

Disclosure, Risk and Performance in Islamic Banking: A Panel Data Analysis

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Abstract

This study provides a panel data analysis of the interrelationship among disclosure, risk and performance and also discusses the possible of endogeneity and exogeneity of dependent variables. In order to find the interrelations among these variables, we use eleven samples of full-fledged Islamic banks and Islamic windows between the years 2002 to 2006. The estimated results are as follows. All equations are not fit since all variables cannot explain the dependent variables significantly. Since there are three equations, we try to estimate these equations using simultaneous equations approach. The results indicate that all equations are almost efficient and our findings suggest that LEVERAGE and PROFIT are statistically significant in determining DISCLOSURE. Meanwhile, the result also suggests that DISCLOSURE and PROFIT are significant in explaining LEVERAGE. For the last equation which treats PROFIT as an endogenous variable, shows that DISCLOSURE is significant in explaining PROFIT among samples of Islamic banks. Furthermore, we have conducted the Granger-Causality test to check the endogeneity and exogeneity among the variables. The Granger-Causality results suggest that, DISCLOSURE has a possibility to be a dependent variable compared to LEVERAGE and PROFIT. Therefore, the regulatory authority should develop a policy in order to enhance the quality of disclosure in Islamic banking system.

Keywords: Islamic Banking, Disclosures, Financial Reporting for Financial Institutions, Panel Data, Simultaneous Equation Method, Granger- Causality, Performances, Risks,

JEL Classification Codes: G00, G21, G32, G38

1. Introduction

In recent years, many studies were conducted on the topic of financial disclosure in the banking industry. Financial disclosure is particularly important because banks are generally viewed as being unclear to individuals. Moreover, its importance in enabling investors and parties to assess risks and returns of investing in, or dealing with a particular institution has grown due to their circumstances. Thus, banking sectors have been encouraged to expose their information especially about its current condition and future prospects to avoid any doubt and argument in banking operations. In this sense, Berthelot et al. (2003) argue that environmental disclosure is the set of information items that relate to a firm's past, current and future environmental management activities and performances and information about the past, current and future financial implications resulting from a firm's environmental management decisions or actions

In fact, more guidelines have been used to ensure that all disclosed information needs to meet the criteria which had been stated. These guidelines act as the guide to the banks formally or informally and at the same time expose their business information. Ever since Islamic banking is introduced, there are a lot of reformations in accounting, auditing, ethics, governance, and Shariah standards. In this perspective, the Accounting and Auditing Organizations of Islamic Financial Institutions (AAOIFI) is responsible for preparing accounting and auditing standards. Amongst the standards are the objectives, concepts and general presentation and disclosures in financial statements of Islamic banks and financial institutions¹.

In Malaysia, Financial Reporting Standard i-1 or FRSi-1 is the national standards issued by Malaysian Accounting Standards Board (MASB) in which to lay down the basis for the presentation and disclosure of financial statements of Islamic financial institutions that conduct Islamic banking activities in order to ensure comparability of these statements with those in previous periods and with those of other Islamic financial institutions. Furthermore, Bank Negara Malaysia (BNM) as a regulatory agency for financial institutions in Malaysia also issues its own guideline for Islamic banks disclosures, i.e., "Guidelines on the Specimen Financial Statements for Licensed Islamic Banks" (GP8-i). This guideline provides a standard format of financial reports for Licensed Islamic banks including disclosure requirements and had been effective for Islamic banks financial statements since year 2004 (Abdul Majid and Ismail, 2007).

In order to promote Islamic banking systems, financial information is essential to the shareholder or depositors in making their investment decisions. A bank's financial disclosures should avoid the informational asymmetry problem between the bank's managers and investors. In general, financial disclosure is important to the shareholders, stakeholders, and depositors because they could retrieve the current information of the bank's condition. In theory, Hirtle (2007) proposes that greater disclosure provides more information on which investors and creditors can make their assessments of firm condition, which in turn makes a significant market reaction to an adverse change in condition - and subsequent management response - more likely and immediate.

Most researchers agree that disclosure of information would influence a bank's behavior in terms of banking performance and bank risk- taking. In fact, the role of disclosure to banking activities is unclear to outsiders. However, based on economic theory, the economist provides the predictions about the two benefits of greater disclosure. Firstly, 'Disclosure - Stability' hypotheses holds that great disclosure and subsequent transparency will assist efficient allocation of resources by improving market discipline. Therefore, increase in transparency will allow greater market discipline. This

¹ Example of Studies on Islamic banks disclosure: presented by Abdul Majid and Ismail (2007) at Accounting International Conference ASIC' 07 on 30th October 2007 at Kuala Lumpur.

situation will affect banking systems whereby the stronger banks are rewarded for their risk management and performance and the weaker banks are punished with higher cost of raising capital. This in direct will cause the market discipline to provide incentives for banks to manage risk-taking carefully and operate their management efficiently to decrease bank failures problem.

Secondly, the 'Disclosure-Fragility' hypotheses posits that disclosure may lead to interpretation of specific information about banks' financial conditions unjustifiably as indicator of widespread problem in banking system, thereby leading to bank runs or stock market collapse (Calomiris and Mason, 1997; Gilbert and Vaughan, 1998; Kaufman, 1994)². Directly, if banks have a disclosure of financial problems, it may tend to the bank's failure in their operations. At the same time, it also leads to an overreaction in the financial markets whereby this impact will be risky for banks to raise their capital. Consequently, the outsiders particularly investors feels lack of confidence about the banks system. This condition may lead to systemic banking become failure and will be collapse.

Disclosure is always associated with risk and performance because when there is an increase in disclosure, trading will become more effective and overall risk-return tradeoffs will be enhanced as well. These are the facts that will attract more studies to be done on the relationship between the disclosure, risk and performance in the banking systems. Generally, there are several studies that identify these relationships such as Collins and Simonds (1979), Knight and Affleck-Graves (1986), Baumann and Nier (2003), Spiegel and Yamori (2003) which - focused and studied the relationship between disclosure and risk-taking. On the other side, there are also a lot of empirical studies about disclosure and performance. This analysis in this paper is complementary to that of Ingram and Fraizer (1980), Wiseman (1982), Bewley and Li (2000), Pattern (2002), Al-Tuwaijiri et al. (2004) and Clarkson et al. (2007).

Therefore, in the following this discussion, we aim to discuss about the relation between disclosure, risk and performance among the Islamic banking and to test the endogeneity or exogeneity of those variables.

So there are two issues in this study such as endogeneity and exogeneity problem and in the present of voluntary disclosure among company. Endogeneity and exogeneity issues among these relations will effect our operation among banking systems. For example, when this issues are allowed, banking crises will occurs among the banks because our policy makers confusing in determining about these relations. Hence, it is important to know the possible endogeneity and exogeneity of these three factors. Another issue is to find the effect of voluntary disclosure among Islamic banks particularly.

Until now, there are no studies that look into these three factors among Islamic banks in Malaysia using panel data. Therefore, this study will reveal that disclosure, risk and performance are interrelated and will prove the endogeneity or exogeneity of these variables.

2. Related Research

2.1. The Relation between Disclosure and Performance

Previous studies on the relation between disclosure and performance has reported a mixed results. There are two opinions on discussion about this relationship, voluntary disclosure theory and socio-political theories. Voluntary disclosure theory views disclosure as an important source of information about a firm's performance. Based on the economic-based voluntary disclosure theory, it is concluded that there is a positive association between performance and the level of disclosure.

The socio-political theories consist of political economics theory, legitimacy theory, and stakeholder theory. Legitimacy theory is based on the idea of operating successfully, in which corporations must act within the bounds of what society identifies as socially acceptable behaviour. In addition, findings indicated that legitimacy theory as an explanatory factor for disclosures. On the other hand, in stakeholder theory, the stakeholders have a direct effect on management decisions about a corporation's activities and disclosures. Based on the previous study like Clarkson et al. (2007), the

² See also Tadesse (2005), page:2

authors proposed that poor environmental performers face more political and social pressures and threatened legitimacy, hence, they propose to increase disclosure to change stakeholders' perceptions about their actual performance. Indirectly, this theory had predicted a negative association between performance and the level of discretionary disclosure.

An unresolved research issue such as the different prediction about these relations has evoked a need for a discussion from another point of view, namely the current study. Previous study like Ingram and Frazier (1980) compared content analysis of firm annual report between rating of disclosures and Council on Economic Priorities (CEP) performance rating which appeared in corporate annual reports. These indexes were selected because they were available for a sizeable cross-section of widely traded firms (50) and were derived from independent assessments of the air and water emissions of firms' plants. The CEP index covered 50 firms in four industries (electric utilities iron and steel, petroleum refining, and pulp and paper) whereby each firm was evaluated in one out of the four years, 1970 to 1974. In this research, they constructed a score for disclosure with 20 content analysis items along four categories including evidence, time, specificity, and theme³. To calculate the score, it required the judges to read each sentence and then place a check mark on the worksheet to the appropriate category in each items. The numbers of the check marks were summed up to compute the total score for each category for each firm. Scores were standardized for firms in each industry by dividing the differences between the firm's score and its industry mean for each category by that category's standard deviation. Regression results indicated that they did not find significant association between disclosure and performance.

Wiseman (1982) examines the extent of voluntary environmental disclosures by corporations in their annual reports. The author used Ingram and Frazier's method in their research design but in this research Wiseman only focused on the 26 largest US companies that were monitored by CEP for the 1972-1976 periods. For voluntary disclosures scores, Wiseman only use a small index compared to previous study. The author constructed a disclosure index whereby 18 items in four categories were selected. The items consist of economic factors (5 items), environmental litigation (2 items), pollution abatement activities (5 items), environmental disclosure that exclude from other three (6 items).⁴ Wiseman again found no significant association between disclosure and performance by using Spearman Rank Order Correlation. They have concluded that, the result is still the same whether we increase or decrease the score items whereby the result is still not significant.

By contrast, Cormier and Magnan (1997) proposed to study about the determinant, benefit and cost in disclosure. In this study, they used 212 firm-year observations by the Canadian, Ontario, and Quebec departments from 1986 to 1993 in which all the firms with publicly traded securities are selected. In this study, the authors used level disclosure contained in a firm's annual report to proxy for its voluntary disclosure strategy. For scoring disclosure, he used the coding instrument developed by Wisemen (1982)⁵. The author measured the disclosure on 18 items grouped into four categories, economic factors, environmental litigation, pollution abatement, and other environmental matters. The rating is based on a score of one to three for describing monetary or quantitative terms, two when an item is described specifically, one for an item discussed in general. The authors found that, there are positive relations between disclosure and performance. In spite of using the same index, this study is different compared to Wiseman's study. The different results happened from its disclosure policies whereby Canadian based firms whose disclosure is directly or indirectly under SEC jurisdiction tend to formally disclose less information than firms only to Canadian securities regulations. Another reason we found that in this study, the authors tried to use both company size and industry classification which are strong factors to influence the level of information disclosed in financial reports.

In addition to these archived studies, Bewley and Li (2000) examined factors associated with the disclosure in Canada. The authors applied voluntary disclosure theory to design their research. Bewley and Li selected 188 Canadian manufacturing firms in their 1993 annual reports used this

³ See Appendix A

⁴ &¹¹ See Appendix B

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Wiseman index. In this research, performance measure were not based on CEP-based analyses as the previous studies, but on firm's pollution propensity in which the companies are required to go through industry membership and report to the Ministry of Environment under the National Pollution Release Inventory program. The results found a negative association between disclosure and performance. This result is inconsistent with the theories.

From the previous studies, we failed to identify the relation between disclosure and performance. The researcher found the similar discoveries with Patten (2002) who had identified these problems in their studies. He said that the problem with the previous studies of disclosure-performance relation centers on the measure of performance that are used. In addition, he had identified three major issues in the previous studies such as failure to control other factor, inadequate sample selection, and inadequate measures of performance.

Based on the fact, a strong body of evidence shows that both company size and industry classification are factors that appear to influence the level of information disclosed in financial report. However, the authors Patern (2002) found that none of the previous studies of the relation between performance and disclosure controlled for the impact of company size. Nevertheless, the studies only covered the industry classification, usually categorized as the petroleum, chemical, metals, and paper industries. Consequently, when we fail to control the other factors, the result becomes problematic. The second problem with the previous studies centers on the sample selection. The author said, the studies based on the CEP were limited because these firms are from only four industries hence the resulting samples were not very diversified. In addition, the previous studies made comparisons only within industry whereby the sample sizes for analyses were quite small. The last problem is about the measures of performance used. The authors found that CEP did not use the same criteria and consistent methodology to assess performance in different industries. Ingram and Frazier tried to assess performance by standardizing company scores on industry averages but Wiseman performed only within industry analyses.

Consequently, Pattern (2002) had changed the research design structure to overcome the issues in the previous studies. The author used indicator Toxic Release Index (TRI) index usually by sales, to proxy for performance⁶. Pattern used a sample of 131 US firms from 24 different industries. Pattern also modified Wiseman index measure and line count of disclosure in 1990 annual report⁷. Indirectly, Pattern finds that TRI sales are positively associated with both measures of disclosures. This result implies that there is a negative relation between disclosure and performance.

A positive association between environmental performance and environmental disclosure relation appears in the research conducted by Al-Tuwaijiri et al. (2003). The authors proposed to examine collectively the relations among disclosure, performance, and economic performance using a simultaneous equations approach. They constructed three multivariate equations in which at least one of these functions is an explanatory variable of another. Al-Tuwaijiri et al. also use TRI-based data to assess environmental performance. In this study, the authors constructed measure environmental disclosure into two general groups. The first group includes measures that quantify the level of disclosure in annual report, such as the number of pages, sentences and words. The second measurement uses a disclosure-scoring measure derived from content analysis⁸. The authors found that, prior literature's have a mixed results in describing the relations because the researchers have not considered these functions to be jointly determined. After endogenizing these three variables, the results found a positive association between performance and disclosure.

More recently, Lu C. et al. (2007) examined the relationship between ownership structure, information disclosure and performance. The authors try to test the mutual impacts among managers' ownership, information disclosure and firm value, considering the possible endogeneity and doing a simultaneous estimation of all test interrelationships. They used Taiwan Economic Journal (TEJ)

⁶ Toxic release data is from the 1988 Top 500 Releasing Companies listing provided by the Environmental Protection Agency (EPA,1990).

⁷ See Appendix C

⁸ See Appendix D

Database from January to December of 2005 to get data of shareholders and financial report. Lu et al. used a sample of 638 firms which are more diversified across industry categories and combined data from 21 industries. The companies in the samples consist of medium-to-large companies relative to the average Taiwan firm size either in terms of sales or assets. The results found a positive relation between information disclosure and performance.

Clarkson, et al. (2007) had revisited the relation between performance and disclosure. The authors revisited the relation by testing competing predictions from -based and socio-political theories. In this research, the authors improved the previous literature by focusing on discretionary disclosures and developing the analysis index Global Reporting Initiative (GRI) to assess the extent of discretionary in environmental and social responsibility reports. The authors used a sample of 191 firms from the five most polluting industries in the US. The finding implies a positive association between environmental performance and the level of discretionary environmental disclosure. This result is consistent with the economics theory but inconsistent with the negative association predicted by socio-political theories. Indirectly, this result indicates that, the socio-political theories are not robust in predicting the level of discretionary environmental disclosures.

In summary, the result shows that there are more findings on the relation between disclosure and performance. Based on Clarkson et al. (2007) on their opinion, they said that one reason for the inconclusive finding is due to the choice of non-discretionary disclosure and use of the Wiseman (1982) index. In Wiseman index, they applied the heavy weight on disclosures about the financial consequences of environmental activities, whereas their index places more weight on disclosure that reveal true (but unobservable) performance.

More recently, Fraas and Dawkins (2010) also revisited the relation between environmental performance and the level of voluntary environmental disclosure by using ordinal regression and Ceres, Kinder, Lydenberg, and Domini (KLD) and Trucost ratings of Standard & Poor's (S&P) 500 companies. They show that environmental performance responses to environmental disclosure are significantly positive.

2.2. The Relation between Disclosure and Risk

When financial crises happened with the corporate scandals that came along, the public debate is needed in order to enhance the greater disclosure and transparency of the market. It is because the increase of transparency in dealing may lead to better disclosure and the current information about bank may enhance the market discipline. Indirectly, when market discipline is strengthened, it could avoid the financial and economic crises problems.

Since disclosure enhanced market discipline, regulatory authorities have constructed an accounting standard to enhance the level of disclosure. Usually, the levels of disclosure are associated by risk-profile of the corporations. Increased risk disclosure will give more benefit especially in the monitoring of their risk position.

As mentioned above, it is complementary to that prior empirical research which shows that greater disclosure and enhanced market discipline will lead to reductions in corporation risk. In addition, firms that disclose greater amounts of useful risk information should benefit from a reduction in their cost of finance as the providers of funds will be better positioned to judge the firm's risk level and this will remove the need for them to incorporate a risk premium within the cost of capital. Nevertheless, firms that are reluctant to disclose risk information may not only find funds more expensive but also that they are more difficult to access (Linsley and Shrives, 2005).

There are a number of papers which have examined the relation between disclosure and risk-taking in corporation and banking. For example, Proadhan (1986) examined the relationship between segmental geographical disclosure⁹ and systematic risk profile of multinational enterprises. The author

⁹ Firms reporting on a geographic basis are likely to be in the same industries both the foreign and domestic markets and thus have a smaller incidence of covariance ratio less than one due to worldwide industry effects (Proadhan and Harris (1989)).

used a sample of 36 companies selected from 'Times 1000 Largest UK Industrial Companies which its listings for the ordinary shares on the London Stock Exchange (for financial year end 1981/82) by Turnover'. In his study, the author uses Cumulative Average Residuals (CAR) method test underlying characteristics of data for testing the differences between the treatment and control group. This method consists of estimating the parameter of the market model based in a time period prior and analyzing the residuals derived from applying model to a time period. The results show that segmental geographical disclosure practice and systematic risk are positively associated. It implies that when changes in systematic risk have been found to be abrupt, it means that London stock market was likely to have been efficient which it quickly responds to the public information regarding segmental geographical disclosure.

In another study, Proadhan and Harris (1989) have investigated the impact of geographical segment disclosure on the systematic risk of a group of US multinational companies quoted in the New York Stock Exchange during the period 1968-1984. The method in this study is complementary to that of Proadhan (1986). But the differences can be seen in terms of the area of line of business, and to the exclusion of geographical segments. The results show that geographical segmental disclosure, (which is similar to line of business disclosure), does appear to have information content which affects market risk assessments.

Yousef Jahmani (2003) examined the impact of Line of Business (LOB) and geographical segmental reporting on firms' perceived risks which were disclosed for the first time without prior segmental information. The authors use a sample selection consists of the following characteristics firm's such as (1) companies that disclosed analysis of their sales or sales and profit by LOB for the first time, (2) companies which disclosed analysis of their sales or sales and profit by geographical area for the first time, as a first segmental analysis, (3) companies must be quoted on the Stock Exchange during the period under consideration so those share prices can be utilized to measure risk changes which is similar to the previous studies, and (4) companies should not have any segment, which has more than 90 percent of total sales. British data for both treatment and control groups¹⁰ were utilized and dummy variable technique was employed in this study. The dummy variable measures the differential effect of segmental reporting disclosure. The advantage of dummy variable is that, since pooling increases the degree of freedom, it may improve the relative precision of the estimated coefficient. The results show that the dummy variables in the treatment groups (line of business and geographical segments) were significant but insignificant in the control group. This result implies that the disclosure of line of business and geographical segment information does have an impact on a firm's perceived risk.

On the other side, several papers have examined the impact of disclosure on risk-taking among banking system. Nier and Baumann (2003) have examined the effectiveness of market discipline in limiting excessive risk-taking by banks. They have constructed a large cross-country panel data set consisting of observations on 729 individual banks from 32 different countries over the years 1993 to 2000. Panel data estimation techniques are applied to both capital regressions, which aim to explain banks' choice of capital buffers, and risk regressions which aim to explain bank risk. Risk regressions are a complement to capital regressions. In the risk regressions, the results indicate that there is a negative relation among risk and market discipline using disclosure as proxy for market discipline. This implies that, when bank discloses its risk-profile to the market discipline, they will be penalized by investors for choosing the higher risk. The authors conclude that, this effect is absent if investors do not know the risk-profile of the bank and weaker if the amount of information available to investors is limited.

Hirtle (2007) have examined the relationship between the amount of information disclosed by bank and their subsequent effect on risk and performance. The author used the data from the annual reports of Bank Holding Companies (BHCs) with large trading operations. This analysis in this study is

¹⁰ Both treatment and control group are used to test the hypotheses in this study. The companies that did not close any type of segmental information called treatment groups and the latest group serves as control group.

complementary to that of Baumann and Nier (2004). Similar to their study, this study examines the link between the amount of information disclosed by the banks and subsequent equity price volatility. In this research, they constructed an index of publicly disclosed information about the BHCs forward-looking estimates of market risk exposure in their trading and market-making activities. The main point finding shows that more disclosure is associated with lower risk and in turn with higher risk-adjusted returns. The results suggest that the greater disclosure is associated with more efficient risk taking and thus improved risk-return tradeoffs.

In summary, the results find that all research shows that risks are associated with information disclosed.

3. Model

The most important goal of this research is to explore the relationship between disclosure, risk and performance among Islamic banking. In this research, we also test one's variable are endogenous or exogenous, whereby these three variables will be influenced simultaneously. The methodology strategies are based on Hashem Dezhbakhsh and Rubin (2003), but our modeling strategies are drawn on Al-Tuwaijiri et. al (2003) which are constructed by the equations of the estimation their relationship using Simultaneous Equations Model (SEM). According to Hashem Dezhbakhsh and Rubin, they propose to use panel data and a system of simultaneous equations. They use the time dimension of data to estimate country fixed effects and condition our two-stage estimation on these effects. However, in this research, we attempt to develop knowledge about the mutual relationship between disclosure, performance and risk by using panel data using simultaneous equations approach. The reason behind this is to find out the possible endogeneity or exogeneity of these factors because these factors may have causality effect.

In the following discussion, we will specify the empirical model in determining the relations among equations. Our discussion consists of empirical model, sample collection and data description, endogenous variables, exogenous variables and lastly estimation method.

3.1. The Empirical Model

In this research, two-stage method is used as an empirical test to find the effect of each variable. Therefore, we propose two systems equations as an empirical model to test the study's hypotheses:

$$DISC_{it} = \beta_1 + \beta_2 PROFIT_{it} + \beta_3 LEV_{it} + \beta_4 FIN_{it} + \beta_5 SIZE_{it} + \varepsilon_{it} \quad (\text{Model 1})$$

$$LEV_{2it} = \alpha_1 + \alpha_2 DISC_{2it} + \alpha_3 PROFIT_{2it} + \alpha_4 FIN_{2it} + \alpha_5 NPF_{2it} + \varepsilon_{2it} \quad (\text{Model 2})$$

$$PROFIT_{3it} = \delta_1 + \delta_2 DISC_{3it} + \delta_3 LEV_{3it} + \delta_4 SIZE_{3it} + \delta_5 NPF_{3it} + \varepsilon_{3it} \quad (\text{Model 3})$$

Where, DISC is information disclosure, PROFIT is profitability (banks profitability), LEV is ratios of total Islamic banking liabilities to total assets of Islamic banking operation, SIZE is log of total assets (ratio of assets in Islamic banking operation over total assets of banks.), FIN is log of total of financing, advances and other loans of Islamic banking operation, NPF is non performing financing, α_i $i=(1,2,\dots,5)$ parameters to be estimated, ε_{it} is error terms, i refer to Islamic bank I and t refer to year.

The equation is formulated based on the previous studies conducted regarding disclosure, risk and performance. These equations are derived because of the endogeneity among these variable as discussed earlier. Previous studies on the relations among disclosure, risk and performance, in general considered the relations between two of these three factors and at the same time, do not examine the three variables as an equations. For example, in equation 1 describes the determination of disclosure at time t . Based on the prior empirical research, like Tuwaijiri (2003), Pattern (2007), and Clarkson (2007) have examined the relation among disclosure and profit. But in this study, we attempt to put risk, size and financing as an exogenous variable. The existence of exogenous variables in equation 1 is in order to derive the endogeneity and exogeneity problem.

Equation 2 is derived based on the prior studies which examine the relations between disclosure and risk. This equation derived from the previous studies like Prodhon (1989), Yousef Jahmani (2003),

Nier and Baumann (2003) and Hirtle (2007). In equation 2, we attempt to examine the effect from the exogenous variables in determining the level of LEV among the selected banks. The exogenous such as DISC, PROFIT, LNFIN, and NPF are used in order to find the effect in LEV. Lastly equation 3 is derived based on the equation 1 and 2 which are caused by endogeneity and exogeneity problem. In this equation, we also use DISC and LEV variables in order to see the effects in determining PROFIT among Islamic banking.

3.2. Sample Collection and Data Description

The data are collected from 11 banks' annual report from 2002 until 2006. The sample selection consists of Islamic commercial banks and the commercial banks that are operated in Islamic banking scheme (SPI). Since data Standard Chartered Bank in 2002, Bank Islam Malaysia Berhad (2006), Public Bank (2004), Affin Bank (2006) is not available so in this study there are 51 samples selected.

3.2.1. Endogenous Variables

3.2.1.1. Disclosure Index (DISC)

In developing scoring disclosure index, the approach by Cooke (1989) which uses criterion based on the presentation of information and builds an item scoring such as 1 if disclosed and 0 if it is undisclosed was applied. This scoring is almost same with the Wiseman Index which measures the quantity level of disclose in the annual report such as the sentences.

In this study, disclosure index had been constructed to measure the information that is disclosed by banks. Usually, disclosure index consists of a list item of information that is shown in the banks' annual report. To analyze this index, two weighted were apply such as weighted index and un-weighted index. In weighted index, there are selected accounting officers in supervision department of Central Bank of Malaysia (Bank Negara Malaysia), Legal officers and Accountant. Almost all of these selected items are included in accounting and auditing procedures of banks. The items and scores will be gathered from them for each items based on the level of importance of such items. Meanwhile, for the un-weighted items, these scores can be calculated directly based on annual report procedures.

Maximum score (MS) and total disclosure (TD) have to be calculated first in order to obtain the disclosure index. Both un-weighted and weighted index (weighted index use weighted item and un-weighted index use un-weighted items) will be calculated as:

$$MS = \sum_{i=1}^n D_i \quad (\text{Model 4})$$

$$TD = \sum_{i=1}^m d_i \quad (\text{Model 5})$$

Where d is 1 if disclosed or, 0 if not disclosed, if the items are not supposed to be disclose called 'inappropriate items', it must be multiplied by -1, n is the number of items which the company is expected to disclose and m refer to the number of items disclosed (including prohibited items). So, from that calculation, the amount of disclosure will be obtained as follows:

$$DISC_{it} = TD_{it} / MS_{it} \quad (\text{Model 6})$$

Equation (6) indicates that the amount of disclosure DISC which is made proxy for quality item by each firm was measured. Scores were obtained by dividing between total disclosure (TD) and maximum score (MS).

3.2.1.2. Profitability (PROFIT)

Profit in banking means that the difference between the level of interest it pays for deposits and other sources of fund, and the interest it charges in its lending activities. In this study, return on assets is used as proxy for the performance variable which has similarity with the previous study like Clarkson et. al (2007). Return on assets indicates how profitable a company's assets are in generating revenue. Therefore, if the banks have more profit, they tend to disclose more information in the annual report in order to obtain personal advantages. Based on the previous study like Barako (2007), he said that, the

management of a profitable enterprise will voluntarily disclose more to the market to enhance the value of the firm. The profit variable have a positive impact on the extent of disclosure in annual reports.

3.2.1.3. Leverage (LEV)

Leverage is the important variable which it can be used to identify the level of risk. In accordance to Investopedia Says the higher a company's degree of leverage, the more the company is considered risky. In other words, a company with higher leverage has more possibility to collapse because that company must continue to run in debt without regarding how bad their sales are. Generally, this situation illustrates the bank's risk-taking nature.

3.2.2. Exogenous Variables

3.2.2.1. Size

In this study size is used as a control variable for bank size. the size of banks means that the bigger bank size is, the higher total assets it has. As we know, size has a positive effect on a bank's disclosure activity. In the research conducted by Spiegel and Nobuyoshi Yamori (2003), it is found that size has a positive and significant effect with the disclosure on bank systems. They imply two reasons, first, the larger banks need to raise capital in the market more frequently, it means that they are under greater pressure from shareholders and market analysts for increased disclosure and second, they explained that this positive relation are related to economic scale. This situation concludes that a bank's size is consistently to be a very significant predictor of disclosure information especially in the annual report.

3.2.2.2. Financing

In this study, financing is used in disclosure study as a predetermined variable which is supported by the previous study like Clarkson et. al (2007). The authors used financing as a factor to measure voluntary disclosure because firms that raise financing in debt and equity markets have a higher propensity for disclosures in voluntary channel to lower their cost of capital. Financing has a positive relations with the voluntary disclosure.

3.2.2.3. Non-Performing Financing (NPF)

Non-performing financing is used as a predetermined variables in determining the leverage and profit. We use this variable because we want to determine whether this variable has an effect on equation

4. Result and Discussions

In this section, we will discuss the regressions results in determining the relations among variables. Hence, panel data estimations are accurate in explaining these three equations among Islamic banking in Malaysia. The two-stage least squares method are also utilized to regress all equations jointly.

4.1. Panel Estimation

In order to test the relations among the variables, we had considered two affects such as none effect and fixed effect. Table 1 and 2 provides panel estimation result which consists of fixed effect (Panel A) and none effect (Panel B). The result of fixed effect shows better estimations where it has a significance of estimation for each models and the value of R-square higher than none effect. This indicates that the fixed effect model is - significant to estimate the relations.

At the same time, we also test the best model between the fixed and random effects, and we used Hausman test through the random effect equations. Table 3 suggests that all equations are not significant, where we have to reject the hypothesis null for random effects equations because $P > 0.1\%$. This result shows that, the panel data estimations with fixed effects can explain better compared to random effects. So that, discussion only focuses on the fixed effects result.

Based on the result, we conclude that equation 1 which represents the determination of the disclosure among the Islamic banking is the appropriate equation in explaining the variables. However, the finding shows that there is no accurate or suitable significant estimation of all the three equations. To solve this problem, we used two-stage least squares in order to obtain an efficient result.

Panel A Table 1: Panel Data Estimation Results

	EQUATION 1	EQUATION 2	EQUATION 3
C	1.1911 (9.0404)*	912.2350 (1.7815)**	0.0408 (0.6189)
DISC		-461.8987 (1.8583)**	0.0061 (0.2300)
PROFIT	0.1387 (0.2532)	-405.3121 (0.5305)	
LEV	-0.0002 (2.9150)*		-2.07E-05 (2.3801)*
LNFIN	0.0157 (2.3090)*	-28.9162 (1.6126)	
LNSIZE	-0.0310 (3.2627)*		-0.0019 (0.6213)
NPF		-3.6202 (1.4308)	-0.0007 (1.3573)
R ²	0.4931	0.3368	0.3865
F	2.5017	1.3056	1.6202
P	0.0135	0.2518	0.1207
DW	2.815	2.0055	2.6544

Number in parentheses is the t test

* Significant at 5%

** Significant at 10%

F- F-test

P- Prob (F-Test)

Panel B Table 2: Panel Data Estimation Results

	EQUATION 1	EQUATION 2	EQUATION 3
C	0.9046 (6.2953)	407.6116 (2.0510)	0.0177 (0.4233)
DISC		-259.6134 (1.3730)	0.0178 (0.6000)
PROFIT	0.3140 (0.4111)	463.7290 (0.5048)	
LEV	-0.0001 (1.3088)		-2.23E-05 (0.9231)
LNFIN	0.0024 (0.2783)	-7.9958 (1.0524)	
LNSIZE	0.0007 (0.0532)		-0.0013 (0.6425)
NPF		-1.4616 (0.7674)	-0.0002 (0.4763)
R ²	0.0578	0.0949	0.0392
F	0.7057	1.2058	0.4704
P	0.5922	0.3212	0.7572
DW	1.5209	1.4326	1.7235

Table 3: Hausman Test of the Random Effects Equations

	Chi-Sq. Statistic	Probability
Equation 1	3.8222	0.4306
Equation 2	4.7550	0.3134
Equation 3	2.3654	0.6689

4.2. Two-Stage Least Square (2SLS)

Table 4: Two-Stage Least Squares Regression Result for DISC, LEV, and PROFIT Variables DISC LEV PROFIT

Variables	DISC	LEV	PROFIT
Intercept	0.3796 (0.6005)	-63.0156 (0.2969)	0.1328 (1.0071)
DIS		351.6514 (2.7902)*	-0.1693 (1.3772)***
LEV	0.0028 (2.3394)*		0.0016 (0.1743)
PROFIT	-5.2066 (1.5709)***	2194.6080 (1.6861)**	
LNASSET	0.0112 (0.3368)		0.0008 (0.2939)
LNFIN	0.0255 (0.6184)	-18.5042 (1.0008)	
NPF		3.210383 (0.7620)	0.0005 (1.5557)***
R ²	0.8459	0.8215	0.6848
Adjusted R ²	0.5376	0.4646	0.0545

Number in parentheses is the t-test

* Significant at level 5%,

** Significant at level 10%,

*** Significant at level 20%

From the table 4, the result shows that, the value of R² for each equation increased than the result in panel estimation. The results presented in table 4 for equation 1 suggest that LEV has positive significant determinant of DISC. This result is not consistent with the results in panel estimation but consistent with the economic predictions. In other words it suggests that, banks with high LEV will adopt DISC to provide more timely information as to reduce the long-term creditors' suspicion about the ability of the company to pay its obligations. Furthermore, the bank's PROFIT is negatively significant to DISC at level 20 percent, which is consistent with the social-political theories. It is because, as mentioned before, social-political theories posit that banks will attempt to increase disclosure to change stakeholders' perceptions about their actual performance (Clarkson et al. (2007)). In addition, the coefficients for both LNASSET and LNFIN are positively not significant. This result is consistent with the economic predictions but both variables are not the strong variables in determining disclosure. This situation exists since Islamic banking systems are not similar compared to conventional banks.

The 2SLS results for equations 2 suggest that both DISC and PROFIT are significantly positive to LEV. These results are consistent with the economic predictions which suggest that a bank's profit increase will lead LEV to increase. The LNFIN and NPF are not statistically significant in determining the level of LEV. These results are similar to panel estimations in table 1. These results suggest that both variables are not good factors in explaining LEV in Islamic banking. These variables are not significant with LEV and it may be due to the samples selections are not sufficient in explaining the level of LEV.

The coefficients for the explanatory variables in equations 3, which specify the determinants of PROFIT, suggest a positive relation between DISC and PROFIT. This negative relation is consistent with social-political theories. This result is similar as predicted in equation 1. In further examining the equations 3, we found that both variables, LEV and LNASSET are positively not significant with PROFIT. These relations are consistent with the economic prediction which says that LEV and LNASSET have a positive association with PROFIT. However, these relations are not significant in

explaining the dependent variable. We also find that NPF is positively associated with PROFIT, and the relations are significant at level 20%.

In summary, the 2SLS results suggest three significant relations between our dependent variables. First, LEV is positively related to DISC, suggesting the banks with higher level of LEV tend to reveal a lot of information. Second, DISC is positively related to LEV, suggesting banks are likely to disclose more information in order to maximize the welfare. Lastly, PROFIT is positively related to LEV, suggesting that Islamic banking uses profit loss sharing scheme to overcome interest rate scheme. After we test 2SLS, we found that there is possibility of endogeneity and exogeneity problem in our equations. So, to solve this problem, we use Granger-Causality Test to ensure the existential probability of endogeneity and exogeneity.

4.3. Granger-Causality Test

Table 5: Granger-Causality Test Result

Null Hypothesis	F-Statistic	p
LEV does not Granger Cause DISC	6.4858	0.0061*
DISC does not Granger Cause LEV	3.6577	0.0425**
PROFIT does not Granger Cause DISC	3.1357	0.0634***
DISC does not Granger Cause PROFIT	0.5486	0.5855
PROFIT does not Granger Cause LEV	0.8074	0.4588
LEV does not Granger Cause PROFIT	0.4667	0.6330

* Significant at level 1%

** Significant at level 5%

*** Significant at level 10%

From the table 5, it reveals the Granger-Causality test result for the equations. The result for DISC and LEV shows when DISC is used as a dependent variable there is Granger-Causality. However, when LEV is used as a dependent variable there is also a Granger-Causality. This result indicates that, DISC and LEV are more likely to be endogenous variable. Another test between PROFIT and DISC presents that there is only one which has Granger-Causality that is when DISC as a dependent variable. Lastly, test between PROFIT and LEV shows that there are no Granger-Causality either when using PROFIT or LEV as a dependent variable.

In summary, the Granger-Causality results conclude that DISC and LEV can be used as endogenous variables within these three equations. However, DISC variable have strong relations to become a dependent variable among these variables. This result can be proven by looking at the value of adjusted R^2 in 2SLS result. In equation 1, value of adjusted R^2 is higher than the 2 equations. This value implies that, all explanatory variables can explain the endogenous efficiently.

5. Conclusion

Based on the previous studies, relations among disclosure, risk and performance are important since depositors and stakeholders can assess the actual performance and risk-taking among the banks. As we know, almost all bank's activities were associated with the variety of risks especially in interest rate and credit risk. Hence, information disclosure is necessary in financial institutions to ensure that all information disclosed are transparency among banks.

Therefore, to completely avoid interest and risk among banks, Islamic banking systems have developed a new of mode of transactions called profit-loss-sharing (PLS) mode. Usually, PLS modes are to avoid debt-financing and use partnership and equity-financing, which is similar to capitalism scheme. Based on the previous studies as mentioned before, profit is positively related with disclosure. This finding shows that when banks' profit increase, it will tend the banks to increase disclosure in annual reports particularly. But in this study, referring to 2SLS results, profit has a negative significant with disclosure. Usually, decrease in profit is not allowed in financial institutions because it will cause

banks to collapse. Hence to overcome this problem, the policy makers should create new profit allocation models especially in allowing banks to specify the rules for splitting profits especially in contracting. For example, banks must choose the qualified shareholders in order to obtain more profits.

The finding also shows that, the level of leverage among banks are positively significant with the disclosure. This situation should occur in banking operations since disclosure of level of leverage may be positively related to disclosure if they indicate that management intends to address a bank's leverage. Indirectly, this situation will give more burdens to banking systems. Therefore, banks must reduce their risk-taking to ensure that their level of leverage becomes low. So, as the relative to risk-taking, banks must create more modes and instruments in order to obtain more results.

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Appendix

A) Twenty content categories were selected representing the four table dimensions (Ingram & Fraizer scale):

- Evidence
Monetary, non-monetary, qualitative and none.
- Time
Past, present and future.
- Specificity
Specific and general
- Theme

Public interest, economic consequences, irrational activities, government regulation, litigation, regulatory compliance, actual accomplishments, environmental control and others.

B) Environmental Disclosure Rating (Wiseman scale, 1982)

- Economic factors:

Past and current expenditures for pollution control equipment and facilities, Past and current operating costs of pollution control equipment and facilities, Future estimates of expenditures for pollution control equipment and facilities, Future estimates of operating costs pollution control equipment and facilities, Financing for pollution control equipment or facilities, *Provisions for site restoration* (added to Wiseman rating for the current study)

- Litigation:
Present litigation, Potential litigation
- Pollution abatement:

Air emission information, Water discharge information" Solid waste disposal information, Control, installations, facilities, or processes described, Compliance status of facilities.