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The Impact of Financing Contracts on the Profitability of Islamic Banks

(Impak Kontrak Pembiayaan terhadap Keuntungan Perbankan Islam)

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ABSTRACT

This paper investigates the impact of financing contracts on Net Profit Margin (NPM) of the Islamic banks. Focussing on two financing contracts of Bai' Bithaman Ajil (BBA) and Al-Ijarah Thumma Al-Bai' (AITAB), the paper employs static panel data of Malaysian banks over 2008 to 2018. Controlling for bank and market-specific factors, the results indicated that AITAB exerted significant impact on the NPM. The paper further found that risk aversion, operating cost, liquidity and asset quality improves the NPM. In addition, the results show that the market structure influence the level of NPM. The Islamic banks may control these variables in setting for their preferred NPM level. Finally, the banks may need to carefully examine the types of financing contracts offered as they have different characteristics and may affect NPM.

Keywords: Net profit margin; Islamic bank; bai' bithaman ajil; al-ijarah thumma al-bai'; profitability
JEL: G000; G200; G210

ABSTRAK

Makalah ini mengkaji kesan kontrak pembiayaan terhadap Margin Untung Bersih (MUB) perbankan Islam. Memberi fokus kepada dua kontrak pembiayaan iaitu Bai' Bithaman Ajil (BBA) and Al-Ijarah Thumma Al-Bai' (AITAB), kajian ini menggunakan data panel statik perbankan Malaysia bagi tempoh 2008 hingga 2018. Dengan mengawal faktor spesifik bank dan faktor spesifik pasaran, keputusan menunjukkan AITAB memberi kesan yang signifikan terhadap MUB. Kajian ini turut mendapati penghindaran risiko, kos operasi, kecairan dan kualiti aset meningkatkan MUB. Di samping itu, keputusan turut menunjukkan bahawa struktur pasaran mempengaruhi kadar MUB. Bank-bank Islam perlu mengawal kesemua pemboleh ubah ini ketika menetapkan kadar MUB pilihan. Sebagai pengakhiran, bank-bank ini juga perlu meneliti jenis kontrak pembiayaan yang ditawarkan kerana ia mempunyai ciri dan kesan yang berbeza terhadap MUB.

Kata kunci: Margin untung bersih; bank Islam; bai' bithaman ajil; al-ijarah thumma al-bai'; keuntungan

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INTRODUCTION

Banking institutions, which are part of financial intermediaries, facilitate fund channelling from depositors to borrowers. Being financial intermediaries, banks will charge an intermediation cost which is the difference between bank income and expense related to interest divided by total earning assets. It is also referred to as Net Interest Margin (NIM) for conventional banks.

Islamic banks may also function as conventional banks in the sense that deposits are collected from depositors and finances disbursed to borrowers, with the exception that the former practice an interest-free transaction when acting as financial intermediary. The intermediation cost in Islamic banks will thus be referred to as the Net Profit Margin (NPM) which reflects the difference between bank income and expense related to financing divided by total earning assets. Since Islamic banks operate an interest-free transaction under *shariah* financing contract, their transaction will likely impact the setting of the NPM.

The *shariah* financing contract can be categorised into sales, lease, and equity-based contract. The sale and lease-based contracts are a type of debt-creating

mechanism while equity contract is more akin to a participatory mechanism. For example, *Bai' Bithaman Ajil* (BBA) financing contract is categorized under a sales contract whereas *Al-Ijarah Thumma Al-Bai'* (AITAB) financing contract is categorized under a lease contract. In contrast, the equity-based contract refers to the *musyarakah* and *mudharabah* financing contracts. Theoretically Islamic banks promote equity-based financing, but the preferred financing contract (non-equity based financing) is practically from the sale and lease-based contracts. For example in 2011, Islamic banks in Malaysia offered on average only 8.5% equity-based financing as compared to 91.5% non-equity based financing (Ariffin et al. 2015; Asutay 2007; Dusuki 2007), where the most preferred financing contracts are BBA and AITAB (Bank Negara Malaysia 2011). Table 1 below shows total financing contract of BBA, AITAB, *musyarakah* and *mudharabah* for Malaysian Islamic bank from year 2008 to 2018.

In order to see the trend of these financing contracts clearly, we transformed the data in Table 1 into a bar chart. Thus, Figure 1 below illustrates the total BBA, AITAB, *musyarakah* and *mudharabah* financing contracts during the year.

TABLE 1. Malaysian Islamic banking total BBA, AITAB, *musyarakah* and *mudharabah* total financing contracts (in million MYR)

Years	BBA	AITAB	*Musyarakah*	*Mudharabah*
2008	34,293.1	31,847.2	801.7	312.8
2009	42,732.8	38,953.2	1,876.6	373.5
2010	53,651.9	43,497.3	3,495.9	275.7
2011	63,176.5	50,981.9	6,981.4	251.5
2012	74,171.4	54,103.9	1,1570.6	142.2
2013	83,116.7	62,489.8	16,051.9	145.9
2014	79,764.6	69,236.3	22,454.2	77.3
2015	75,643.8	71,770.9	28,515.5	77.8
2016	69,306.4	70,054.0	40,220.0	71.3
2017	65,452.3	71,401.4	48,283.2	61.0
2018	65,647.4	73,928.4	52,771.9	43.7

Source: Monthly Statistical Bulletin of Bank Negara Malaysia (Various Issues)

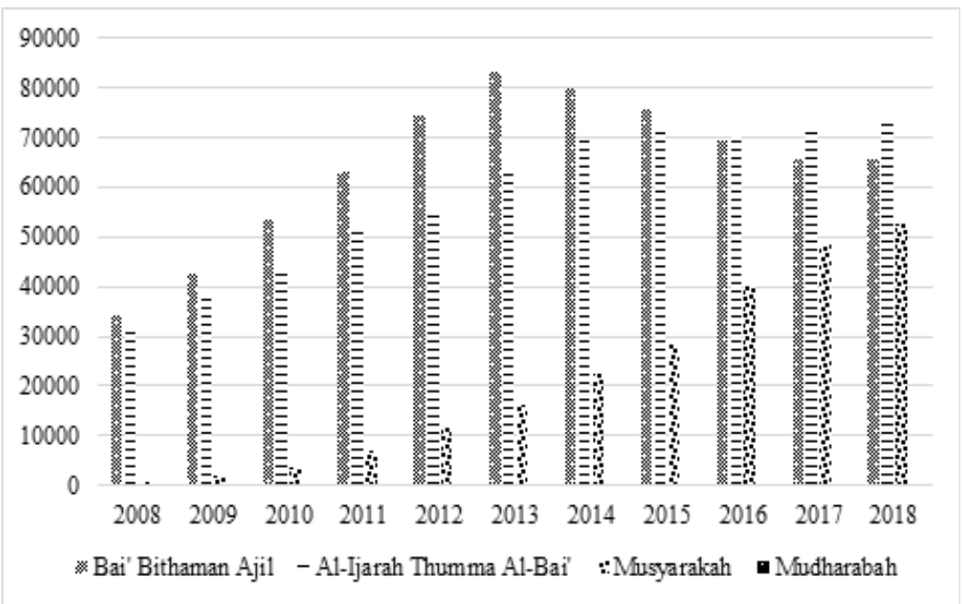

FIGURE 1. Malaysian Islamic banking total BBA, AITAB, *musyarakah* and *mudharabah* total financing contracts (in million MYR)
Source: Monthly Statistical Bulletin of Bank Negara Malaysia (Various Issues)

It is clear from the results that despite the non-equity based financing represented only by BBA (sales-based) and AITAB (lease-based) financing contracts, both had surpassed the equity-based financing (represented by *musyarakah* and *mudharabah*) during the same period. For example, in year 2016 the total amount for both BBA and AITAB is MYR 139,360.4 million while the total amount for *musyarakah* and *mudharabah* is only MYR 40,291.3 million. The BBA financing is a sale with a deferred payment and mainly used for property financing. In contrast, the AITAB contract is a lease and sales contract used primarily for vehicle financing. For example, in 2016, it was reported that an amount of MYR 55,957.2 million, or equal to 80.74%, from a total MYR 69,306.4 million of BBA were used for property financing and the remaining sum used for term, syndicated and staff financing. In the same year, it was reported that 99.78% (MYR 69,898.9 million) from a total AITAB financing amounting to MYR 70,054.0 million were used for lease and sales vehicles financing (Bank Annual Reports 2016).

The BBA and AITAB financing contracts are preferred in Islamic banking operations due to their characteristics of being less risky products, not complicated and producing fixed returns for the Islamic banks (Khan 2015). These advantages have also been reiterated by Nurrachmi et al. (2013). According to them, BBA financing has become the most preferred financing, despite the controversy in its validity and *shariah*-compliance, due to the ease of securing their products. Meanwhile, equity-based financing is less preferable due to issue on trust and the requirement for higher level engagement on the part of the Islamic bank. In addition, it involved risk that relates to intricacies especially in updating and informing customer regarding their share.

We believed that the financing contract element should be discussed along with the dealership model by Ho and Saunders (1981) since it is related to offering of *shariah* financing contracts by Islamic banking and the intermediation operation of Islamic banks. Moreover, being the two most preferred financing contracts offered by the Islamic banks in Malaysia, the BBA and AITAB may have impacted on NPM and influenced its setting through financing income mobilised by the banks. The current study is believed to be the first to investigate the impact of different types of *shariah* financing contracts on NPM and as such may add to the current literature regarding its determinants. The paper is organized as follows: Section 2 discusses the literature related to NIM and NPM. Section 3 and 4 present the methodology and discussion of the results, while the final Section 5 presents the conclusions.

THEORY OF FINANCIAL INTERMEDIATION

The discussion of NIM and NPM in this study is related to the theory of financial intermediation. Based on the literature, financial intermediation research was initiated by Diamond (1984), Leland and Pyle (1977), and Ramakrishnan and Thakor (1984). For example, Leland and Pyle (1977) maintained that the main purpose of establishing financial intermediation originated from elements of asymmetric information, a circumstance under which one party possessed more knowledge than that of another (imperfect market).

In this vein, financial intermediation demonstrated an imperfect market as deliberated in the following statement by Scholtens and van Wensveen (2000):

> "Financial intermediaries, according to that theory, have a function only because the financial market is not perfect. They exist by the grace of market imperfections. As long as there are market imperfections, there are intermediaries; as soon as markets are perfect, intermediaries are redundant: they lose their function as soon as savers and investors have the perfect information to find each other directly, immediately and without any impediments, so without costs."

Financial intermediation essentially reduces transaction costs in imperfect markets which resulted from asymmetric information. Diamond (1984) suggested that intermediaries assist in transaction monitoring and implicitly lower transaction and monitoring costs. Specifically, the monitoring activity encompasses observing investment quality to be sanctioned, screening of borrowers' cash flows, and providing updated knowledge on present financial states. Diamond and Rajan (2000, 2001) designated that a financial intermediary reflects higher competence in fulfilling monitoring activities. Additionally, Hart and Moore (1998) asserted that the intermediary will be more knowledgeable of potential borrowers' reputation (vital for financiers). Subsequently, Rother (1999) mentioned that the presence of financial intermediaries potentially lead to low business and investment costs.

Rother (1999) further noted that any transaction performed through intermediaries will be more effective than transactions without them. Financial intermediation that enabled economies of scale (Diamond, 1984) fosters risk-reduction, specifically in collective financial accumulation and investment. In Leland and Pyle (1977), financial intermediation catalyses investment diversification where money is no longer invested in a single location. For example, money accumulated from multiple depositors may be invested in different industries or assets deemed profitable by banks. In this

regard, investment diversification implies risk reduction as banks pool the risk involved in depositors' money.

Another financial intermediation benefit is its success in managing complex instruments and markets, specifically those with accessible multiple product innovations (Allen & Santomero 1998). As such, financial intermediary encompasses financial products that can be conveniently traded in the market due to extensive familiarity. In summary, financial intermediary facilitates risk minimisation.

RELATED STUDIES ON NET INTEREST MARGIN AND NET PROFIT MARGIN

The study of interest margin can be traced back to the pioneering work of Samuelson (1945) who discovered that an increase in interest rates will affect the banking system. However, the direct study on the determinant of interest margin can be traced much later to the dealership model of Ho and Saunders (1981). In playing its parts as a dealer, the bank faces uncertainty in the supply of deposits and demand for loans since the two items are unsynchronized. The bank will thus participate in the money market for its solution. For example, it receives a loan demand, but is faced with an insufficient supply of deposits hence forcing it to borrow in the money market. At times, there is an increase in interest rate in the money market and it thus becomes exposed to the interest rate risk. Conversely, the same is true if the bank has excess deposits but are not followed up by loan demand. With the excess money, the bank might opt to deposit it in the money market and again be exposed to changes in interest rates therefore prompting it to demand better NIM as return.

Ho and Saunders (1981) suggested that the bank's margin is associated with risk-averse, size of bank transactions, a variance of interest rates and banks' market structure. Other authors have extended the dealership model to include variables such as money market interest rates (McShane & Sharpe 1985), heterogeneous deposits and credit (Allen 1988), credit risk and liquidity risk (Angbazo 1997) and operating costs (Maudos & Guevara 2004). Other studies have applied the dealership model. For example, Nasserinia et al. (2014) focused on the determinant factor impacting the NIM in the Japanese banking system. The authors reported that asset quality and liquidity risk significantly and positively affect the NIM. However, capital adequacy shows a significant and negative impact as measured by total equity capital over the total loan. This may link with the reduced availability of the banks' capital buffer which is especially true in the turmoil period when the central bank does not penalise banks for bad behavior. In addition, some variables do not seem to impact the NIM. These include credit risk, size, market concentration, and inflation.

In a single-country study, Fungacova and Poghosyan (2011) concentrated on the banking sector in Russia and analysed three types of banking ownership structures; private-domestic, foreign-owned and state-controlled banks. The variables used included market structure, liquidity risk and credit risks. These appeared to respond differently across the three types of banks. For example, NIM reacts negatively towards credit risk in private-domestic banks. However, it is positively significant towards state-controlled banks and positively but not significant towards foreign-banks. In addition, liquidity risk is not significant only for state-controlled banks since these banks can secure assistance from the state in times of liquidity problems. Meanwhile, private-domestic banks and foreign banks show a negative coefficient. In another finding, foreign banks can increase NIM in a concentrated market as they possess positive public perception. It is not significant towards state-controlled banks and private-domestic banks. Risk-averse and operation costs however are significantly positive for all three types of bank.

Batten and Vo (2019) chose to focus on the determinant of profitability in Vietnam between 2006 and 2014. They established that size, Herfindahl-Hirschman Index (HHI) and GDP growth significantly and negatively affected the NIM. As expected, variables such as operating cost and ratio of profit per employee exerted a positive effect on NIM. Another study in Vietnam by Nguyen and Tran (2020) involved 37 Vietnamese commercial banks spanning 2006 to 2015. The study aimed to investigate the impact of bank competition on bank risk and profitability by using ordinary least squares (OLS). They showed four variables that were highly significant to NIM at 1% significance level. Loan over the total asset and total mobilized capital divided by total assets were positively correlated to NIM. Meanwhile, variables such as competition and size were found negatively correlated. In this case, competition or concentrated market helps the banks to be more efficient through offering lower NIM. The results also show that as competition increases, the bank tends to tolerate more risk.

In a study that employed more than 60 commercial banks in India, Al-Homaidi et al. (2019) reported that deposit ratio, operating efficiency and leverage ratio portrayed negative relationship to NIM. It is however increased with the growth in size, asset quality, and liquidity ratio. Nevertheless the remaining bank-specific factors, such as capital adequacy and branch, exerted non-significant effect on NIM. Meanwhile, the macroeconomic factor of interest rate also exerted non-significant effect on NIM. The other variables such as GDP, inflation and exchange rate produced an inverse relationship. The results of this study best reflect the NIM determinants of India's commercial banks from 2008 to 2017.

Contell et al. (2019) investigated the determinant of NIM in Spanish credit institutions following the drop in their total income. Data were analysed by using the Generalised Method of Moments (GMM). Bank-specific factors such as size, liquidity, administrative expenses, profit before tax, default rate, and fee produced an inverse effect on NIM. The remaining bank-specific factors such as risk aversion and wholesale debt financing were found to exert positive influence. Macroeconomic variables such as GDP, market power and inflation were all negatively related to NIM. In this case, an increase in all the macroeconomic variables studied resulted in decreased NIM in the Spanish credit institutions.

Lestari et al. (2021) concentrated on the NIM of conventional banks listed on the Indonesia Stock Exchange, ranging from 2015 to 2019. Using the General Least Square (GLS) approach they discovered that several variables such as size, credit risk, equity capital, and inflation negatively impacted NIM. Conversely, some variables such as loan to deposit ratio and management efficiency registered a positive effect. Saleh and Afifa (2020) explored the effect of bank capital, liquidity risk and credit risk on bank profitability using 13 commercial banks operating in Jordan, spanning 2010 to 2018, the period following the global financial crisis. They established that higher credit risk, bank size, and efficiency result in lower NIM. As expected, since banks are predisposed to risk-averse, larger bank capital will result in higher NIM. Liquidity risk however was shown to be non-significant to NIM in Jordan commercial banks.

The literature also reported on studies in regional and country groupings. For example, Doliente (2005) investigated the NIM factor in Southeast Asian countries comprising Indonesia, Malaysia, Thailand and the Philippines, between 1995 and 2001. They suggested that NIM in Southeast Asian banks are influenced by liquidity, risk-averse activity, operating cost and asset quality. Operating cost and risk-averse activity will increase NIM, while liquidity and asset quality reduce it. Maudos and Guevara (2004) studied the developed European banking sectors, specifically in Germany, France, United Kingdom, Italy, and Spain, in 1993-2000 to determine the factors leading to the fall of NIM in the region. The empirical results established that interest rate risk, credit risk, implicit interest payment, risk aversion, market power and operating cost positively influenced NIM. There was a reduction in credit risk, interest rate risk and operating cost in these countries that led to reduction in NIM. Hawtrey and Liang (2008) who focussed on determinants in the Organisation for Economic Cooperation and Development (OECD) countries produced similar findings where interest rate risk, credit risk, implicit interest payment, risk aversion, market power and operating cost tended to increase the NIM.

Talbi and Bougatef (2018) focused on banks across the Middle East and North Africa (MENA) countries from 1999 to 2014, involving several countries including the United Arab Emirates, Lebanon, Tunisia, Egypt, Qatar, Bahrain, Jordan, and Saudi Arabia. Determinants of the NIM differed between these countries. For example, risk-averse activity produced positive coefficients in Qatar, negative in the United Arab Emirates and was not significant in the other countries. Liquidity positively impacted the NIM in Tunisia and Jordan but negatively in Egypt and Bahrain, and was not significant in the remaining countries. In general, bank-specific and macroeconomic factors emerged as the determinants of the NIM in MENA countries except for Saudi Arabia, which was only influenced by bank-specific factors.

Garcia and Guevara (2020) examined the effect of capital regulation and deposit insurance on NIM in OECD countries, spanning 2000 to 2014. Both capital requirement and deposit insurance premium produced positive impacts on NIM. Larger capital requirement increased the cost of fund thus prompting the banks to charge higher NIM. In the case of deposit insurance premium, the results indicated two possible reasons for the positive impacts. Firstly, since the banks are unable to invest the deposits in profitable assets, they charge a higher margin to compensate for the opportunity cost. Secondly, since the deposits are now protected, depositors will face lower risk and as such they will not demand higher interest rate. The other determinants, lagged NIM, market power, operating cost, implicit payment showed positive and significant impacts on NIM. Coversely, the negative impacts on NIM were due to the size of bank transactions, reserve and efficiency.

In another regional study, Kumankoma et al. (2020) used data from 11 sub-Saharan African countries, between 2006 and 2012. Besides investigating the determinants of NIM, their study also assessed the influence of financial freedom on the relationship between market power and the NIM. Both financial freedom and market power were shown positively related to NIM. With increase in competition, NIM is rapidly reduced in a country with less restriction or more financial freedom relative to another with less financial freedom. In the study, the effect of market power on NIM was proven sensitive to the level of financial freedom in the country. Reports from other studies established that higher credit risks tended to increase the NIM and higher diversification was associated with lower NIM. Additionally, macroeconomic factors of financial development, as measured by domestic credit to the private sector as a percentage of GDP, and of economic development, measured by logarithm of GDP per capita, also exerted negative impacts on the NIM.

The study of margin has also been extended beyond conventional banking to include Islamic banking operation. For example, Hutapea and Kasri (2010) examined the Islamic banking sector in Indonesia and

also applied the Ho and Saunders (1981) model. They concluded that NPM positively reacts to default risk, implicit cost, opportunity cost of bank reserves, risk-averse activity and management quality. However, liquidity and interest rates volatility respond negatively to NPM. Higher liquidity will lower risk and hence the NPM. To reduce interest volatility, Islamic banks need to increase deposit rates or decrease financing rates to avoid customers from switching to conventional banks.

In an earlier single-country study, Shahimi (2006) focussed on determinants of margins in Malaysian Islamic banks, from 1995 to 2004. Several variables, such as default risk, market power, bank size as measured by the log of total assets, risk aversion, loan loss provision, statutory reserve requirement, fee income and monetary policy, were shown to influence the level of NPM in the country. Another study in Malaysia by Lee and Isa (2017), involving 16 Islamic banks ranging from 2008 to 2014, found that NPM was influenced by several variables such as operating costs, credit risk, implicit interest payment and market share and operational efficiency. These variables were positively associated with NPM except for operational efficiency that showed negative coefficient. Though this study contradicted Shahimi (2006), NPM was not significantly affected by size as measured by the log of total loans and risk aversion. The remaining two variables, net non-interest income and funding cost, were also not influential on NPM.

Salleh et al. (2018) chose to concentrate on 11 Islamic subsidiary banks under conventional parent banks in Malaysia spanning 2011 to 2015. In addition to investigating the determinants of NPM, the study also explored the influence of NIM of conventional parent banks on their Islamic subsidiaries. The results indicated that the NIM of conventional parent banks did not significantly affect those of their Islamic subsidiaries. Thus, the NPM level of Islamic subsidiaries is not dependant on the NIM of conventional parent banks. The other explanatory variables such as risk aversion, size as measured by the log of total assets, operating cost, Islamic stock market development, and inflations positively impacted NPM. Market concentration and GDP growth however exerted negative impacts on NPM. Another interesting finding from Malaysian banking are the economic growth (proxied by industrial production index) and the rate of financing (which is part of the NPM's element) did not influence the total financing of the Islamic banks either in the short or long run (Karim et al., 2017). Indirectly, it can be concluded that this Malaysian Islamic banks are stable and resilient (Karim et al. 2017).

Trinugroho et al. (2018) investigated the factors linked to the NPM of rural Islamic banks in Indonesia. The result showed that market concentration as proxied by Lerner index and HHI was positively associated with NPM. Two other factors, revenue diversification and inflation, also revealed positive and significant impacts on NPM. Banks' specialization, proxied by the total loan over total assets ratio, produced negative impact. The sample in this study was divided into two sub-samples; one with high loan diversification and the other with low loan diversification. The results reported that the Lerner index was positively significant to NPM in the low loan diversification but not in the other. Thus, this suggests that Islamic banks can reduce the intense market competition by diversifying the financing product offering.

Sun et al. (2014) investigated the determinants of NPM of Islamic banks, for the period 1997 to 2010, in another country grouping, the Organization of Islamic Cooperation (OIC). Several variables, such as operating cost, capital adequacy ratio and liquidity risk were found positive and significantly related to NPM. The larger the size of transaction the higher the NPM since substantial size draws greater risk. Asset quality exerted negative significant impact on NPM. Malim et al. (2017) also focused on Islamic banks in OIC countries but over a briefer period between 2005 to 2011 that also overlapped the earlier study by Sun et al. (2014). A sample of 18 OIC countries that operated dual banking systems were selected. The study revealed that NPM was affected by size, risk aversion, credit risk, inflation and GDP growth. All the variables were positively related to NPM except for size which was negative. Interestingly, all the institutional-governance variables used in this study did not show significant impact on NPM. Operating cost and market concentrations also did not inflence NPM.

The study by Sun et al. (2017) focused on the determinants of NPM in OIC countries and also on NIM determinants. The study spanned 1999 to 2000 and involved 15 OIC countries, including 66 conventional banks and 39 Islamic banks. Only two variables, lagged NPM and Lerner index, showed positive relationship to NPM. However, the NIM was influenced by several factors, namely capital assets, asset quality, management efficiency, implicit interest payments, Lerner index, risk aversion, deposit to total assets, income from trading, income from fees and commissions.

Alharbi (2017) investigated the determinants of profitability for Islamic banks in OIC countries involving 110 Islamic banks, between 1992 and 2008. Profitability was computed both by ROAA and NPM. The variables, risk aversion, operating cost and deposit and short-term funding over average assets ratio, which was used as proxy for liquidity, showed positive relationships to NPM. The external variables, GDP per capita, oil shock variable, and market concentration also positively affected NPM. Conversely, variables that negatively influenced NPM were operating income, GDP growth, and deposit insurance. Most importantly, bank size was reported not influential on NPM of the Islamic banks studied.

Malim and Normalini (2018) examined the NPMs of Islamic banks in 15 countries, namely Bangladesh, Bahrain, Egypt, Indonesia, Jordan, Kuwait, Malaysia, Pakistan, Qatar, Saudi Arabia, Sudan, Turkey, Tunisia, Yemen and the United Arab Emirates over the period 2007 to 2013. Results revealed that bank size and institutional development negatively affected the NPM. Other factors however, such as operating costs, liquidity risk and risk aversion were positively related to NPM. In contrast, the market-specific factors such as inflation, GDP growth and market concentration were not influential.

Malim and Masron (2018) explored the impact of the financial crisis on NPM in five countries, namely Malaysia, Saudi Arabia, Kuwait, Qatar and the United Arab Emirates spanning the period 2006 to 2013, and with the use of the Generalized Method of Moments (GMM). The results revealed that the variables of financial crisis and lagged NPM exerted positive impacts on the NPM. Conversely, size and regulatory quality tended to influence the NPM negatively. In a study on some Asian countries, between 2005 to 2013, Malim et al. (2017) established that variables, such as market concentration and GDP growth, exerted negative impacts on NPM. The results also indicated positive relationship on NPM with other variables that included credit risk, risk aversion, size, overhead cost and inflation.

Bougatef and Korbi (2018) sourced data from 14 MENA countries, over the period 1999 to 2014, to examine the determinants of NIM and NPM of conventional and Islamic banks. The results revealed that lagged margin, GDP growth, market structure as measured by HHI and risk aversion were found to be positively related to margins. Further, efficiency as measured by the ratio of operating expenses over gross income, liquidity and diversification, were negatively and significantly related to margins. These results were identical to both conventional and Islamic banks. In contrast, GDP growth was positively and significantly related to NPM but was negative and not significant to NIM.

We conclude from the literature that the determinant factors affecting NPM may vary across countries and even across types of bank that operate in the same country. For example, some variables might respond positively to one country or one type of bank but negatively to other countries or other types of bank. Thus, there is a need to better understand the determining factors that impact the NPM of Islamic banks in Malaysia. There is a knowledge gap in the literature since no study has addressed the impact of *shariah* financing contract on NPM in the country.

METHODOLOGY

This study investigates the impact of the BBA financing contract and AITAB financing contract together with other bank specifics and market-specific factors on NPM in Malaysian Islamic banks from the year 2008 to 2018. The BBA and AITAB financing data were sourced from individual annual reports of Islamic banks. Out of 16 Islamic banks in Malaysia, 15 banks offered BBA financing contract and 12 banks offered AITAB financing contracts. Other bank specifics data were sourced from the Fitch Connect database. On the other hand, the market-specific, represented by market share, was from the authors' calculations based on the Fitch Connect database.

This study used static panel data consisting of the Pool Effect Model (POOL), Fixed Effect Model (FEM) and Random Effect Model (REM). In choosing the best model, the F-test, the Breusch-Pagan and the Hausman test were applied. This study also utilised unbalanced panel data depending on the availability of BBA and AITAB financing contracts and offers from the individual Islamic banks.

The model adopted in this study corresponded to Ho and Saunders's (1981) dealership model. Specifically, banks acted as dealers who connected depositors and borrowers (predictably risk-averse dealers). The primary margin contribution factor under Ho and Saunders's model is formulated as follows:

$$PIM = a + b = \frac{\alpha}{\beta} + \frac{1}{2} R\sigma_1^2 Q \tag{1}$$

Specifically, PIM denotes pure interest margin, a and b imply deposit and loan rates, respectively, α/β assesses a risk-neutral bank margin, *R* reflects the risk aversion. σ_1^2 denotes the deposit and loan interest rate differences, and *Q* represents the bank transaction size. The resultant optimal margin denoted the role of 1) risk aversion degree, 2) size transaction, 3) interest rate difference, and 4) bank market structure. Notwithstanding, this research corresponded to Fungacova and Poghosyan's (2011) augmented dealership model. This study modified the model by focusing on NPM and examining effect of size as proxied to BBA and AITAB financing. The baseline model used in this study is as per the equation below:

$$NPM_{it} = \alpha_i + \beta_1 BS_{it} + \beta_2 MS_{it} + \varepsilon_{it} \tag{2}$$

Where in equation 2, *NPM* is the net profit margin, i is the Islamic banks, t is the period, *BS* is the bank-specific variable, *MS* is the market-specific variable while ε is the statistical disturbance term.

$$NPM_{it} = \alpha_i + \beta_1 BBA_{it} + \beta_2 RA_{it} + \beta_3 OC_{it} + \beta_4 LIQ_{it} + \beta_5 AQ_{it} + \beta_6 MS_{it} + \varepsilon_{it} \tag{3}$$

$$NPM_{it} = \alpha_i + \beta_1 AITAB_{it} + \beta_2 RA_{it} + \beta_3 OC_{it} + \beta_4 LIQ_{it} + \beta_5 AQ_{it} + \beta_6 MS_{it} + \varepsilon_{it} \quad (4)$$

In equation 3, this study proxied the size of transaction based on *BBA (bai' bithaman ajil*) while in equation 4 this study proxied the size of operation based on *AITAB (al-ijarah thumma al-bai'*) financing. The other bank-specific variables are represented by *RA (*risk aversion), OC (operating cost), LIQ (liquidity) and AQ (asset quality). On the other hand, the market-specific variable is represented by *MS* (market structure) variable.

DESCRIPTION OF VARIABLES

In detail, the description of the dependent and independent variables used in this study is as per the list below:

1. Net Profit Margin: Net profit margin shows the difference in the financing income and income paid to depositors over total earning assets. Higher NPM means inefficiency in bank operations. At the same time, it reflects lower social welfare as customers need to pay more for financing and receive less return from their deposits (Hutapea & Kasri 2010).
2. Size: The size of Islamic banks' transactions are measured by *shariah* financing contract. First, size is measured by the log of total BBA and subsequently by the log of total AITAB. Larger bank size results in economies of scale that tend to impact the NPM negatively. However, if the bank experiences diseconomies of scale, size will positively impact the NPM (Sun et al., 2014) despite the prediction that size will exert negative influence.
3. Risk Aversion: Risk aversion is calculated by the ratio of equity to the total asset. The risk-averse bank will have more equity in its capital structure and impose higher NPM to compensate for the shareholders' funds which are exposed to risk in the banking operation (Maudos & Guevara 2004; Saunders & Schumacher 2000). It is anticipated that risk aversion is positively related to higher NPM.
4. Operating Cost: Operating cost is measured by the ratio of operating costs to total assets. Normally, banks will transfer the cost to the depositors and borrowers through lower deposit rates and higher financing rates (Kasman et al., 2010; Kumari, 2014). Thus, it is expected that operating costs will positively influence the NPM.
5. Liquidity: Liquidity is estimated by using the ratio of liquid assets to the sum of the deposit and short-term fund. The ratio indicates the banks' ability in meeting any unexpected withdrawals of deposits and short-term funds by using their liquid assets. Basically, the higher the liquidity ratio, the lesser the liquidity risk, which allows the bank to reduce the NPM (Dabla-Norris & Floerkemeier 2007; Hussain 2014). Therefore, it is predicted that liquidity has a negative impact on NPM.
6. Asset Quality: Asset quality is proxied by the loan loss reserve to gross financing ratio. The higher the ratio the lower is the quality of the financing disbursed by the bank and this indirectly reveals higher default risk (Poghosyan 2013). Therefore, asset quality is expected to have a positive impact on NPM.
7. Market Structure: We used market shares to measure the market structure. The market share is the percentage of share of total assets from each Islamic bank relative to the total assets from all Islamic banks. The bank with a higher market share can exploit the market power by charging higher NPM (Sun et al. 2014). Therefore, the market structure is expected to affect NPM positively.

RESULT AND DISCUSSIONS

The descriptive statistics of dependent and independent variables employed in this study are shown in Table 3 and Table 4. Table 3 presents the results when size is proxied by BBA financing contract. Likewise, Table 4 presents the results when size is proxied by AITAB financing contract.

In Table 3, the BBA financing contract shows a mean value of 14.713%, with minimum value of 7.089%, and maximum value of 18.054%. With a total of 158 observations, the NPM has a mean value of 2.647% and ranges from 0.303% to 6.446% with a 1.106% standard deviation. Liquidity shows the highest mean value of 20.138% ranging from 0.386 % minimum to 61.336% maximum value. In Table 4, the AITAB financing contract, with 128 observations, has a mean value of 14.180% with a minimum and maximum value of 9.831% and 17.454%, respectively. Among the variables, liquidity registers the highest mean value with 20.349 % with a minimum and a maximum weight of 0.386% and 61.336%, respectively. The correlation matrices of independent variables for both BBA and AITAB financing models, are shown in Table 5 and Table 6 respectively.

In Table 5, the highest correlation shown is between market structure and size by BBA financing contract with the value of 0.594. The highest correlation in Table 6 is between market structure and size by AITAB financing contract with 0.672. According to Gujarati (2004) a multicollinearity problem will ensue if the value exceeds 0.800. Since no correlation in the results exceeds the threshold value a multicollinearity problem is thus not expected. Table 7 and 8 present the VIF test results to further monitor this problem.

TABLE 2. Empirical model variables and formulas

Variable	Formula	Expected Sign
Net Profit Margin	Total net financing income (financing income minus income paid to depositors) over total earning assets	
Size (BBA)	Log of total BBA	-
Size (AITAB)	Log of total AITAB	-
Risk Aversion	Ratio of total equity to total assets	+
Operating Cost	Ratio of operating costs to total assets	+
Liquidity	Ratio of liquid assets to deposits and short-term fund	-
Asset Quality	Ratio of loan loss reserve to gross loan	+
Market Structure	Ratio of total assets to market total assets	+

TABLE 3. Descriptive statistic of all variables for the BBA financing model

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
Net Profit Margin	158	2.647	1.106	0.303	6.446
Size (BBA)	158	14.713	1.556	7.089	18.054
Risk Aversion	158	7.741	2.785	3.19	20.69
Operating Cost	158	1.226	0.544	0.152	2.852
Liquidity	158	20.138	13.029	0.386	61.336
Asset Quality	158	2.061	1.524	0.471	13.362
Market Structure	158	6.712	6.449	0.372	31.739

TABLE 4. Descriptive statistic of all variables for the AITAB financing model

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
Net Profit Margin	128	2.668	1.100	0.303	6.446
Size (AITAB)	128	14.180	1.732	9.831	17.454
Risk Aversion	128	7.205	1.813	3.19	15.45
Operating Cost	128	1.142	0.452	0.152	2.583
Liquidity	128	20.349	13.588	0.386	61.336
Asset Quality	128	1.834	0.977	0.471	6.216
Market Structure	128	7.116	6.826	1.107	31.739

TABLE 5. Correlation matrix of variables for the BBA financing model

Variable	Size (BBA)	Risk Aversion	Operating Cost	Liquidity	Asset Quality	Market Structure
Size (BBA)	1.000					
Risk Aversion	-0.187	1.000				
Operating Cost	-0.135	0.432	1.000			
Liquidity	-0.135	-0.183	-0.118	1.000		
Asset Quality	-0.077	0.127	0.371	0.365	1.000	
Market Structure	0.594	-0.430	-0.356	-0.042	-0.039	1.000

TABLE 6. Correlation matrix of variables for the AITAB financing model

Variable	Size (AITAB)	Risk Aversion	Operating Cost	Liquidity	Asset Quality	Market Structure
Size (AITAB)	1.000					
Risk Aversion	-0.405	1.000				
Operating Cost	-0.579	0.542	1.000			
Liquidity	-0.030	-0.242	-0.201	1.000		
Asset Quality	-0.210	0.061	0.331	0.353	1.000	
Market Structure	0.672	-0.430	-0.381	-0.094	-0.139	1.000

TABLE 7. Result of VIF test for the BBA financing model

Variable	VIF	Tolerance
Market Structure	2.02	0.495
Operating Cost	1.61	0.622
Size (BBA)	1.60	0.625
Asset Quality	1.51	0.664
Risk Aversion	1.45	0.691
Liquidity	1.36	0.734
Mean VIF	1.59	

TABLE 8. Result of VIF test for the AITAB financing model

Variable	VIF	Tolerance
Size (AITAB)	2.37	0.421
Operating Cost	2.24	0.446
Market Structure	2.01	0.497
Risk Aversion	1.64	0.609
Asset Quality	1.43	0.698
Liquidity	1.43	0.700
Mean VIF	1.85	

Table 7 indicates that mean VIF value is 1.59. Among the variables, market structure recorded the highest VIF value at 2.02 and the lowest Tolerance value at 0.495. The second highest VIF variable is operating cost with 1.61 value. In contrast, liquidity shows the lowest VIF value among the variables, registering at 1.36. In Table 8, mean VIF is 1.85. The VIF values for the independent variables ranged from 1.43 to 2.37 for the AITAB financing model. The highest VIF value is AITAB financing and the lowest is liquidity. Based on the rule of thumb by Gujarati (2004) a multicollinearity problem exists if the VIF exceeds 10. All the variables in Table 7 and Table 8 show VIF values less than 10. Therefore, there is no evidence of multicollinearity in this study.

TABLE 9. Impact of BBA financing and other factors on NPM (FEM)

Variable	FEM
Size (BBA)	-0.071
	(0.045)
Risk Aversion	0.120**
	(0.055)
Operating Cost	1.782***
	(0.297)
Liquidity	0.020***
	(0.006)
Asset Quality	0.198***
	(0.046)
Market Structure	0.083***
	(0.013)
Constant	-0.814*
	(0.431)
Model Criteria	
Number of Islamic Banks	15
Number of Observations	158
R-squared	0.734
Adjusted-R-squared	0.695
F-stat (Redundant-test)	9.208***
Breusch and Pagan	53.203***
Hausman Test	21.462***

Note: *, ** and *** denote significant at 10%, 5% and 1% critical value, respectively. *( )* refer to white cross-section robust standard error.

Results for the BBA financing contract model is given in Table 9 above. Based on the Hausman test, the FEM was chosen as the best model. As such, the remaining discussion will be based on the results of FEM. Results for POOL and REM are detailed in Appendix A. In order to overcome the heteroscedasticity problem, the FEM model was regressed using the robust standard

error. For serial correlation, this is not a problem for micro panel data (Law, 2018). The result showed that the size of the transaction as proxied by the BBA financing contract was not significant on NPM. Thus, the BBA financing contract has less impact on the NPM in Malaysia's Islamic banking. Even though the negative coefficient sign of this BBA is worth discussing, BBA has become the preferred financing contract of Islamic banking. And these banks may have attained economies of scale, thus allowing for lower NPM (Fungacova & Poghosyan 2011). In addition, this home financing is usually larger and involved long-term funding, thus enabling the Islamic banks to maintain a longer time to secure its profit. Moreover, in case of default payment, Islamic banks have the right to resell the house and face lower risk of the house depreciating in value.

Risk aversion is positively significant to NPM. It is necessary due mainly to the need for Islamic banks to compensate for the shareholder funds that have been used in risky operations. The finding of this study supports the hypothesis and is in accordance with those of previous studies such as Bougatef and Korbi (2018), Contell et al. (2019), Malim et al. (2017), and Saleh and Afifa (2020). Risks exist within the Islamic banking operation, for example in the application of *shariah* financing contracts. Such risks have contributed to Islamic banks becoming more risk-averse than conventional banks (Azzam and Rettab 2013). For Islamic bank to lower its NPM, it thus require proper risk management practice to adequately address the issue.

In addition, operating cost is also positively significant to NPM at a 1% significance level. The higher the operating cost the higher the NPM, simply because Islamic banks transfer the costs to customers by charging higher financing rates and lower deposit rates. A 1.000% increase in operating cost results in a 1.782% increase in NPM. The positive correlation has been reported by previous authors including Batten and Vo (2019), Kumari (2014), and Salleh et al. (2018).

Among other bank-specific variables, liquidity has also been reported to have a positive relationship to NPM at a 1% significance level. This positive impact is probably linked to opportunity cost as the banks will keep liquidity for purposed of their stability and solvency (Yaakub et al., 2017). However, according to Poghosyan (2013), when banks hold more liquidity they have to forgo some investment opportunities. Thus, to compensate for profit loss from these investment activities, the banks opt to charge higher NPM. The result of this study is in agreement with earlier findings reported by Al-Homaidi et al. (2019), Islam and Nishiyama (2016) and Malim and Normalini (2018).

Asset quality also shows a positively significant relationship to NPM at 1% level. This contradicts the finding by Sun et al. (2014) but concurs with results of Al-Homaidi et al. (2019), Chortareas et al. (2012), and Nasserinia et al. (2014). On average, a 1.000% increase in asset quality ratio leads to a 0.198% increase in NPM assuming that other related variables remain constant. The asset quality ratio, measured by loan loss reserve over gross financing, is indirectly linked to default risk. This association is a probable reason for the positive relationship to NPM.

TABLE 10. Impact of AITAB financing and other factors on NPM (FEM)

Variable	FEM
Size (AITAB)	0.344***
	(0.130)
Risk Aversion	0.144**
	(0.056)
Operating Cost	1.858***
	(0.375)
Liquidity	0.023***
	(0.006)
Asset Quality	0.375***
	(0.074)
Market Structure	0.073***
	(0.013)
Constant	-7.076***
	(1.904)
Model Criteria	
Number of Islamic Banks	12
Number of Observations	128
R-squared	0.747
Adjusted-R-squared	0.708
F-stat (Redundant-test)	7.635***
Breusch and Pagan	42.118***
Hausman Test	14.869**

Note: *, ** and *** denote significant at 10%, 5% and 1% critical value, respectively. ( ) refer to white cross-section robust standard error.

Market structure exerts positive impact on NPM. The higher the market share, the higher is the charge on the margin. Since market share may be related to market power, Islamic banks with more significant market share are motivated to exploit their market power by setting higher NPM (Sun et al. 2014). Islamic banks thus have the inclination to enlarge their profit monopoly in the market (Malim & Masron 2018). It is also perhaps due to the fact that Islamic banks characteristically offer better services to their customers, hence they have less to worry on losing them despite the high NPM charges. For example, the banks typically offer more products, and are more efficient and faster in processing customer applications. Also, the extensive service provided by

the Automated Teller Machine (ATM) including service from numerous branches, possibly render Islamic banks much more accessible to customers. Past studies by Alharbi (2017), Garcia and Guevara (2020), and Kasman et al. (2010) also produced similar findings. The impact of AITAB financing contract and other factors on NPM are given and discussed in Table 10.

Based on the Hausman test and the result presented in Table 10, FEM was chosen as the best model for adoption. See also Appendix B for POOL and REM. The model was regressed by robust standard error to address the heteroscedasticity problem. There is no problem with serial correlation since micro panel data were used (Law 2018). Overall, the results in Table 9 and Table 10 are quite similar. For example, risk aversion, operating cost, liquidity, asset quality and market structure remained positively significant to the NPM in Islamic banks. However, as measured by the AITAB financing contract, size appeared to be positively significant to NPM. AITAB is thus inclined to increase the NPM of Islamic banks in Malaysia, a feature that is possibly linked to the nature of the AITAB financing contract itself. The financing contract is mainly used for vehicle financing, which incurs short-term and small amount financing compared to home financing. Additionally, in the case of payment default, the Islamic bank has the right to sell back the vehicle but with a risk of depreciating its market value. Due to this reason, Islamic banks may be required to charge higher NPM for AITAB financing.

CONCLUSION

The BBA and AITAB financing contracts in the Islamic banking system are among the preferred financing contracts in Malaysia. As such, both the BBA and AITAB financing contracts are included, albeit separately into the model. Additionally, findings from the study should further enrich the NPM literature. However, only the AITAB financing contract was shown to produce significant positive impact on the NPM but not the BBA financing contract. The larger the AITAB financing contract, the higher will be the NPM.

This study also analysed the impact of specific factors on NPM for other banks. All the bank-specific factors examined, such as risk aversion, operating cost, liquidity, and asset quality are positively significant to NPM. Therefore, should the Islamic bank contemplate to lower the NPM level, it needs to consider reducing any of these variables. For example, the Islamic bank needs to consider having an effective risk management practice in place to reduce the operational risk such as by having a comprehensive risk assessment procedure in disbursing quality financing and to efficiently manage the overhead cost to reduce its overall cost of operation. Effective risk management practice in Islamic banks is crucial since the banks offer different financing types that come with different characteristics and risk levels. It is suggested that Islamic banks explore the possibility of offering more secure financing contracts with lower risks. Although this may result in lower profit it should however be able to secure more deposits from the customers.

The Islamic banks are advised not to hold excess liquidity but to set an optimum level at a point where profit can be gained from investment activities and at the same time, are able to meet any future commitment. For a market structure with a positive impact on NPM, a larger market share will lead to higher NPM. This may suggest that Islamic banks, which are imbued with market power, may offer better value-added service in addition to its existing product range. Other Islamic banks may need to explore other value-added services to remain relevant and competitive. Such services may include ease of processing, availability of user-friendly digital platform, increased reachability via proactive marketing and customer-centric facilities. In terms of policy implication, given that the Islamic banking industry is *shariah* compliant, the banks should innovate ways so as to offer more equity based financing, such as adopting better procedure or the digital technology. Such moves should effectively assist better management of the equity-based financing, in reducing associated risk, management of trust issues with the underlying intricacies. Future research should explore how different levels of risk-taking activities in product offering, such as between BBA and AITAB, impact the performance and profitability of Islamic banks. Such study may be extended into comparisons with risk-taking activities and performance of conventional banks. The implication from the present study is that Islamic banks should explore ways in which to offer more equity-based financing as it is more *shariah* compliant. This can be realised through enhancing ways to manage the contracts especially through less complicated avenues.

REFERENCES

Alharbi, A.T. 2017. Determinants of Islamic banks' profitability: International evidence. *International Journal of Islamic and Middle Eastern Finance and Management* 10(3): 331-350.

Allen, L. 1988. The determinants of bank interest margins: A note. *The Journal of Financial and Quantitative Analysis* 23(2): 231-235.

Allen, F. & Santomero, A.M. 1998. The theory of financial intermediation. *Journal of Banking & Finance* 21: 1461-1485.

Al-Homaidi, E.A., Tabash, M.I., Farhan, N.H.S. & Almaqtari. F.A. 2019. Bank-specific and macro-economic determinants of profitability of Indian commercial banks: A panel data approach. *Cogent Economics & Finance* 24(1): 168-185.

Angbazo, L. 1997. Commercial bank net interest margins, default risk, interest-rate risk, and off-balance sheet banking. *Journal of Banking & Finance* 21(1): 55-87.

Ariffin, N.M., Kassim, S.H. & Razak, D.A. 2015. Exploring application of equity-based financing through musharakah mutanaqisah in Islamic banks in Malaysia: Perspective from the industry players. *International Journal of Economics, Management and Accounting* 23(2): 241-261.

Asutay, M. 2007. Conceptualisation of the second best solution in overcoming the social failure of Islamic banking and finance: Examining the overpowering of homoislamicus by homoeconomicus. *IIUM Journal of Economics and Management* 15(2): 167-95.

Azzam, A. & Rettab, B. 2013. Market power versus efficiency under uncertainty: Conventional versus Islamic banking in the GCC. *Applied Economics* 45(15): 2011-2022.

Bank Negara Malaysia. 2011. *Monthly Statistical Bulletin.* (accessed 20 October 2020). https://www.bnm.gov.my/index.php?csrf =3357df08236284 ac6d2bf caa651 1f2 9d9 e0e2e10 &ch=e n_publication&pg=&pu b=msbarc &yearf r=2011.

Bank Negara Malaysia. *Monthly Statistical Bulletin (various months).* Kuala Lumpur: Bank Negara Malaysia.

Batten, J. & Vo, X.V. 2019. Determinants of bank profitability: Evidence from Vietnam. *Emerging Markets Finance and Trade* 55(6): 1-12.

Bougatef, K. & Korbi, F. 2018. The determinants of intermediation margins in Islamic and conventional banks. *Managerial Finance* 44(6): 704-721.

Contell, E.B., Serrano, S.C. & Serer, G.L. 2020. Changes in determinants of the interest margin in today's economy. *Economic ResearchEkonomska Istraživanja* 33(1): 3146-3165.

Chortareas, G.E., Garza-García, J.G. & Girardone, C. 2012. Competition, efficiency and interest rate margins in Latin American banking. *International Review of Financial Analysis* 24(September): 93-103.

Dabla-Norris, E. & Floerkemeier, H. 2007. Bank efficiency and market structure: What determines banking spreads in Armenia? *IMF Working Papers* 7(134): 1-28.

Diamond, D.W. 1984. Financial intermediation and delegated monitoring. *Review of Economic Studies* 51(3): 393-414.

Diamond, D.W. & Rajan, R.G. 2000. A theory of bank capital. *The Journal of Finance* 55(6): 2431-2465.

Diamond, D.W. & Rajan, R.G. 2001. Liquidity risk, liquidity creation and financial fragility: A theory of banking. *Journal of Political Economy* 109(2): 287-327.

Doliente, J.S. 2005. Determinants of bank net interest margins in Southeast Asia. *Applied Financial Economics Letters* 1(1): 53–57.

Dusuki A.W. 2007. Commodity murabahah programme (CMP): An innovative approach to liquidity management. *Journal of Islamic Economics, Banking and Finance* 3(1): 1-23.

Fungacova, Z. & Poghosyan, T. 2011. Determinants of bank interest margins in Russia: Does bank ownership matter? *Economic Systems* 35(4): 481-495.

García, P.C. & Guevara, J.F. 2020. Determinants of net interest margin: The effect of capital requirements and deposit insurance scheme. *The European Journal of Finance* 26(11): 1102-1123.

Gujarati, D.N. 2004. *Basic Econometric*. 4th ed. New Delhi: Tata McGraw Education.

Hart, O. & Moore, J. 1998. Default and renegotiation: A dynamic model of debt. *Quarterly Journal of Economics* 113(1): 1-41.

Hawtrey, K. & Liang, H. 2008. Bank interest margins in OECD countries. *North American Journal of Economics and Finance* 19(3): 249-260.

Ho, T. & Saunders, A. 1981. The determinants of bank interest margins: Theory and empirical evidence. *Journal of Financial and Quantitative Analyses* 16(4): 581-600.

Hussain, I. 2014. Banking industry concentration and net interest margins (NIMs) in Pakistan. *Journal of Business Economics and Management* 15(2): 384-402.

Hutapea, E.G. & Kasri, R.A. 2010. Bank margin determination: A comparison between Islamic and conventional banks in Indonesia. *International Journal of Islamic and Middle Eastern Finance and Management* 3(1): 65-82.

Islam, M. S. & Nishiyama, S.-I. 2016. The determinants of bank net interest margins: A panel evidence from South Asian countries. *Research in International Business and Finance* 37: 501-514.

Karim, B.A, Karim, Z.A. & Shukri, M.H.M. 2017. Determinants of Islamic bank financing in Malaysia: An empirical study using linear and nonlinear ARDL model. *Jurnal Ekonomi Malaysia* 51(2): 15-22. http://dx.doi.org/10.17576/ JEM-2017-5001-2

Kasman, A., Tunc, G., Vardar, G. & Okan, B. 2010. Consolidation and commercial bank net interest margins: Evidence from the old and new European Union members and candidate countries. *Economic Modelling* 27(3): 648-655.

Khan, H. 2015. Some implications of debt versus equity-based financing in the backdrop of financial crises. *Journal of King Abdulaziz University, Islamic Economics* 28(1): 165-180.

Kumankoma, E.S., Abor, J., Aboagye, A.Q.Q. & Amidu, M. 2020. Financial freedom, market power and bank margins in sub-Saharan Africa. *Journal of Financial Regulation and Compliance* 28(2): 283-299.

Kumari, S.M.S.M. 2014. Determinants of interest margins of banks in Sri Lanka. *South Asia Economic Journal* 15(2): 265-280.

Law, S.H. (2018). *Applied panel data analysis: Short panels*. Serdang: Universiti Putra Malaysia Press.

Lee, S.P. & Isa, M. 2017. Determinants of bank margins in a dual banking system. *Managerial Finance* 43(6): 630-645.

Leland, H.E. & Pyle, D.H. 1977. Informational asymmetries, financial structure and financial intermediation. *Journal of Finance* 32(2): 371-387.

Lestari, H.S., Chintia, H. & Akbar, I.C. 2021. Determinants of net interest margin on conventional banking: Evidence in Indonesia stock exchange. *Jurnal Keuangan dan Perbankan* 25(1): 104-116.

Malim, N.A.K., Ibrahim, M.H. & Rasid, M.E.S.M. 2017. Explaining intermediation costs of Islamic banks in OIC countries. In *Handbook of Empirical Research on Islamic and Economic Life* edited by M.K. Hassan. United Kingdom: Edward Elgar Publishing

Malim, N.A.K. & Masron, T.A. 2018. What drives bank margins during and post-crisis? A comparison between

Islamic and conventional banks. *Asian Academy of Management Journal of Accounting and Finance* 14(1): 107-126.

Malim, N.A.K., Masron, T.A. & Pitchay, A. A. 2017. Determinants of Islamic banks' margins in Asian countries. *Journal of Islamic Finance* (Special Issue): 46-53.

Malim, N.A.K. & Normalini, M.K. 2018. Factors influencing the margins of Islamic banks. *Global Business Review* 19(4): 1026-1036.

Maudos, J. & Guevara, J.F. 2004. Factors explaining the interest margin in the banking sectors of the European Union. *Journal of Banking & Finance* 28(9): 2259-2281.

McShane, R.W. & Sharpe, I.G. 1985. A time series/cross section analysis of the determinants of Australian trading bank loan/deposit interest margins: 1962-1981. *Journal of Banking & Finance* 9(1): 115-136.

Nasserinia, A., Ariff, M. & Fan-fah, C. 2014. Key determinants of Japanese commercial banks performance. *Pertanika Journal of Social Science and Humanities* 22(1): 17-38.

Nguyen, T.H. & Tran, H.G. 2020. Competition, risk and profitability in banking system: Evidence from Vietnam. *The Singapore Economic Review (SER)* 65(6): 1491-1505.

Nurrachmi, R., Mohamed, H. & Nazah, N. 2013 Dispute between Bank and Customer in Bai Bithaman Ajil (BBA). Case in Malaysia. Munich Personal RePEc Archive.

Poghosyan, T. 2013. Financial intermediation costs in low income countries: The role of regulatory, institutional and macroeconomic. *Economic Systems* 37(1): 92-110.

Ramakrishnan, R.T.S. & Thakor, A.V. 1984. Information reliability and a theory of financial intermediation. *The Review of Economic Studies* 51(3): 415-432.

Rother, P.C. 1999. Explaining the behavior of financial intermediation: Evidence from transition economies. *IMF Working Paper* 99(36): 1-32.

Saleh, I. & Afifa, M.A. 2020. The effect of credit risk, liquidity risk and bank capital on bank profitability: Evidence from an emerging market. *Cogent Economics & Finance* 8(1): 1-13.

Salleh, M.S.@, Possumah, B.T. & Ahmat, N. 2018. Net profit margin determinants of Islamic subsidiaries of conventional banks in Malaysia. *Jurnal Ekonomi Malaysia* 52(2): 163-173. http://dx.doi.org/10.17576/JEM-2018-5202-13

Samuelson, P. 1945. The effects of interest rate increases on the banking system. *American Economic Review* 35(1): 16-27.

Saunders, A. & Schumacher, L. 2000. The determinants of bank interest rate margins: An international study. *Journal of International Money and Finance* 19(6): 813-832.

Scholtens, B. & Van Wensveen, D. 2000. A critique on the theory of financial intermediation. *Journal of Banking & Finance* 24(8): 1243-1251.

Shahimi, S. 2006. *Penentu Margin Pendapatan Bersih Bank Islam*. Bangi: Universiti Kebangsaan Malaysia, Selangor, Malaysia.

Sun, P.H., Hassan, M.K., Hassan, T. & Ramadilli, S.M. 2014. The assets and liabilities gap management of conventional and Islamic banks in the organization of Islamic cooperation (OIC) countries. *Applied Financial Economics* 24(5): 333-346.

Sun, P.H., Mohamad, S. & Ariff, M. 2017. Determinants driving bank performance: A comparison of two types of banks in the OIC. *Pacific Basin Finance Journal* 42(April): 193-203.

Talbi, D. & Bougatef, K. 2018. The internal and external determinants of the intermediation margin of banks across MENA countries. *EuroMed Journal of Business* 13: 280-290.

Trinugroho, I., Risfandy, T. & Ariefianto, M.D. 2014. Competition, diversification, and bank margins: Evidence from Indonesian Islamic rural banks. *Borsa Istanbul Review* 18(4): 349-358.

Yaakub, N.M, Abdul-Rahman, A. & Sulaiman, A.A. 2017. Struktur pembiayaan dan risiko kecairan: Analisis perbankan Islam domestik dan asing di Malaysia. *Jurnal Ekonomi Malaysia* 51(2): 115-130. http://dx.doi.org/10.17576/JEM-2017-5001-10

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APPENDIX A

IMPACT OF BBA FINANCING AND OTHER FACTORS ON NPM (POOL AND REM)

Variable	POOL	REM
Size (BBA)	-0.122**	-0.084
	(0.053)	(0.060)
Risk Aversion	-0.021	0.044
	(0.027)	(0.033)
Operating Cost	1.176***	1.658***
	(0.150)	(0.168)
Liquidity	0.021***	0.022***
	(0.006)	(0.005)
Asset Quality	0.130**	0.167***
	(0.052)	(0.043)
Market Structure	0.027*	0.056***
	(0.014)	(0.020)
Constant	2.284***	0.301
	(0.778)	(0.909)
Model Criteria		
Number of Islamic Banks	15	15
Number of Observations	158	158
R-squared	0.484	0.570
Adjusted-R-squared	0.463	0.553

Note: *, ** and *** denote significant at 10%, 5% and 1% critical value, respectively. ( ) refer to standard error figure.

APPENDIX B

IMPACT OF AITAB FINANCING AND OTHER FACTORS ON NPM (POOL AND REM)

Variable	POOL	REM
Size (AITAB)	0.115*	0.218**
	(0.059)	(0.084)
Risk Aversion	0.093**	0.111**
	(0.047)	(0.045)
Operating Cost	1.650***	1.889***
	(0.220)	(0.195)
Liquidity	0.028***	0.026***
	(0.006)	(0.005)
Asset Quality	0.144*	0.289***
	(0.082)	(0.076)
Market Structure	0.003	0.021
	(0.014)	(0.021)
Constant	-2.402**	-4.625***
	(0.982)	(1.228)
Model Criteria		
Number of Islamic Banks	12	12
Number of Observations	128	128
R-squared	0.554	0.624
Adjusted-R-squared	0.531	0.605

Note: *, ** and *** denote significant at 10%, 5% and 1% critical value, respectively. ( ) refer to standard error figure.