to test.

5.1 Theoretical framework and hypothesis development
By performing this analysis of the relationship between corporate governance and the
financial stability of the IBs in Malaysia, we try to present three hypotheses.

5.1.1 The SBS and the financial stability of IB. The IBIs that offer products and services
conforming to the Islamic principles must be governed by a religious board that act as
independent comprising of at least three Shari'ah scholars with specialized knowledge of the
Islamic laws for transacting, fiqh al-mu'amalat, in addition to knowledge of modern business,
finance and economics (Dusuki and Abdullah, 2007). The greater the number of Shari'ah
board (SB) members, the higher the levels of sustainability and financial stability disclosure as
the capacity of monitoring increases. Thus, the first hypothesis is stated as follows:

H1. The SBS is positively related with the financial stability of IB.

5.1.2 The board of director's size (BDS) and the financial stability of IB. Board size can be
defined as the number of directors sitting on the board. According to the agency theory,
limiting board size to a particular level is generally believed to be improving financial
performance. Previous studies found negative/positive effects of board size on the
performance of firms. Lipton and Lorsch (1992) suggest that the number of BOD should be
limited to ten. This ineffectiveness resulting from growth in size might be due to the
communication barrier when there are too many people involved in the decision-making
process. While the role-plays of corporate governance on financial performance have received
much interest, researchers have demonstrated interest in the effect of board structure to both
financial and non-financial disclosures. This is because managers can make opportunistic
accrual choices at the expense of shareholders in an organization with a weak board.
Therefore, the organization may institute stronger board or complement it with higher level of
internal and external audits. However, an effective board may lead to proactive board
behavior in fear of scrutiny by their effective board. Hence, it is hypothesized that:

H2. The BDS is positively related with the financial stability of IB.

5.1.3 The board of independent directors (BDI) and the financial stability of IB. Independent
directors, also known as external or outside directors, are the non-executive directors who do
not participate in the daily management of the organization. Boyd (1990) expressed that this
group of directors, also regarded as boundary spanners, secure resources through linkages to
the external environment. In addition, these directors borrow their prestige and boost the
organization's legitimacy due to their standing in the community. With that, they are expected
to take a determined stand in the interest of both organization and its stakeholders. Beasley
(1996) found out that the proportion of independence directors is positively associated with the
board's ability to a disclosure decision. This is further supported by some researchers'
reports that voluntary disclosure increases with the number of independent non-executive
directors (Chen and Jaggi, 2000; Donnelly and Mulcahy, 2008; Huafang and Jianguo, 2007).
Ashbaugh-Skaife *et al.* (2006) find that size is significantly positively correlated with the credit
ratings. Consistent with the prior research, boards that are made up exclusively of
independent directors are also linked to superior performance. This duality in the board
independence-performance relation suggests that there is not a single board structure that is
optimal for all funds (Bhojraj and Sengupta, 2003). Ashbaugh-Skaife *et al.* (2006) found that
the coefficients on board independent to be positive and significant at conventional levels.
This result is consistent with the work of Bhojraj and Sengupta (2003) who find that firms
with a greater proportion of independent outside directors on the board enjoy lower bond
yields and higher ratings on their new debt issues. Hence, it is hypothesized that:

H3. The proportion of independent director is positively related with the financial
stability of IB.

5.2 Data and variables description

To test these hypotheses, we examine the relation between the Z-score as a dependent variable and the principles' independent variables are explained in this section. The data collection during the period 2005-2015 is based on the annual reports of IBs that financial information is available for the mentioned period (Table IV). This sample seems to be fairly representative because it includes the main centers of Islamic finance, namely Malaysia.

In order to estimate the effect of governance structure on the banking risk, we use several governance variables in combination with these specific banking variables that are significant in the first estimation (V_2, V_4 and V_7) to measure their influence on the Z-score. Our empirical methodology is based on panel data analysis. The estimation model of the determinants of Z-score in IBs is done through a pooled regression model using the data panel method. We regress the Z-score on all variables presented above.

5.3 Empirical results

The empirical estimation is presented in Table V. For robustness and sensitivity check, we use several specifications of the relation between Z-score and its determinants. We report the statistics of the whole variables as shown in Table V.

The average of BOD ((V_{11}) BDS), is about eight members. This average is close to the predictions of Jensen and Meckling (1976) who recommends a size between seven and eight administrators allowing their action control to be effective in terms of conflict management.

Variables	Description
Dependent variable	
Z-score	The Z-score is negatively related to bank's insolvency probability in order to estimate this probability as a function of indicators
Independent variables	
(V_{11}) BDS (Board of director's size)	For the influence of board of directors, we use the size and the composition. The size of the board is decisive and has effects on the performance and risk of IBs. In the context of the Islamic banking industry, a large size of the board of directors is important due to the less experience of IBs, in terms of strategy and control to face tough competition from conventional banks. The composition of board of directors is mainly related to the presence of independents members
(V_{12}) BDI (Percentage of independent directors)	The independents members could contribute to the decrease of agency conflicts and in the enhancement of financial information. However, independent directors could be unable to understand the complexity of the IBs' activities and are incompetent in the exercise of control and monitoring. They may have different interests, which can increase conflicts of interest
(V_{13}) SBS (Shari'ah board size)	In Islamic banking, the Shari'ah board is part of the governance structure (Nienhaus, 2007). The risk of noncompliance or non-credibility of IB caused by incompetence or the dependence of Shari'ah board can encourage partners to withdraw their funds. This will influence the results and the bank's performance. A Shari'ah board with a small size can be easily controlled and influenced by the executive and the board of directors. While the large presents a variety of experiences and skills of Shari'ah scholars. The large size can ensure the credibility of the bank and its compliance with Islamic law which will be reflected on the performance of investment deposit

Note: The sub-sections below describe all variables used in the estimation

Table IV.
Dependent and independents variables

The finding shows that the mean value for the size of board is eight persons. As suggested by Lipton and Lorsch (1992), the suitable people for board size are eight or nine and not exceed more than ten people. For the BOD ((V_{12}) BDI: percentage of independent directors), we note an enhancement in the percentage of independent members which reach 50 percent. In some IBs, there is no independent member in the BOD which is contrary to the best practice in the banking governance. All banks have a sufficient number of SB members (SBS), as recommended by the IFSB-3 (between three and seven scholars). In the second step, we analyze the problem of multicollinearity between explanatory variables which can lead to biased results. To detect multicollinearity, we calculate the correlation matrix (Table VI).

In Table VII, we report the results of the estimation. The panel system regression is used for the entire sample and the analysis of the results is done through the effects of independents variables on Z-score. We test the sensitivity of our results by including other explanatory variables of the corporate governance in the same specification.

Regarding the effect of the governance variables, the coefficients estimated indicate that the impact of the BOD and the Sharia'h board is not significant; these variables do not seem to be a determinant of Z-score. The no significant effect of the two boards can be explained by the fact that their current practice is not effective to control the financial stability of Islamic banking (Magalh~aes and Al-Saad, 2013). We note that the percentage of independent members in the BOD which reach 50 percent have a significant positive impact on the financial stability of the IBs in Malaysia. The estimated coefficient on an independent board has the expected sign and is significant at the 0.05 level or better. The results document that Z-score is positively related to an independent board. These results are consistent with those of Ashbaugh-Skaife et al. (2006) who found that the coefficients on an independent board to be positive and significant at conventional levels and Bhojraj and Sengupta (2003) who find that firms with a greater proportion of independent outside directors on the board have higher

Variable	Obs	Mean	Median	SD	Min.	Max.
Z-score	165	18.46469	16.78337	19.48030	2.821792	225.8515
(V_2) ROA	165	0.006598	0.011182	0.028028	−0.29098	0.040708
(V_4) Capital to asset ratio	165	0.127408	0.077426	0.161698	0.014851	0.954912
(V_7) Deposit liquidity assets growth	165	0.040106	0.001539	0.395178	0.740357	4.199200
(V_{11}) BDS	165	8.345455	8.000000	1.992836	4.000000	13.00000
(V_{12}) BDI	165	0.505624	0.500000	0.118969	0.250000	0.857143
(V_{13}) SBS	165	4.866667	5.000000	1.227397	3.000000	9.000000

Note: We present the results related to the descriptive statistics in Table V

Table V.
Statistical properties of variables (16 banks 2005-2015)

	Z-score	ROA (V_2)	Capital (V_4)	Depo. (V_7)	SBS (V_{13})	BDI (V_{12})	BDS (V_{11})
Z-score	1.000000						
ROA (V_2)	0.164791	1.000000					
Capital (V_4)	0.368957	−0.34297	1.000000				
Deposit liquidity assets growth (V_7)	0.116267	−0.69505	0.356269	1.000000			
SBS (V_{13})	−0.059633	−0.049622	−0.063234	−0.05872	1.000000		
BDI (V_{12})	0.122121	0.032968	−0.179902	0.013760	0.212047	1.000000	
BDS (V_{11})	0.044562	−0.101878	0.161756	0.084356	0.215882	−0.134858	1.000000

Note: According to Kennedy (1992), there is a serious problem of multicollinearity if the correlation coefficient is above 80 percent for each pair of variables which is not the case here

Table VI.
Correlation matrix of estimated coefficients

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Table VII.
Regression results of
Z-score with corporate
governance variables

Z-score (full)	Islamic banks		
	(1) OLS	(2) Fixed effects	(3) Random effects
BDS (Board of director's size)	0.29 (0.6616)	1.94 (0.0555)	1.20 (0.1647)
BDI (Percentage of independent directors)	31.96 (0.0054)	29.58 (0.0279)	29.50 (0.0186)
SBS (Shari'ah board size)	−0.51 (0.6461)	0.006 (0.9957)	−0.25 (0.8163)
Deposit liquidity assets growth (V_7)	15.72 (0.0008)	10.44 (0.0116)	11.98 (0.0032)
ROA (V_2)	377.12 (0.0000)	251.56 (0.0001)	283.02 (0.0000)
Capital to asset ratio (V_4)	56.57 (0.0000)	69.46 (0.0000)	65.87 (0.0000)
Contant C	−8.00 (0.3662)	−23.66 (0.0583)	−16.03 (0.1525)
n	165	165	165
Adj R^2	0.3013	0.5179	0.3607
R^2	0.3268	0.5767	0.3841
Hausman Prob $> \chi^2$		Prob $= 0.3912$; χ^2 statistic $= 6.29$	

Note: Values between parenthesis indicate p values

bond ratings. As the results discussed earlier, this study found that the BDI (percentage of independent directors) has contributed to the sustainability practices and the financial stability among IBIs in Malaysia. This suggests that when the number of the independent members in the board directors is bigger, there will be more sustainability practices carried out by the IBIs. In other words, there are more sustainability practices when the IBIs has many members with the different backgrounds and experiences. This result revealed that board independence is a key determinant quantity. It implied that the existence of independent directors in the board will influence the management decision and encourage the organization to disclose more of their business activities.

5.4 Analysis and discussion of the empirical results
5.4.1 The importance of the presence of the independent members in the board. The number of independent directors constituting a board is an important factor in determining the effectiveness of the board in providing direction and guidance to the management of the IB and in performing its oversight role effectively. To be effective, the board of an IB must have an appropriate number of independent directors that commensurate with the complexity, the size, the scope and operations of the IB. The participation of independent directors enables a balanced and objective consideration of issues and enhances accountability in the decision-making process. Thus, a higher proportion of independent directors could mitigate any possible conflict of interest between the policy-making process and the day-to-day management of the IB. The presence of suitably qualified independent directors can help provide the necessary checks and balances in ensuring that the IB operates in a safe and sound manner. Such members can also bring new perspectives from other businesses that may enhance the effectiveness of the board. Thus, there should be an effective board composition, with a strong independent element where no individual or small group of individuals should be allowed to dominate the board's decision-making board composition.

5.4.2 The manner in which the member is considered as independent in the board. An independent director shall not have more than 5 percent equity interest directly or indirectly in the IB or in its related companies. He shall not be connected to a substantial shareholder of the IB. This member shall not be employed in an executive position in the IB or its related companies, at least two years prior to his appointment date. He cannot engage in any transaction, within the last two years with the IB, the value of which exceeds RM1.0 million. A director of an IB will still be deemed independent if the company in which he is also a director has financing with the IB, provided he is not a substantial shareholder of the

company or a guarantor of the financing and is not involved in the deliberation and decision-making process. And finally, the nominating committee of the IB shall determine annually whether a director is independent.

5.4.3 The minimum number of independent directors in the board. IBs are required to ensure that at least one-third of their board members are independent directors. However, in cases where Bank Negara Malaysia has concerns with the effective functioning of the board, a higher proportion of independent directors may be specified by Bank Negara Malaysia. In addition, all resignations and removal of independent directors from the board can only take effect after the respective board has cleared the resignation and removal of the independent directors with Bank Negara Malaysia. This is to ensure the effective functioning of independent directors.

5.4.4 The serious and effective responsibilities of independent directors. Independent director: a director who is independent of management and free from any business or other relationship, which could interfere with the exercise of independent judgment or the ability to act in the best interest of the Islamic bank. Independent directors should ensure a strong element of independence on the board, both in thought and actions. The effective participation of independent directors enhances accountability in the board's decision-making process. The responsibilities of an independent director should therefore include the following: to provide and enhance the necessary independence and objectivity to the board; to ensure effective checks and balances on the board; to mitigate any possible conflict of interest between the policy-making process and the day-to-day management of the IB; to constructively challenge and contribute to the development of business strategy and direction of the Islamic bank; and to ensure that adequate systems and controls to safeguard the interests of the IB are in place. In addition to the rights accorded to directors, independent directors may request that their views, comments and stance are minuted to enable them to effectively discharge their duties. With the increasing responsibilities and expectations on independent directors, their remuneration level should be commensurate with the level of expertise, experience and responsibilities undertaken and contribution to the effective functioning of the board.

5.4.5 All the committees are chaired by independent members. The nominating committee should consist of a minimum of five members, of which at least four must be non-executive directors. The committee should be chaired by an independent director. The remuneration committee should comprise only non-executive directors, with at least three members and should be chaired by an independent director. The risk management committee should comprise only non-executive directors with at least three members. The committee should be chaired by an independent director. The audit committee shall comprise only non-executive directors with at least three members, of which the majority should be independent directors. The committee should be chaired by an independent director. At least one member should have accounting expertise or experience in the field of finance.

6. Conclusion

Using the empirical method of *Z*-score, we try to explain the insolvency by several factors. Our balance sheet and profit and loss account data stem from Bureau van Dijk's BankScope database. The sample covers the period from 2005 to 2015. We could also see that different causal links analyzed give us new tools for the apprehension of risks in Islamic financial institutions. We also present the contributions of experimental studies that involve the theoretical conditions of insolvency. In contrast to the work of several authors who do not detect causes of insolvency in countries where IBs are present, we detected different causes of insolvency in Malaysia. For a better understanding of insolvency, it seems desirable to incorporate the effects of the corporate governance indicators. IBs underlie the guidelines of the Shari'ah as the unique and global legislation for Muslims, in which interest and

speculation are prohibited and financial contracts are based on real assets and on PLS. In contrast to their conventional counterparts, a specific characteristic in the governance structure of IBs is the SB which is responsible for monitoring and certifying that all business activities are compliant to the Shari'ah. In our study, we empirically analyze the influence that the corporate governance indicators have on the financial stability of the IBs in Malaysia, to examine the supervisory and the disciplining power. Thus, we addressed the question of how the monitoring function of the corporate governance indicators on behalf of the Shari'ah affects the financial stability of the IBs in Malaysia.

Our results obtained appear initially clear and readable. These results confirm that increasing the size of the SB is not accommodative to increasing the financial stability of the IBs in Malaysia. The supervisory effectiveness and the power of the SB toward loan portfolio risk-taking behavior in IBs suffer especially in case of centralized Shari'ah-compliant governance structures as it is practiced in Malaysia. The resulting policy implication is that the Islamic banking market should have a decentralized governance approach to bring about more bank market stability, to reduce legal risk through harmonization only, of some financial practices (see also Deloitte and Rider, 2012), to solve the problem of low concentration of seats among the scholars that lead to further conflicts of interest. Finally, the decentralized governance structure promises to be more governance-orientated instead of a centralized structure. The findings from empirical work demonstrated that the governance structure through the BOD and SB does not seem to affect the financial stability of the IBs in Malaysia. We note that the percentage of independent members in the BOD has a significant positive impact on the financial stability of the IBs in Malaysia. By referring to these results, it is appropriate to suggest some recommendations in the aim to develop adequate risk and governance strategy and strengthen bank stance in the market. The corporate governance mechanism will lead the organization to do more sustainability practices when there are a higher number of independent members in the BOD.

This study is set out to investigate the relationship between the corporate governance mechanisms and the financial stability of IBIs in Malaysia. Due to insufficient information disclosed about the SB in the annual reports under this study, it is hard to further examine other characteristics of the SB such as experience, educational background, gender and duality role. This information is important to examine the effectiveness of SB existence in IBIs. Future research should therefore examine these characteristics of SB on financial stability of the Islamic banking. A possible area for further research would be to examine how the influence of the SB characteristics on the financial stability of the IBs in Malaysia depends on the degree of separation of ownership and control. Regarding this, the ownership structure can also affect the relation between the governance effect of the SBS and composition and the financial stability of the IBs in Malaysia. In addition, the determinants of the financial stability of the IBs in Malaysia can be extended to the additional characteristics of the SB, such as educational background, the financial expertise of Shari'ah scholars as well as the degree of independence of the SB members. Further analyses and robustness tests, especially when more comprehensive data are available, can be staged using alternative bank risk proxies (see, e.g. Delis and Staikouras, 2011).

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