

# **INVESTMENT, ISLAMIC BANK AND FINANCIAL DESIGN FROM MALAYSIAN LISTED FIRMS**

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## **ABSTRACT**

This paper examines the link between financial design and Islamic bank variables on firm investment. It is aimed to support additional empirical evidence based on previous studies. The firm-level data for Malaysian Shariah listed firms between 2000 and 2010 are used. This paper utilizes the estimation method from generalised method of moments for dynamic panel data, as proposed by Arellano and Bover (1995). The findings show that: first, the investment of Shariah listed firms are positively related to the development of the banking system and the capital market. Second, the cash flow shows a negative impact on investment of firms. Third, the debt asset ratio has a negative impact on firm investment. Fourth, Bai' Bithaman Ajjil and Ijarah financing show a negative effect on investment of firm. Fifth, the zakah variable shows a mixed result on firm investment.

**Keywords:** Financial Design; Islamic Bank; Investment; Shariah Firms.

## **1. INTRODUCTION**

Capital formation or investment is important to sustain economic growth. Malaysia and other developing countries require a high rate of capital formation or investment to generate and sustain high economic growth to supplement growth in labour force and technological progress. However, in developed economies like United States (US): technological progress and innovation (reflected in high growth in total factor productivity) spearhead growth. These factors are far more important than factors in the traditional growth like labour force and capital investment in determining economic expansion. In order to replace the obsolete or used capital, high rate of capital formation is needed. It represents a net increase in fixed investment which creates productive capacity for economic growth. For example, investment of firms will boost the productive capacity of a country and thus increase growth and standard of living

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without giving rise to inflationary pressure. The investment of firms can be highlighted from the bank balance sheet through bank lending channel in credit channel. This includes financial intermediation that contributes to growth by mobilizing savings, efficiently allocating these resources among competing investment projects and other demands of funds.

In this case, Islamic bank also experiences no exception in promoting the economic growth. It can be seen from the involvement of Islamic banks in economic growth through bank lending channel. This channel also shows that Islamic banks play a special role in the financial system design because they are well suited to solve information problems in the credit market. In addition, interest is prohibited in Islamic bank and is accepted for the well-being of the society in the world. Islamic banking system also offers instruments which consistent with religious beliefs and cultures of Muslim societies. According to the Islamic Law, financial instruments should emphasize on profit-and-loss sharing (equity), which seems to exclude debt contracts. This situation is contrasting with the Western financial institutions whereby banks in the US, offer debt contracts to firms seeking capital, with the regulation that prohibit banks from taking more than a 5 percent equity position in firms. Meanwhile, banks in Germany and Japan use equity investments in firm, but debt contracts are still in use (Aggarwal and Yousef, 2000).

The financial system in most countries are designed with two main components, the financial institutions (comprise of the conventional and Islamic financial system) and the financial market. This financial system is important in mobilizing savings and allocating the resources for investment projects. The existence of asymmetric information in financial institution has encouraged many researchers to advance the investment process in the presence of imperfect financial market. The problems of asymmetric information between borrowers and lenders create a gap between the cost of external (via interest) and internal financing that gives internal finance an essential role in the investment decision of the firm. As a result, some countries concentrate on developing the financial institution (here, we refer to banking system) and others develop the capital market.

The studies on those subjects are many. However, the study that examines the relationship between investment, Islamic bank and financial design for Malaysian shariah listed firms is none. Up to June 2012, the percentage of shariah-compliant securities to total listed securities on Bursa Malaysia is 89%. Hence, it is important for researchers to explore the role of financial design on the level of investment in shariah listed firm more explicitly in the future. Furthermore, many empirical studies on the relationship between finance and growth have been dominated by cross-country studies. Although the findings of these studies provide a useful direction on the finance-growth relationship, it is difficult to have the results in the generalized point of view. Therefore, Malaysia is the only country to be chosen for this study as compared to other cross-country studies.

In this study, the shariah listed firm investment is regressed against design variables (bank and capital market), financial variables (cash flow, debt, Tobin's Q and trade financing) and macroeconomics variables (GDP, inflation and Zakah) by using a dynamic panel model with GMM (generalised method of moments). This study differs from previous work on firm investment and financial systems, in the sense that it presents the investment in Malaysian

shariah listed firms that include design variables, which are bank design (bank loan and deposit money bank) and market design (market capitalization and values of shares traded) as independent variables. These variables are divided by total asset of banking system (TOA) as opposed to the original idea proposed by Demircuc-Kunt and Maksimovic (2002) which treats GDP as denominator. Hence, the re-definition of those variables is more relevant to capture the level of financial system development. The variables of market design are market capitalization and value of turnovers shares traded in Bursa Malaysia. The market capitalization is divided by total asset of banking system (TOA) and the value of turnovers is divided by market capitalization.

In addition, the financial variables that consist of cash flow, debt asset ratio, Tobin's Q and Islamic trade financing are included in this study. Therefore, this paper is planned to show a more comprehensive financial system design that is different from previous work. The motivation to include cash flow and Tobin's Q variables lies in the possibility that these variables give impacts on the willingness of banks to supply credit in the economy. In addition, the cash flow is associated to change in available internal funds; higher investment cash flow sensitivity that can be considered as evidence of greater liquidity constraints. The added debt-asset ratio ( $DA_{i,t}$ ) would thus, be expected to have a significant negative impact on investment of firms. Additional debt is expected to influence investment negatively because managers reduce their debts in anticipation of future investment opportunities (Tobin's Q). This result will lead the bank to reduce its lending activities. The added Zakah variable is expected to influence the economic activities because zakah is mobilized through the Islamic bank into Shari'ah compliant projects in the economy, and finally generates GDP with its related sector.

This study aims to examine the link of financial design and Islamic bank variables on firm investment in the Malaysian context. Many previous studies on the relationship between firm investment and financial system design have been explored by developed countries; however, lacks of surveys have been done in developing countries, particularly in Islamic banking variables. Due to that reason, Malaysia is chosen in this study to represent one Islamic developing country. Hence, this paper also contributes to the literature by using a dynamic panel model with GMM estimators and focuses on Malaysia only. Meanwhile, the research done by Demircuc-Kunt and Maksimovic (2002) only used the basic panel data method.

This study utilizes the Malaysian Financial Institution, Islamic bank and shariah listed firm data from 2000 to 2010. This study finds evidence of the impact of financial system design that consists of bank variables and capital market variables to investment of firms. The result shows that: first, the investment is positively related to the development of the banking system and the capital market. The higher firm investment when the environment is conducive to the development of both banking sector and stock market activity. Second, the cash flow shows a negative impact on investment. This negative impact shows that the both investments and cash account are uses of funds, competing for limited available cash flows. Third, the debt has a negative impact on investment. This negative relationship shows that the investment to capital ratio decreases when the debt level increases. Fourth, Bai' Bithaman Ajil (BBA) and Ijarah financing have a negative effect on firm investment. When the total volume of BBA and Ijarah financing is increased, the amount of firm investment is reduced. Fifth, the zakah variable

shows a mixed result (positive and negative) on firm investment. The impact of zakah could be observed in terms of consumption variable and investment variable.

More specifically, this paper has three objectives. First, to examine the firm investment with bank design and market design variables. Second, the study will examine the relationship between firm investment and financial variables. Third, the researcher will examine the impact of macroeconomic variables on firm investment. The remainder of the paper is organized as follows. Section two discusses the scenario of the Malaysian financial system. Next, section three describes the theoretical framework on the relationship between firms' investment and financial system design. Model specification is discussed in section four. The empirical results are presented in section five. Finally, section six provides the conclusion and policy implication of the study.

## 2. MALAYSIAN FINANCIAL SYSTEM

The Malaysian financial system is designed as two major components, the financial institutions (comprising of conventional and Islamic banking) and the financial market. The financial institutions can be further divided into a banking system and other non-banking financial institutions. In order to have a sound financial system, the prerequisite is to have stability in both financial institutions and financial markets. In Malaysia, the financial institutions consist of Bank Negara Malaysia (BNM), commercial banks, investment banks and Islamic banks that make up the banking system. The Islamic and conventional banking systems coexist and operate in parallel. In addition, non-bank financial intermediaries (NBFIs) complement the banking system in mobilizing savings and productive investment. These institutions also play an important role in the development of the capital market and in providing social security.

The establishment of Bank Islam Malaysia Berhad (BIMB) has marked a new milestone for the development of the Islamic financial system in Malaysia. BIMB carries out banking business similar to other commercial banks, but along the principles of Shari'ah. The bank offers deposit-taking products such as current and savings accounts deposit under the concept of *Al-Wadiah YadDhamanah* (guaranteed custody) and investment deposits under the concept of *Al-Mudharabah* (profit-sharing). The bank grants financing facilities such as working capital financing under *Al-Murabahah* (cost-plus), house financing under *Bai' Bithaman Ajil* (deferred payment sale), leasing under *Al-Ijarah* (leasing) and project financing under *Al-Musyarakah* (profit and loss sharing). Gradually Islamic bank has played an important role for the overall Malaysian financial market (Dusuki and Abdullah, 2007). The Islamic banking industries have been growing at an average of 18 percent per annum since 2000 in terms of assets (Aziz, 2006). He also added that Islamic banks constitute 8.2 percent of total banking in term of assets, with approximately 70 percent of the assets being generated by the conventional banks. At present, 21 Islamic banking institutions (Five International Islamic banks and 16 Islamic banks) are offering Islamic banking products and services under the Islamic Banking Scheme (IBS) (Bank Negara, February 2012).

Table 1 presents the total assets of the Financial Institution and Islamic Banking. The total assets of the Islamic Banking has risen from RM370 million to RM1,426 million and to

RM267,603 million which was an increase from 0.61%, to 1.10% and to 18% for the year 1983, 1990 and 2010, respectively. The total deposits of the Islamic Banking exhibited an upward trend from RM275 million to RM1,221 million and to RM216,953 million for the year 1983, 1990 and 2010, respectively. It was a positive movement from 0.74%, to 1.96% and to 19.87% for the respective years. For the same conservative years total financings shown an upward trend from 0.68% to 1.01% and to 18.18% which was from RM250 million, to RM817 million and to RM159,211 million. The total assets, total deposits and total financings in Financial Institution have also shown an upward trend from 1983 to 2010. These provide evidence that, apart from the increasing number of players in the Financial Institution, there is an increasing demand for Islamic product and financings (similar to Sanusi & Ismail, 2005).

**Table 1:** Selected Performance Indicators of Financial Institutions in Malaysia 1970-2010

Year	FIS Total Assets (RM million)	IB Total Assets (RM million)	FIS Total Deposits (RM million)	IB Total Deposits (RM million)	FIS Total Financings (RM million)	IB Total Financings (RM million)
1983	60,173	370	37,124	275	36,781	250
1990	129,284	1,426	62,259	1,221	80,758	817
2000	512,715	47,014	362,991	35,918	303,367	20,816
2001	529,736	59,353	368,792	47,107	324,922	28,318
2002	563,254	68,070	388,406	53,185	337,995	36,718
2003	629,975	83,105	433,008	60,212	355,610	48,614
2004	761,255	95,033	550,930	72,857	447,453	57,841
2005	884,599	111,824	644,891	83,875	524,723	67,365
2006	1,027,813	131,909	768,085	99,184	580,356	73,368
2007	1,145,816	156,811	820,952	122,028	631,899	85,399
2008	1,279,314	192,682	936,145	154,702	718,705	104,630
2009	1,364,664	233,656	1,028,347	188,839	777,792	133,487
2010	1,486,333	267,603	1,091,972	216,953	875,572	159,211

**Source:** Bank Negara Malaysia's Statistical Bulletin (various issues). FIS - Financial Institutions, IB - Islamic Banking. The figure for total assets, total financings and total deposits are in RM million.

In line with the development in the financial sector, the government of Malaysia has also concentrated in expanding the stock market in Bursa Malaysia. Table 2 presents key performance indicators of the stock market from 1980 to 2010. As shown in table 2, the number of listed firms has increased over the years except in 2007, 2008 and 2010. Importantly, after the Asian crisis 1997/1998, the size and liquidity of Bursa Malaysia had increased drastically as indicated by the value of turnovers and market capitalization. In 1990, the value of turnover was RM29,522 million. Then, this figure increased eight fold to RM244,054 million in 2000. The market capitalization also increased the turnover value in 2000. The rapid growth of the stock market is prior to the Asian crisis where the government implements the privatization policy and large portfolio investment inflows during the late 1990s. The value of turnovers and market capital were declined in 2008 and 2009, as a result from the global economic downturn particularly from the serious subprime crisis beginning in June 2007. However in 2010, both these values have increased to 18.59% and RM1,275.3 billion respectively.

In general, from the trend of both Financial Indicators of Financial Institutions (Table 1) and Performance Indicators of Bursa Malaysia (Table 2), these indicators are expanding throughout the years. This implies that the development of banking sector is in line with the development of stock market (Ibrahim, 2007). Therefore, both indicators play a major role in mobilizing savings and productive investment. Investment involves the intermediation processes that mobilize funds from the economy's surplus units to its deficit units in expanding the economic development and economic growth.

**Table 2:** Selected Performance Indicators of Bursa Malaysia 1980-2010

Year	Numbers Listed firms	Composite index	Value of turnovers (RM million)	Value of turnovers/ TOA (%)	Market capital (RM billion)	Value of turnovers/market capital (%)
1980	250	366.7	5,600	-	-	-
1990	285	505.9	29,522	13.21	31.7	22.42
2000	795	679.6	244,054	29.41	444.4	54.92
2001	812	696.1	85,012	9.82	465.0	18.28
2002	868	646.3	116,951	12.65	481.6	24.28
2003	906	793.9	183,886	17.57	640.3	28.72
2004	963	907.4	215,623	18.12	722.0	29.86
2005	1,021	899.8	177,321	13.84	695.3	25.50
2006	1,027	1,096.2	250,641	17.71	848.7	29.53
2007	987	1,445.0	540,173	32.70	1,106.2	48.83
2008	960	876.8	289,250	17.19	663.8	43.57
2009	957	1,272.8	280,023	15.65	999.5	28.02
2010	941	1,518.9	360,568	18.59	1,275.3	28.27

*Source:* Bank Negara Malaysia's Statistical Bulletin

### 3. LITERATURE REVIEW

The role of financial development in the process of economic development has been recognized in previous literatures. For example, the earlier study, Schumpeter (1911) believes that entrepreneurs need credit to finance the invention of new production methods. Hence, banks are shown as important agents in facilitating these financial intermediating activities and promoting long-term economic development. The positive relationships between indicators of financial development and economic growth over long-term reflect the importance of the financial sector. This was also supported later by Goldsmith (1969), Shaw (1973) and MacKinnon (1973). However, a few groups of economists believe that finance has little importance and only responds passively to economic growth although there is higher demand for financial services, for example, Robinson (1952) and Lucas (1988). Therefore, the general consensus among economists on the relationship between financial development and economic growth does not exist. Allen and Gale (2000) argue that theory of firm should be integrated with the theory of financial systems because the financial sector imperfections lead firms to internalize financial tasks themselves, making the financial intermediaries important to the economy.

The Islamic financial systems consist of two important types of financing; profit-and-loss sharing (PLS) mechanism and the mark-up financing. PLS is formed from mudarabah funds (investible funds) and musyarakah funds (equity funds). Mark-up financing (murabahah) and Ijarah (capital leasing financing) are loanable funds with Islamic features. Firms obtain external financing either from bank borrowing or from equity financing. Whether funds are derived from the market or bank, the designs of Islamic financial systems are different in term of PLS and mark-up financing (Ismail and Ahmad, 2006). Ayub (2007) agrees that debt like murabahah has to remain as a part of Islamic finance besides equity. The financial institutions provide financial facilities through trading activities and create debt which can be shown in their balance sheets. Therefore, the issue of debt versus equity does not exist; more importantly, which one has greater reliance on equity or debt depends on the shariah principle. In order to create a healthy of the economy and society in Islamic economy, debt should not involve with riba that increase on the basis of conventional opportunity cost theory.

These Islamic financings produce a relationship between principal and agent. Ismail and Ahmad (2006), has identified six forms of relationship between principal and agent; for example, screening and monitoring entrepreneurs, credit rationing by banks, allocation of capital, liquidity creation and management of liquidity risk, monitoring managers and applying corporate control and debt restructuring. All the transactions follow the Islamic Law that prohibits interest and speculation. Therefore, Islamic banks offer instruments that in line with the religious belief and culture of Muslim societies. These instruments based on profit-and-loss sharing equity (Aggarwal and Yousef, 2000).

Similar to conventional banks, Islamic banks also depend on depositors' money as a major source of funds. Bank Islam Malaysia Berhad (the first Islamic bank in Malaysia) for instance, had total deposits amounting to 83% of total liabilities and shareholders' equity as the end of December 1998. Islamic banking performs the same intermediary function but the amount of profits is based on the profit-sharing agreements with the depositors and also with the borrowers. Thus, Islamic banking is considered as different banking stream as it prohibits interest and replaces it with profit share depends on the extent of the risk participation of the parties. The absence of pre-determined rewards is based on Quranic commands and as interpreted using *Shari'ah* principles (Ariff, 2006). In addition, according to Chapra (2000), conventional banking system creates unequal distribution of capital because this type of banking system aims to lend mainly to those individuals and firm who have the necessary collateral to offer large internal savings to service the debt.

The interrelationship between Islamic banks, zakat and real economy is important to bring out the dynamic input-output in measurement of the Zakat-economy-institution (Islamic bank) with effects in the framework of epistemology of unity of systemic knowledge (Thayer-Bacon, 2003). In addition, zakat is one of the five pillars in Islam and it is mentioned over 30 times in the Quran. Some contemporary Islamic economists propose that zakat can be used as a source for income generator to make the poor become more independent to his economy (Sarif and Kamri 2009). A model constructed by Kabir (2010) integrates zakat, awqaf and Islamic microfinance as tools for eradicate poverty and improve the living standard of the poor and needy. Choudhury and Malik (1992) found that in the case of Malaysia, macroeconomic

models in zakat and socioeconomic variables have shown a positive relationship. However, zakat and investment show negative impact. A possible reason for this is zakat and investment substituting each other.

In addition, Choudhury (2008) proposes a new dimension in the measurement of zakat, Islamic bank and economic variables in the Islamic economic framework. The Islamic bank mobilizes the zakat in the forms of development financing instruments. The application of the Islamic financing instrument is Mudarabah, Murabahah and Musharakah. It has shown the important role of Islamic banks in mobilizing the direct resources toward attaining the well being in development planning. In addition the serious socio-scientific attention, particularly in the development of Islamic economics and finance as a distinct worldview in worldly matters that is referred to Muamalat (Choudhury, 2012).

Another survey that related to financial design has been done by Demirguc-Kunt and Maksimovic (2002). They find the proportion of firms in each country that rely on external finance differs across financial systems. However, Agarwal and Mohtadi (2004) find that the stock market variables are significantly and negatively related with the firm debt level relative to their equity position, while banking sector variables are positively related with debt equity ratio.

Since the results are mixed, the further empirical evidence related to this issue is still relevant. Hence, the following sections in this paper will examine empirically the firm investment with financial system design variables, financial variables and macroeconomics variables (included the Islamic variables in Islamic banking).

#### 4. METHODOLOGY

The model is constructed by combining the model introduced by Aivazian et al. (2005) and Demirguc-Kunt and Maksimovic (2002). The dependent variable (firm investment) follows the Aivazian et al. (2005) and independent variables follow Demirguc-Kunt and Maksimovic (2002). However, the new financial variables which are cash flow, debt asset ratio (total debt and long-term debt), Tobin's Q, Zakah in Islamic bank and trade financing variables (BBA, Ijarah and Murabahah) are added to this study. Cash flow and Tobin's q are included in this study because these variables give impacts on the supply credit in the economy. The debt-asset ratio is a signal of management's information on investment opportunities. The additional debt is expected to reduce investment, particularly when Tobin's q is low. The trade financing variables are included because these variables are expected to influence the investment activities through financing activities. Therefore, four models are constructed to show clearly the impact of those variables on firm investment. The *BANK* and *CAPMKT* variables are used as proxy for design.

The basic regression model for investment and financial system design can be written as follows:



$$I_{i,t}/K_{i,t} = \alpha + \beta_1 ZAKAH_{i,t} + \beta_2 DESIGN_{i,t} + \beta_3 Q_{i,t} + \beta_4 CF_{i,t}/K_{i,t} + \beta_5 GDP_{i,t} + \beta_6 DA_{i,t} + \beta_7 INF_{i,t} + \beta_8 TFINANCE_{i,t} + \mu_i + \varepsilon_{it} \quad (1)$$

$$I_{i,t}/K_{i,t} = \alpha + \beta_1 ZAKAH_{i,t} + \beta_2 BANK_{i,t} + \beta_3 CAPMKT_{i,t} + \beta_4 Q_{i,t} + \beta_5 CF_{i,t}/K_{i,t} + \beta_6 GDP_{i,t} + \beta_7 DA_{i,t} + \beta_8 INF_{i,t} + \beta_9 TFINANCE_{i,t} + \mu_i + \varepsilon_{it} \quad (2)$$

Further, firm-investment equations are as follows:

### Model 1

$$I_{i,t}/K_{i,t} = \alpha + \beta_1 ZAKAH_{i,t} + \beta_2 BLOAN_{i,t} + \beta_3 MC_{i,t} + \beta_4 CF_{i,t}/K_{i,t} + \beta_5 Q_{i,t} + \beta_6 TDEBT_{i,t} + \beta_7 LTDEBT_{i,t} + \beta_8 GDP_{i,t} + \beta_9 INF_{i,t} + \beta_{10} BBA_{i,t} + \beta_{11} IJARAH_{i,t} + \beta_{12} MURABAHA_{i,t} + \mu_i + \alpha_{it} \quad (3)$$

### Model 2

$$I_{i,t}/K_{i,t} = \alpha + \beta_1 ZAKAH_{i,t} + \beta_2 BLOAN_{i,t} + \beta_3 TOR_{i,t} + \beta_4 CF_{i,t}/K_{i,t} + \beta_5 Q_{i,t} + \beta_6 TDEBT_{i,t} + \beta_7 LTDEBT_{i,t} + \beta_8 GDP_{i,t} + \beta_9 INF_{i,t} + \beta_{10} BBA_{i,t} + \beta_{11} IJARAH_{i,t} + \beta_{12} MURABAHA_{i,t} + \mu_i + \alpha_{it} \quad (4)$$

### Model 3

$$I_{i,t}/K_{i,t} = \alpha + \beta_1 ZAKAH_{i,t} + \beta_2 BDEPOSIT_{i,t} + \beta_3 MC_{i,t} + \beta_4 CF_{i,t}/K_{i,t} + \beta_5 Q_{i,t} + \beta_6 TDEBT_{i,t} + \beta_7 LTDEBT_{i,t} + \beta_8 GDP_{i,t} + \beta_9 INF_{i,t} + \beta_{10} BBA_{i,t} + \beta_{11} IJARAH_{i,t} + \beta_{12} MURABAHA_{i,t} + \mu_i + \varepsilon_{it} \quad (5)$$

### Model 4

$$I_{i,t}/K_{i,t} = \alpha + \beta_1 ZAKAH_{i,t} + \beta_2 BDEPOSIT_{i,t} + \beta_3 TOR_{i,t} + \beta_4 CF_{i,t}/K_{i,t} + \beta_5 Q_{i,t} + \beta_6 TDEBT_{i,t} + \beta_7 LTDEBT_{i,t} + \beta_8 GDP_{i,t} + \beta_9 INF_{i,t} + \beta_{10} BBA_{i,t} + \beta_{11} IJARAH_{i,t} + \beta_{12} MURABAHA_{i,t} + \mu_i + \varepsilon_{it} \quad (6)$$

where  $I_{i,t}$  is the net investment of firm  $i$  at time  $t$ ;  $K$  is net fixed assets. The net investment is measured as capital expenditure minus depreciation divided by the net fixed assets, Aivazian, Ge and Qiu (2005). *BANK* refers to the *BASET*, *BDEPOSIT* and *BLOAN*. *BASET* is the ratio of bank assets over total assets of financial institution. *BDEPOSIT* is the ratio of total bank deposit over total assets of financial institution. *BLOAN* is the ratio of total bank loans over total assets of financial institution. *CAPMKT* refers to the *MC* and *TOR*. *MC* is the ratio of market capitalization over total assets in banking system. *TOR* is the ratio of total value of shares traded in the Bursa Malaysia over market capitalization.  $Q_{i,t}$  is Tobin's  $q$ ; *CF* is cash flow; *DA* is debt-asset ratio (total debt and long-term debt); *ZAKAH* is the total zakah in Islamic bank; *TFINANCE* refers to the *BBA*, *Ijarah* and *Murabahah*. *GDP* is the real GDP growth rate and *INF* is the rate of inflation.  $\mu_i$  is the individual effect of firm  $i$  and  $\varepsilon_{i,t}$  is the error term.

In this paper, the generalised method of moments (GMM) is used to test the relationship between investment and financial system design. This method was developed by Arellano and Bover (1995) and provides convergent estimators and derives from the instrumental variables principles. It can also solve the endogeneity and serial correlation problems. In this model, a lagged dependent term is added to the equation. Consistent with the previous literature, this paper assumes that the investment of the firm,  $I^*$ , is a function of a vector,  $X$ , of independent variables. These independent variables include the capital market indicators, banking indicators, financial variables and macroeconomic variables.

$$I_{it}^* = \alpha I_{it-1}^* + \beta' X_{it} + \mu_i + \varepsilon_{it} \quad (7)$$

Therefore, our contribution for this study is extended from the Demircuc-Kunt and Maksimovic (2002) that only use the basic panel data to run the regression. Here, the researcher uses the new technique of dynamic panel that address suitable method in solving the endogeneity and serial correlation problems in the equation. In addition the several variables are added in the equation to examine the relationship between investment, Islamic bank and financial design. The Islamic elements such as Zakat and Islamic trade financing are introduced to the equation.

#### 4.1. Independent variables

The exogenous factors have been identified into four main categories; the bank proxies, capital market proxies, finance variables and macroeconomic variables. The macroeconomic variables are treated as control variables.

##### (a) The bank proxies:

*Ratio of total bank loans over total assets of banking system (BLOAN)*. This ratio is also an indicator of the size of the banking sector in relation to the financial institution in the economy. *Ratio of total bank deposit over total assets of banking system (BDEPOSIT)*. This ratio is also an indicator of the size of the banking sector. The total deposit money bank is used as a proxy to the efficiency of capital allocation that correlated with financial development.

**(b) The capital market proxies:**

*Ratio of market capitalization over total assets of banking system (MC)*. The assumption behind this measure is that overall market size is positively correlated with the ability to mobilize capital and diversify risk on the total asset of the financial institution. *Ratio of total value of shares traded in the stock exchange over market capitalization (TOR)*. This variable measures the organized trading of firm equity as a share of national market capitalization and therefore should positively reflect liquidity of an economy.

**(c) The finance variables:**

*Q*. The Tobin's  $q$  is from the definition of Simple  $q$  in Perfect and Wiles (1994). The book value of total assets is used rather than the replacement value of total assets, as the denominator of simple  $q$ . *Cash flow*. The cash flow is measured as the sum of earnings before extraordinary items and depreciation are divided by the net fixed assets, *Debt Asset Ratio*. Two alternatives are used. First, long-term debt is divided by total assets. Second, total debts are divided by total assets. *Trade Financing*. Three types of trade financing instruments are used. First, Bai' Bithamin Ajil (deferred payment of purchase). Second, Ijarah (capital leasing financing). Third, Murabahah (Mark-up financing). The Islamic bank mobilizes the zakah in the forms of those financing instruments (Choudhury, 2008).

**(d) The control variables:**

*GDP*. The real GDP growth is the most direct measurement of macroeconomic development. It is the first indicator of the demand for banking operation, extension of loans for growing investment activities and the supply of funds from customers' deposit. *Inflation*. The rate of inflation is based on consumer price index that is derived from annual average percentage change. The rate of inflation is used as a proxy to enter into financial contracts (Demirguc-Kunt and Maksimovic, 2002). *Zakah*. The zakah is mobilized through the Islamic bank into Shari'ah compliant projects in the economy to generate GDP related with those projects and related sectors. (Choudhury, 2008).

**4.2. The Data**

Data were extracted from various sources. Worlds Scope was a main source of data for growth of firms. The total value of shares traded, market capitalization, bank deposit, bank assets, bank loans and total asset of financial institution are from Bank Negara Malaysia, Annual Reports (various issues). While for GDP and Inflation variables, the data are collected from the International Monetary Fund (IMF). The zakah variable and the Islamic trade financing variables are collected from Financial Statements of all Islamic banks published by Bank Negara Malaysia (BNM). The selected variables are observed within the fiscal year between 2000 and 2010.

## 5. EMPIRICAL RESULTS

The estimation results of investment and financial system design appear in Table 3. The estimation period is from 2000 to 2010. Table 3 shows the GMM-in level estimation results for the firm investment and financial system design. The regression is estimated as unbalanced panel with no transformation. From the null hypothesis under J test (similar to Sargan test), the over-identifying restrictions are valid. The p-values in column 1, 2, 3 and 4 are equal to 0.6589, 0.6705, 0.6638 and 0.6705 respectively. This method is similar to the one used by Agarwal and Mohtadi (2004), Naceur and Ghazouani (2007).

The results show that firms' investment is higher with high level of BANK DESIGN (bank variables) and CAPMKT DESIGN (capital market variables). Both bank variables (BLOAN, BDEPOSIT) and capital market variable (MC, TOR) have a positive significant effect on investment for all columns in Table III. Thus, a larger firm investment is expected when the environment is conducive for the development of active banking sector and dynamic stock market (similar to Demirguc-Kunt and Maksimovic, 2002).

The impact of cash flow variable on investment has not followed the theory. The cash flow has a negative impact which is statistically significant for all columns in Table 3. This negative relation is due to the fact that both investments and the cash account use fund to compete for limited available cash flows, similar to D'Espallier and López-Iturriaga (2009). The total debt asset ratio (TDEBT) and long-term debt (LTDEBT) show a negative impact on firm investment. For TDEBT, the coefficient range from -1.2694 to -1.2959, implies that the investment to capital ratio decreases about 0.1269 to 0.1296 when the debt level increases by 0.1, similar to Aivazian, Ge & Qiu (2005), Fukuda, Kasuya & Nakajima (2005). However, there is no identifying effect on Q variable.

The results of the control variables are mixed, for example, the GDP growth and INF (INFLATION) have positive significant effects and follow the economic theory in column four only. The result of zakah is also not consistent, only column one and three show positive significant effect and comply with the theory. The impact of zakah could be seen in terms of consumption variable and investment variable. Therefore, the more Zakah disbursed by zakah payer, the higher amount of aggregate consumption is created into economy. In spite of in Islamic economic system, Zakah payer will transfer their excess income or wealth to Zakah recipient which indirectly will promote the higher propensity to consume of Zakah recipient. In contrast, in the Zakah payer side, they will reduce the consumption, and turn into saving/investment activities. However, finally it will also create real economy through investment project financing or credit instrument (Wiranata & Sukmana, 2010).

The findings of Islamic financing variables (BBA and Ijarah), generally show a negative effect with firm investment. It means that when the total volume of BBA and Ijarah financing is increased, the amount of firms' investment is reduced. Several Islamic banks products were developed to curtail competition with conventional banks and Islamic banks financing to investors. Prominent among these products is Bai' Bithaman Ajil (BBA) that allows Islamic banks to sell goods on a deferred payment basis at a price, which includes a profit margin, agreed to by both parties.

**Table 3:** GMM - Estimates the Relationship between Investment and Financial Design

	(1)	(2)	(3)	(4)
BLOAN	1.5105*** (0.4818)	4.5785*** (1.1303)		
BDEPOSIT			2.7390*** ((0.8800)	12.1854*** (3.0408)
MC	0.8712*** (0.2190)		1.0187*** (0.2479)	
TOR		1.6231*** (0.4157)		2.7731*** (0.6983)
ZAKAH	2.53E-06*** (5.33E-07)	-2.88E-06*** (9.95E-07)	2.04E-06*** (4.37E-07)	-8.96E-06*** (2.41E-06)
CF	-0.5328*** (0.0158)	-0.5351*** (0.0159)	-0.5329*** (0.0158)	-0.5374*** (0.0160)
Q	0.00827 (0.0102)	0.00846 (0.0102)	0.0083 (0.0102)	0.0089 (0.0104)
TDEBT	-1.2698*** (0.2190)	-1.2833*** (0.0972)	-1.2694* (0.0957)	-1.2959*** (0.0987)
LTDEBT	-0.3954* (0.117)	-0.0397* (0.2201)	-0.39557* (0.2188)	-0.4038* (0.2206)
BBA	5.31E-09 (3.83E-09)	-1.45E-08** (6.29E-09)	-2.60E-08** (1.04E-08)	-1.68E-07*** (4.29E-08)
IJARAH	-8.24E-09** (3.21E-09)	-1.01E-08*** (3.46E-09)	-3.48E-09 (3.06E-09)	1.03E-08*** (3.90E-09)
MURABAHA	-8.49E-09* 4.92E-09	3.43E-08*** (1.27E-08)	2047E-08** (9.95E-09)	2.12E-07*** (5.50E-08)
GDP	-0.0141*** (0.0055)	(0.0047) (0.0041)	0.0147 (0.0092)	0.1472*** (0.0366)
INF	0.0188*** (0.0065)	-0.0049 (0.0053)	-0.0156 (0.0133)	-0.1774*** (0.0459)
J-statistic	39.64	39.36	39.52	39.12
P-value	0.6589	0.6705	0.6638	0.6705
No. of firms	244	244	244	244
No. of observations	2194	2194	2194	2194

**Notes:** For J test (similar to Sargan test), under the null hypothesis that the over-identifying restrictions are valid. The J statistic is distributed as a  $\chi^{(p-k)}$ , where k is the number of estimated coefficients and p is the instrument rank. \*\*\*, \*\*, \* significant at the 1%, 5% and 10% level respectively. Standard errors are given in parentheses.

As profit rate was predominantly fixed, BBA has been criticised on the basis that it does not follow profit and loss paradigm (Chong & Liu, 2009) and that BBA financing is not much different from conventional bank loans (Kader & Leong, 2009). Based on the fixed profit rate of BBA, Rosly (1999) hypothesised that during period of interest rates increase, investors increase their demand for BBA financing against conventional loans and vice versa. This is because BBA becomes a cheaper option for investors in period of rising loan (rising investment). Whilst the murabahah variable shows a different direction. Most of the result shows the positive effect with firm investment, for example in column 2, 3, and 4. It implies that when the total volume of Murabahah (marked-up financing) is increased, the amount of firms' investment will also increase.

## **6. CONCLUSION AND POLICY IMPLICATION**

This study examines the impact of financial design variables and financial variables (which include Islamic variables in Islamic banking) on firm investment in Malaysia. This study extends the previous literatures by using a dynamic panel model with GMM estimators. The findings show that: firstly, the investment is positively related to the development of the banking system and the capital market. Secondly, the cash flow shows a negative impact on investment. This negative relation shows that both the investments and the cash account are uses of funds which compete for limited cash flows. Thirdly, the debt asset ratio has a negative impact on firm investment. This negative relationship shows that the investment to capital ratio decreases when the debt level increases. Fourthly, BBA and Ijarah financing show a negative effect on firm investment. During period of higher interest rates, investors increase their demand for these financing against conventional loans and vice versa. Fifth, the zakah variable shows a mixed result on firm investment. This impact could be viewed in terms of consumption and investment aspects.

The higher firm investment is anticipated when the environment of country is conducive to the development of banking sector and active stock market. An important implication is that the policy maker should develop both the banking system and stock market. Thus, both indicators play a major role in mobilizing savings and productive investment. Another implication is the monetary policy will have greater effect on expenditure by smaller firms, which are more dependent on bank loan compared to large firms. Hence, the involvement of bank loan in firm investment activity needs to be extended since the fluctuation in investment of firms might reduce the economic activity.

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## REFERENCES

- Agarwal, S., & Mohtadi, H. (2004). Financial Markets and the Financing Choice of Firms: Evidence from Developing Countries. *Journal of Finance Global*, 15(1), 57-70.
- Aggarwal, R. K., & Yousef, T. (2000). Islamic Banks and Investment Financing. *Journal of Money, Credit and Banking*, 32(1), 93-120.
- Aivazian, V. A., Ge, Y., & Qiu, J. (2005). The impact of leverage on firm investment: Canadian evidence. *Journal of Corporate Finance*, 11(1-2), 277-291.
- Allen, F., & Gale, D. (2000). Comparing Financial Systems. Cambridge, MA: MIT Press.
- Arellano, M., & Bover, O. (1995). Another Look at the Instrumental Variables Estimation of Error-components Models. *Journal of Econometrics*, 68(1), 29-51.
- Ariff, M. (2006). Islamic banking, a variation of conventional banking. *Monash Business Review*, 3(1), 1-8.
- Ayub, M. (2007). *Understanding Islamic Finance*. Chichester, U.K : John Wiley & Sons, Ltd.
- Aziz, Z. A. (2006). Islamic banking and Finance Progress and Prospects: Collected Speeches 2000-2006. Bank Negara Malaysia, Kuala Lumpur.
- Bank Negara Malaysia. (2012). *Monthly Statistical Bulletin February 2012*. <http://www.bnm.gov.my/index.php?ch=109&pg=294&mth=2&yr=2012&eId=box1>.
- Chapra, M. U. (2000). Why has Islam prohibited interest? Rationale behind the prohibition of interest. *Review of Islamic Economics*, 27(11), 2087-98.
- Chong, B. Liu, M. (2009). Islamic Banking: Interest-Free or Interest-Based? *Pacific-Basin Finance Journal*, 17, 125-144.
- Choudhury, M. A. (2008). Interrelationship between Zakat, Islamic bank and the economy. *A theoretical exploration. Managerial Finance*, 34(9), 610-617.
- Choudhury, M. A. (2012). A probabilistic Model of Learning Fields in Islamic Economics and Finance. *International Journal of Applied Operational Research*, 2(1), 1-11.
- Choudhury, M. A., & Malik, U. A. (1992). Quantitative analysis and policy conclusion. In M. A. Choudhury & U. A. M. (Eds.), *The Foundation of Islamic Political Economy*. London: The Macmillan Press.
- D'Espallier, B., & López-Iturriaga, F. J. (2009). *On the negative relation between investment-cash flow sensitivities and cash-cash flow sensitivities*. Faculty of Business and Economy, Katholieke Universiteit, Leuven Working paper.
- Demirguc-Kunt, A., & Maksimovic, V. (2002). Funding growth in bank-based and market-based financial systems: evidence from firm-level data. *Journal of Financial Economics*, 65, 337-363.
- Dusuki, A. W., & Abdullah, N. I. (2007). Why do Malaysian Customers Patronise Islamic Banks? *International Journal of Bank Marketing*, 25(3), 142-160.
- Fukuda, S., Kasuya, M., & Nakajimi, J. (2005). *Bank Health and Investment: An Analysis of Unlisted Companies in Japan*. CIRJE Discussion Papers, CIRJE-F-330.

- Goldsmith, R. W. (1969). *Financial structure and development*. New Haven and London, CT: Yale University Press.
- Ibrahim, M. (2007). The role of the financial sector in economic development: the Malaysian case. *International Review of Economics*, 54(4), 463-483.
- Ismail, A. G., & Ahmad, I. (2006). Does the Islamic financial system design matter? *Humanomics*, 22(1), 5-16.
- Kabir, H. M. (2010). An integrated poverty alleviation model combining zakat, awqaf and micro-finance. Paper presented at the Seventh International Conference, The Tawhidi Epistemology: Zakat and Waqf Economy, Bangi, Malaysia.
- Kader, R. A., & Leong, Y. K. (2009). The Impact of Interest Rate Changes on Islamic Bank Financing. *International Review of Business Research Papers*, 5(3), 189-201.
- Lucas Jr., R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1), 3-42.
- MacKinnon, R. I. (1973). *Money and capital in economic development*. Washington, DC: Brooking Institution.
- Naceur, S. B., & Ghazouani, S. (2007). Stock markets, banks, and economic growth: Empirical evidence from the MENA region. *Research in International Business and Finance*, 21(2), 297-315.
- Perfect, S. B., & Wiles, K. W. (1994). Alternative constructions of Tobin's q: An empirical comparisons. *Journal of Empirical Finance*, 1(3-4), 313-341.
- Robinson, J. (1952). *The rate of interest and other essays*. London: Macmillan.
- Rosly, S. A. (1999). Al-Bay' Bithaman Ajil Financing: Impacts on Islamic banking Performance. *Thunderbird International Business Review*, 41(4-5), 461-481.
- Sanusi, N. A., & Ismail, A. G. (2005). *A Panel Data Analysis of the Determinants of Malaysian Islamic Bank Returns: 1995-2004*. Islamic Economics and Finance Working Paper No. 0504.
- Sarif, S., & Kamri, N.A. (2009). A theoretical discussion of zakat for income generation and its FIQH issues. *Shariah Journal*, 17(3), 457-500.
- Schumpeter, J. A. (1911). *The Theory of Economic Development*. Cambridge: Harvard University Press.
- Shaw, E. S. (1973). *Financial deepening in economic development*. New York: Oxford University Press.
- Thayer-Bacon, B. (2003). *Relational Epistemologies*. New York, NY: Peter Lang.
- Wiranata, D., & Sukmana R. (2010). *The Power of Zakah in Poverty Alleviation*. Paper presented at Seventh International Conference, The Tawhidi Epistemology: Zakat and Waqf Economy, Bangi, Malaysia.