

DETERMINANTS OF ISLAMIC BANKING PERFORMANCE: AN EMPIRICAL STUDY IN MALAYSIA (2007 TO 2016)

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Abstract

Purpose: The aim of this study is to examine the impact of internal and external factors on the Islamic bank's performance.

Methodology: The methodology being used to analysis are an ordinary least square model (OLS) and fixed-effect model. The analysis was conducted in Malaysia for a period of 10 years from 2007 to 2016. 10 Islamic banks in Malaysia were chosen to be tested for its performance. The study examines internal factors such as bank size, capital adequacy, liquidity, credit risk, and expense management and external factors such as Gross Domestic Product (GDP) and inflation effect on Islamic Bank's performance in terms of return on asset and return on equity.

Result: The findings showed that only capital adequacy and inflation significantly affect the Islamic bank's performance. However, bank size, liquidity, credit risk, expense management, and Gross Domestic Product were found to be insignificantly affecting the Islamic bank's performance. The analysis was carried out by applying ordinary least square model (OLS) regression and fixed-effect model.

Applications: This research can be used for universities, teachers, and students.

Novelty/Originality: In this research, the model of the Determinants of Islamic Banking Performance: An Empirical Study in Malaysia is presented in a comprehensive and complete manner.

Keywords: *Islamic Banks, Return on Asset, Return on Equity, Capital Adequacy, Liquidity, Credit Risk.*

INTRODUCTION

Islamic bank typically manages the banking system under the Shariah laws which are also known as Islamic laws. Shariah law is one of the Islamic principles that act as a guideline for Islamic bank management to avoid prohibited activities. The prohibited activities stated by Shariah laws involved Riba (interest), Maysir (gamble) and Gharar (speculative trading). Besides, [Moussawi \(2011\)](#) highlighted that the activities of Islamic banks applied the principle of risk-sharing, an Islamic term, "al-Ghunm bi al-Ghurm". He also described the term risk-sharing by the means of lender agreed to share benefits and risks of the loan with the borrowers.

According to [Ariff \(1988\)](#), he states that the main contrast of Islamic bank with the conventional bank is that while the conventional bank is in view of conventional interest-based concept, whereas Islamic bank performs its business as intermediaries according to the Shariah laws which Riba (interest) is prohibited by Shariah laws. Furthermore, both Islamic banks and conventional banks are using different procedures to earn different means of profit. For example, conventional banks treat interest as income, whereas Islamic banks use profit and loss sharing (PLS) instead of interest. Besides that, before the customers deposit into Islamic banks, they have to understand that different types of deposit accounts accompanied by different levels of risks and also different rates of return. In addition, Islamic banks benefit their depositors or customers by the profit from Islamic compliance investment or also known as PLS.

Islamic banking is still young in Malaysia where it only existed for 30 years (and still counting) as compared to the conventional banks. Although the Islamic banking industry existed shorter period than conventional banks, the industry has been growing rapidly due to the wide acceptance of consumers. Meanwhile, Islamic banks expanded the financial activities in compliance with Islamic Law (Shariah) such as investment banking, project finance, capital market, insurance, wealth management, and micro-finance ([Iqbal, 2007](#)). Though the Islamic banking industry has survived successfully from the encumbrance and skepticism of the critics, it still faces many challenges as which may hinder Islamic bank's performance. The following paragraphs are the problems that Islamic banks currently facing and assists Islamic banks to understand where actually have to focus.

The first problem is the lack of awareness of how Islamic banks work, which results in the differences between Islamic banks and conventional banks. There is a study done [Gerrard & Cunningham \(1997\)](#) whose purpose was to investigate the awareness of Islamic banking products and services among Singapore customers and found that there is lack of awareness of the customer towards Islamic banking system. A study done by [Ainley \(1997\)](#), highlighted that the main issue of Islamic banking system is the lack of understandings by the consumers about Islamic banking constitutes that hinder its expansion. In her view, the main cause of confusion is the Islamic Shariah Committees' various interpretations of how to differentiate Islamic banking from conventional banking. [Metawa & Almosawi \(1998\)](#) found that the factor of public to select Islamic banks is the perceived Islamic principles of Islamic banks. Therefore, the lack of awareness created a trend that public

tends to choose conventional banks rather than Islamic banks on the selection of financial products and services. In conclusion, this issue will influence performance Islamic banks in Malaysia.

Besides the lack of awareness, Islamic banks are also facing lack of previous study on determinants of Islamic bank's performance in Malaysia. Numerous studies are done with aim to examine the determinants of conventional banks' performance rather than Islamic bank's performance such as [Gul, Irshad, & Zaman \(2011\)](#); [Guru, Staunton, & Balashanmugam \(2002\)](#) and so on. However, there are some researches' objective is to measure Islamic bank's performance likes [Chua \(2013\)](#) and [Wasiuzzaman & Tarmizi \(2010\)](#). Although their studies aim to examine performance of Islamic banks in Malaysia the results might be comprehensive and less accurate due to the studies do not cover all Islamic banks in Malaysia. According to [Wasiuzzaman & Tarmizi \(2010\)](#), the results for Islamic bank's performance might differ from conventional banks by using same determinants and quantitative methods as there could probably be other factors seems not important to examine commercial banks performance but is important to Islamic banks or vice versa.

Muslim scholars serve as the role to interpret the Islamic Shariah principles that are applied to Islamic banks' financial activities. Thus, the Islamic Shariah principles' interpretations might be different from different schools of thought who came from dissimilar culture and Islamic societies ([Karbhari, Naser, & Shasin, 2004](#)). Due to the incomparability, every Islamic bank assigns an Islamic Shariah Committee to assess the extent of its bank transaction and activities inconsistent with the Islamic Shariah. However, the lack of standardization and perspicuity as the main problem of getting licenses for Islamic banks due to regulators are unable to understand the idea of Islamic banking clearly. [Kahf \(1999\)](#) highlighted that Islamic banks are troubled by the lack of standardization of Shariah opinions; the ambiguous relationship existed between the management and Shariah Advisory Board. However, [Al-Omar & Abdel-Haq \(1996\)](#) said that the emerging idea of Islamic banking is mostly likely to face new circumstances and issues that will result in further clarification. He also argues that clarification could not be excused for the lack of standardization, whereas it does help in understanding why lack of standardization existed in some issues. In conclusion, followed by the progress of Islamic banks, it is expected to improve the standardization of its concepts and practices.

Islamic financial markets are being short of liquidity-enhancing instruments historically and result in elimination of many potential investors ([Iqbal, 1997](#)). He also states Islamic banks only operating their financial activities with a narrow set of short-term traditional instruments, and Islamic banks have lacked medium- to long-term maturities products ([Iqbal, 2007](#); [Vargas-Hernández, 2016](#)). Meanwhile, there is lack of market for these instruments to sell, trade, and negotiate the products of the Islamic banks. According to [Karbhari, Naser, & Shasin \(2004\)](#), they state that central bank cannot be safety net for Islamic bank which implies that the principle of lender of last resort is not applicable to Islamic bank since the repayment of loan involves interest or Riba that prohibited by Islamic or Shariah law. From the statement of [Iqbal \(2007\)](#), he states that the absence of liquid markets is the factor that unable Islamic banks to conduct an effective portfolio management strategy, as well as diversification, are limited. Therefore, Islamic banking system does not achieve its full potential. This problem will bring negative effects to the performance of Islamic banks.

The objectives of this study are to determine whether the internal factors such as bank size, capital adequacy, liquidity, credit risk, and management expenses and external factors such as Gross Domestic Product (GDP) and inflation affect Islamic banks performance

LITERATURE REVIEW

Besides that, the offerings of products and services from Islamic banks and conventional banks are very similar but the approaches applied by Islamic banks are different from conventional banks. Based on the study of [Ahmed, Rahman, & Ahmed \(2006\)](#), they define the products and services under two categories, which are deposit mobilization (sources of funds), and financing facilities (use of funds). Deposit mobilization consists of four types of products and services which under Islamic principles such as current account (Al-Wadia), savings account (Al Wadia and Al-Mudaraba), and term deposits (Al-Mudaraba) and savings bond (Al Mudaraba). The returns of the deposit derived from the activities of financing facilities, unlike conventional banks which returns are interesting instead of profit and loss sharing. The most common financing facilities Islamic banks used are Musharaka and Mudaraba principles that applied Profit and loss sharing (PLS). Musharaka and Mudaraba principles usually used to finance the potential business or entrepreneur as start-up capital. The only difference between both principles is Musharaka participates in the company's management, whereas Mudaraba will not.

Today, Islamic bank performance evaluation is indeed significant because of the globalization. According to [Aburime \(2008\)](#); [Sufian \(2011\)](#), the internal and external determinants have an influence on the performance of banks. Internal factors are the bank-specific factors that will affect bank's performance and external factors concerned with macroeconomic factors.

[Dietrich & Wanzenried \(2014\)](#) used 372 conventional banks as a sample to examine the profitability of these conventional banks during pre-crisis period, 1999 to 2006 and also after crisis 2007 to 2009. The study measured the impacts of internal determinants and external determinants with crisis effects to determine profitability of these commercial banks. Similarly, [Asutay & Izhar \(2007\)](#) used the internal and external determinants to determine the performance of Bank Muamalat Indonesia (BMI) by applying ROA as a measurement. [Kanwal & Nadeem \(2013\)](#) determine the profitability of public

limited conventional banks in Paskin by analyzing the effect of macroeconomic variables on profitability in terms of return on assets (ROA), return on equity (ROE) and also equity multiplier (EM). In conclusion, there are much more researchers studied the effects of bank-specific factors and macroeconomic factors on the performance of banks, no matter is Islamic banks or commercial banks by using different model to determine.

Islamic banking performance

The banking system plays important role in a country's economic system ([San & Heng, 2013](#)). A nation's financial stability depends on the dependability of its banking system ([Zeitun, 2012](#); [San & Heng, 2013](#); [Irvani et al., 2015](#)). Furthermore, the banking system contributes to a country's GDP growth and other economic developments ([Rashid & Nishat, 2009](#)). The banking system also serves as the financial intermediaries who accept deposits from individuals or economic units that possess surplus of funds and mobilize the funds to those that have lack of funds ([San & Heng, 2013](#)). According [Masood et al., \(2009\)](#), the growth rate of largest 100 Islamic banks around the world was 26.7% relative to the conventional bank's growth rate, 19.3%.

Although Islamic banking grows rapidly, there are few studies examined the performance of Islamic banks but numerous researches on the conventional banks' performance such as ([Akhtar, Ali & Sadaqat, 2011](#); [Olson & Zoubi, 2008](#); [Chua, 2013](#); [Luo et al., 2018](#)). [Wasiuzzaman & Tarmizi \(2010\)](#) argue that most of the researches focus on the efficiency of Islamic banks rather than conducting quantitative analysis on profitability of Islamic banks. Hence, they attempt to identify the variables that might impact profitability of Islamic banks. [Molyneux & Thornton \(1992\)](#) examines the factors of bank profitability in several countries and found that a positive relationship between return on equity (ROE) and interest rates intensity, bank concentration and the ownership of government. [Samad \(2004\)](#) found that there were no significant differences in the results of performance such as profitability and liquidity between Islamic banks and conventional banks. The study of [Asma'Rashidah Idris, Asari, Taufik, Salim, & Jusoff \(2011\)](#) highlighted that profitability is the measurement of these banks' performance and it is being affected by numerous factors.

[Hasan & Dridi \(2010\)](#) observed the influence of the financial crisis on Islamic banking's profitability, credit and growth, and external ratings and found that the impacts on Islamic banks differ from commercial banks. [Mamatzakakis & Remoundos \(2003\)](#) claims that financial ratio is most commonly used method to measure banks' performance. [Jaffar & Manarvi \(2011\)](#); [Hanif, Tariq, & Tahir \(2011\)](#) chose the CAMEL test to examine and compare the performance of Islamic banks and conventional banks in Pakistan. Both studies claimed that Islamic banks are superior in terms of adequate capital ratio and have better liquidity relative to commercial banks. The findings were supported by [Ika & Abdullah \(2011\)](#) who assert that Islamic banks in Indonesia have better liquidity and liquidity management practice relative to commercial banks in Indonesia.

Banks' profitability can be defined as the net after-tax income of banks and the profitability is typically measured by return on assets (ROA) and return on equity (ROE) ([Rose, 1999](#); [Abreu & Mendes, 2001](#); [Jaramillo, 2018](#)). While on the other hand, [Bashir \(2001\)](#) used the non-interest margin (NIM), before tax profit (BTP), return on assets (ROA) and return on equity (ROE) as a measurement to examine performance of Islamic banks in Middle-Eastern region. [Chua \(2013\)](#) claims that the factors of Islamic bank's performance can be determined by internal determinants which are the factors that are under banks' control and external determinants are the factors that are beyond the bank management's control.

Return on assets (ROA) refers to the proportion of net profit to total assets which is the general measurement for bank profitability that reflect the bank's ability to gain profit or return on its sources of fund ([San & Heng, 2013](#)). [Petersen & Schoeman \(2008\)](#) indicated ROA as an important tool that reflects operational efficiency of a bank. Supporting the study by [Abreu & Mendes \(2001\)](#), [Hassan & Bashir \(2003\)](#) found that ROA reflects the management efficiency of a bank. [Athanasoglou, Brissimis, & Delis \(2008\)](#) claims that banks with lower financial leverage ratio relative to higher equity will result in higher ROA, but lower ROE.

Return on equity (ROE) was defined as the proportion of net income to average total equity ([San & Heng, 2013](#)). ROE demonstrates the effectiveness of bank management in utilization of shareholders' equity to create earnings. Higher ROE implies that the management is capable to manage shareholders' equity and produce revenues to shareholders. [Hassan & Bashir \(2003\)](#) states that banks' ROE is affected by the banks' ROA and the level of financial leverage (equity/asset). For financial intermediaries, ROA tends to be low, hence, most banks rely on financial leverage to enhance ROE to a competitive level.

Factors affecting Islamic banks performance

Nowadays, Islamic banks' business operations became more challenging either global or domestic markets. It is essential for Islamic banks to enhance their business performance to remain competitive and profitable in both domestic and international banking industry. However, profitability; which is the common indicator of bank performance, is influenced by various factors ([Asma'Rashidah Idris, Asari, Taufik, Salim, & Jusoff, 2011](#)). The factors which will affect commercial bank profitability can be classified into two major categories, internal and external determinants. Internal determinant refers to factors that are controllable by the management while external factors are those variables which out of control of management ([Guru, Staunton, & Balashanmugam, 2002](#); [Chua, 2013](#); [Murzinova et al., 2018](#)).

The internal determinants derived from the bank's financial statement such as balance sheets or profit and loss account and it refers to micro or bank-specific determinants of profitability. The external factors refer to macroeconomic variables such as Gross Domestic Product (GDP) and inflation. These variables may influence financial system rather than single bank or company and the macroeconomics variables will measure as significant factors of performance ([Zeitun, 2012](#)).

Internal determinants: Bank size

The total assets of the bank determine the bank size. [Menicucci & Paolucci \(2016\)](#) claim that bank size is important because it reflects whether the bank able to maximizes its profitability. Bank size serves as a significant role for bank to maintain market power or position because bank size is positively related to profitability where profitability plays an important role in indicating the bank's market share ([Ali, Akhtar, & Ahmed, 2011](#)). [Athanasoglou, Brissimis, & Delis \(2008\)](#) explained that the impact of bank size on profitability is insignificant because small-sized banks typically attempt to grow rapidly, even willing to sacrifice their profitability. However, these newly established banks usually do not create profit in the first years of business because they pay attention to market share acquisition instead of increasing their profitability.

According to [Abdulah & Idrees \(2013\)](#), bank with larger bank size usually will create larger profitability because of the economies of scale in which will decrease the cost of information collection and processing or in economies of scope which is one of the outcome of bank size in which result in greater loan product diversification and can access into those capital market which small banks could not enter. According to [Menicucci & Paolucci \(2016\)](#) economies of scale reflect a positive effect between bank size and bank profitability while economies of scope encompass negative effects between bank size and profitability due to the increasing of diversification which created more risks. [Abdulah & Idrees \(2013\)](#) concluded that bank size is seriously influencing Islamic bank's profitability.

[Smirlock \(1985\)](#); [Camilleri \(2005\)](#); [Pasiouras & Kosmidou \(2007\)](#); [Dietrich & Wanzenried \(2014\)](#) found that there is a positive relationship between bank size and profitability. However, they also found that banks' strength is different, weaker relationships in the larger size banks and interest income; hence, these banks operate business at lower cost. In contrast, smaller banks hold higher loan loss reserves and higher ratio of liquid assets relative to large banks. [Bashir \(2000\)](#) found a reverse relationship in the bank size and the profitability of Middle Eastern Islamic Banks. The negative relationship was also concluded by [Kosmidou, Tanna, & Pasiouras \(2005\)](#); [Sufian & Habibullah \(2009\)](#) for conventional banks. [Ben Naceur \(2003\)](#) claimed that the size has negative and vital effects on the net interest margins. Finally, [Dietrich & Wanzenried \(2011\)](#) found that large banks created negative effects on profitability due to the massive losses incurred from the irrecoverable loans.

Internal determinants: Capital adequacy

[Baral \(2007\)](#) explained capital adequacy by the definition of Basle Committee on Banking Supervision of the Bank of International Settlements (BIS) which classify bank capital into Tier I and Tier II to measure capital adequacy. Additionally, Tier I is primary capital whereas Tier II is supplementary capital. Capital adequacy was explained by [San & Heng \(2013\)](#) who describe that capital adequacy as the ability to absorb any losses the bank may face by the adequate amounts of bank equity and EA measure the bank's capacity to afford losses or financial risks. [Kosmidou, Tanna, & Pasiouras \(2005\)](#) defined the term capital adequacy is measured by the equity to total assets ratio (EA) and it is indicated banks' capital strength. They further explained that the higher the ratio, the lower the level of external funding, hence, the higher the profitability of the bank. Furthermore, lower chances of bankruptcy for well-capitalized banks because the costs of funding are lower. Therefore, Capital may be a vital variable in examining bank profitability and the ratio is not only indicated capital requirement but also deputy risk and regulatory cost ([Flamini, Schumacher, & McDonald, 2009](#)).

[Srairi \(2010\)](#) made a comparison between conventional banks and Islamic banks in terms of bank size (average value of total assets) and capital adequacy. Although conventional banks' value of total assets is almost three times larger than Islamic banks (\$8759 million relative to \$3198 million) but Islamic banks are more well-capitalized compared to conventional banks (31% relative to 15.75%). The statement was supported by [Jaffar & Manarvi \(2011\)](#) as they concluded that Islamic banks are better than conventional banks in terms of capital adequacy and asset quality.

[Short \(1979\)](#) argues that size is strictly related to the bank's capital adequacy since the large banks' cost of capital generally is low, hence, the banks will result in higher profitability. In contrast, [Wasiuzzaman & Tarmizi \(2010\)](#) states that well-capitalized banks are expected to have less risks and earnings are predicted to be lower due to the well-capitalized banks are supposed to be safer, hence, capital ratio is expected to affect banks' profits negatively. However, they also found that the capital is part of cost or reinvestments if the regulatory capital represents the binding constraint of the cost. So, it could become a positive relationship between capital ratio and profitability.

Based on the study of [Wasiuzzaman & Tarmizi \(2010\)](#), they defined equity to the total asset is an indicator of banks' capital stability. Since they found negative relationship between capital ratio and profitability, they suggest Islamic banks in Malaysia should not pay attention to improving the equity performance to enhance their profitability. [Berger \(1995\)](#) claims that when value of EA ratio is reduced simultaneously reduced agency cost and improves firm performance. Furthermore, well-organized banks usually sacrifice equity ratio and choose to improve bank efficiency ratio because this action will reduce the cost of bankruptcy and financial crisis.

The statement of [Kosmidou, Tanna, & Pasiouras \(2005\)](#) was supported by [Abreu & Mendes \(2001\)](#) which also claims that well-capitalized banks have lower expected bankruptcy costs and thus improve earnings compared to poor-capitalized banks. So, they also mentioned that capital adequacy effects profitability positively. [Bashir \(2000\)](#) found the same result by measuring capital efficiency. [Flamini, Schumacher, & Mcdonald, \(2009\)](#); [Sufian & Habibullah \(2009\)](#); [Savilgan & Yildirim \(2009\)](#) also found a positive relationship between capital adequacy and profitability. In contrast, [Athanasoglou, Delis, & Staikouras \(2006\)](#) found negative relationship existed between capital and bank profitability by examining same ratio.

[Asutay & Izhar \(2007\)](#) claim that capital adequacy does not influence profitability ratios considerably but it has negative effect on ROA. However, [Berger \(1995\)](#) concluded that positive relationship existed between capital adequacy ratio and ROE of USA banks in 1983-1989, whereas negative relationships from year 1989-1992. So, [Berger \(1995\)](#) argues that the effects of capital adequacy on profitability subject to specific circumstances of the time of point. [Kaya \(2002\)](#) states that capital adequacy ratio is influencing ROA positively and meanwhile influencing ROE negatively. [Abreu & Mendes \(2001\)](#) states a different assumption as ratio of credits and capital adequacy ratio is impacting ROA positively and market share and capital adequacy of the banks also impacting the ROE positively. [Athanasoglou, Delis, & Staikouras \(2006\)](#) found that ROA was affected by logarithm of total assets and capital adequacy ratio positively.

Internal determinants: Liquidity

Liquidity is the health of commercial bank which refers to cash availability. The cash availability reflects how speedily the bank can transform assets into ready money in order to solve the demands of lenders and borrowers. More liquid assets owned by a bank imply a higher level of liquidity of the bank ([Samad, 2004](#)). Due to nature of bank business, generally banks will face the problem of maturity mismatch, hence, adequate liquid assets needed to pass up the event of illiquidity problems ([San & Heng, 2013](#)). They measure bank liquidity by the ratio of Liquid Assets to Deposit and Short-Term Funding ratio (LIQ). The LIQ reflects the capability of banks to solve current financial liabilities. However, [Aref \(2014\)](#) suggests using the ratio of liquid assets to total assets to measure the liquidity of banks.

Liquidity risk was explained by [Sufian & Habibullah \(2009\)](#) which take place when the banks unable to accommodate the reduction in financial obligations or to fund amplification on the assets' side of the balance sheet, hence, it serves as vital factors of bank profitability. [Nahang, F & Araghi \(2013\)](#) states that sufficient liquidity not only to satisfy the demands of depositors and borrowers but also to acquire public confidence. [Bordeleau & Graham \(2010\)](#) suggest that bank profitability is improving when carrying some liquid assets, but if exceed the optimal point by holding more liquid asset which may result in decreasing the profitability according to the level of excess. Typically, liquidity is not the main issue for large banks in the competition among banking system. On the other hand, liquidity always changing, hence, it needs a recurrent modification on the relevant indicators ([Chua, 2013](#)). However, the liquidity ratios computation is almost same for Islamic banks and conventional banks, but Islamic banks maintain more cash corresponding to deposits and lesser cash corresponding to assets than conventional banks ([Olson & Zoubi, 2008](#)).

Therefore, [Moin \(2008\)](#) found that there is no significant dissimilarity in profitability and liquidity performance among Islamic banks and conventional banks. [Mansoor Khan & Ishaq Bhatti \(2008\)](#) mentioned that Islamic banks are troubled by the issues of overload liquidity because Islamic banks hold about 40% of excess cash and other liquid assets compared to conventional banks. They state the reason is the restriction of Shariah principle and there are only few long-term investment gears and platforms in compliance with the Shariah principle. According to the study [Girard, Nolan, & Pondillo \(2010\)](#), found that conventional banks did not have the liquidity problem, and found that liquidity is linked negatively to the profitability of Islamic banks due to the traditional policies of funds distribution.

[Bourke \(1989\)](#) investigated the relationship between liquidity and profitability and found a positive relationship between liquidity and profitability. [Heffernan & Fu \(2008\)](#) found a positive relationship between LIQ ratio and ROA and ROE but has negative impact on NIM. [Bashir \(2000\)](#); [Athanasoglou, Delis, & Staikouras \(2006\)](#); [Sufian & Habibullah \(2009\)](#) utilized loans to total assets ratio and found positive connection between liquidity and bank profitability. Besides that, [Eichengreen & Gibson \(2001\)](#); [Molyneux & Thornton \(1992\)](#) states that higher profitability can result from a small amount of liquid investments. [San & Heng \(2013\)](#) found that higher LIQ ratio or higher level of liquid assets only implies the banks are more liquid but the banks possibly will be unable to find a valuable investment activity which in turn decreases profitability. They concluded that LIQ has negative effect on profitability.

[Chua \(2013\)](#) concluded that a negative linkage between liquidity and bank profitability because banks generally carry liquid assets due to quick conversion. Additionally, superior liquidity is associated with inferior profitability. [Molyneux & Thornton \(1992\)](#) whose study made a conclusion about the negative connection between the degree of liquidity and profitability because banks carry higher level of liquidity to keep away from solvency problems. Besides that, [Nahang, F & Araghi \(2013\)](#) concluded that the negative connection between liquidity and profitability. They also mentioned that the positive relationship between liquidity and bank profitability arise from the low level of cash carried by bank and invest the funds into opportunities. [Kosmidou, Tanna, & Pasiouras \(2005\)](#) obtained the results by using LIQ ratio which shown negative relationship between liquidity and profitability.

Internal determinants: Credit risk

Credit risk is considered to be one of the important risks which bank is worry about and the risk also impact the wealth of shareholders. The principle associated with the borrowers' capability to repay principals and interest timely and comply with the conditions included in the contract. However, if the borrowers could not meet the repayment, thus, it probably becomes loss for the lender or risk for bank ([Elgari, 2003](#)). [Athanasoglou, Brissimis, & Delis \(2008\)](#) used the loan-loss provisions to loans ratio (PL) to measure the extent of credit risk. Especially the higher level of credit risk is in turn to reduce firm profitability. Besides, [Ika & Abdullah \(2011\)](#) used another ratio as Loan to deposit ratio (LDR) which not only examining liquidity but also measures the credit risk for company. Additionally, if the result stated by the ratio is high, this implies the chance of insolvency.

Although loans serve as the main supplies of the banks' earnings meanwhile loans also encompass much more credit risk ([Abduh & Idrees, 2013](#)). They suggest that increased credit risk usually results in profitability reduced. In contrast, the statement of higher results of ratio caused superior profitability of banks can be proved by if the borrowers are capable to settle up principal and interest ([Srairi, 2010](#)). [Dietrich & Wanzenried \(2014\)](#) claims that the lower the level of risk, the greater the banks' creditworthiness and also decrease the cost of financing.

[Flamini, Schumacher, & Mcdonald \(2009\)](#) defined the credit risk is the major consideration in the banks' internal risk. They also explained the drivers which may result in high level of credit risks such as weak execution of creditor rights and obligation, weak legal surroundings and also the scarcity of information about the borrowers. [Cooper, Jackson, & Patterson \(2003\)](#) claim that the effect of varying credit risks may reflect on the life of the bank's loan set and in turns impact bank performance. However, NIM of commercial banks should be higher due to the higher risk which banks require higher risk premiums on the assigned loans. In contrast, the profit will be lower due to the loan rates are not quick to respond to market rates ([Angbazo, 1997](#)).

The revenues of banks rely on either the value or the composition of loans set. In general, loans generate interest and in turn the loans set should increase the banks' revenues ([Rhoades & Rutz, 1982](#)). Nonetheless, if the loan portfolio encompasses abnormal risk in specific loans among the loan portfolio which causes lesser returns, monetary losses and eventually decreased financial intuitions' revenue. However, credit risk cannot be calculated properly due to the possibility of non-payment is uncertain ([Akkizidis & Khandelwal, 2008](#)).

[Akkizidis & Khandelwal \(2008\)](#) defined the credit risk in term of Islamic finance which the credit risks are related to the principle of Murabaha (lending), Ijarah (leasing), Istisna and Salam (Forward purchase), and the most well-known term of Musharakah and Mudarabah (Investment failure). Additionally, they explained that the credit risk of Islamic banking arises from the event of default of repayment and eventually the credit risk will lead the liquidity risk to occur. Apart from that, small Islamic banks are economically stronger than large banks, which imply large Islamic banks are facing challenges of credit risk management ([Cihak & Hesse, 2010](#)). They also mentioned that the Profit and Loss Sharing (PLS) transfers the credit risk from financial institutions to the investment depositors. Nevertheless, asset side of banks also suffers from the enhancement of level of credit risk.

[Athanasoglou, Brissimis, & Delis \(2008\)](#) found a negative connection between the PL ratio and ROA/ROE. However, they suggest that in order to improve profitability, a well-designed credit risk management must be equipped such as screening and monitoring as well as predicting the future degree of risk. [Dietrich & Wanzenried \(2014\)](#) also found a negative relationship between credit risk and bank profitability. Followed by [Menicucci & Paolucci \(2016\)](#) who found higher PL ratio indicated lower credit quality and implied lower profitability. So, they concluded that a higher level of credit risk is related to low profitability. [Asma'Rashidah Idris, Asari, Taufik, Salim, & Jusoff \(2011\)](#) used the regression analysis to examine the credit risk effects on profitability and eventually they found out that there is also a reverse relationship existed. The results state that 1% increase in credit risk results in earnings level reduces around 0.100894%.

In contrast, [Bashir \(2003\)](#); [Srairi \(2010\)](#); [Wasiuzzaman & Tarmizi \(2010\)](#) concluded credit risk will impacts positively on the bank's profitability. They had further why there is a positive relationship since bank loans are the major sources of profit, hence, if debtors have the ability to pay back principal and interest, in turn result in higher profitability. [Ben Naceur & Omran \(2008\)](#) examine the performance of Middle East and North Africa (MENA) countries' conventional banks' profitability during the year 1989 to 2005. The findings of the study noted that credit risk and bank capitalization, which have serious influence on the banks' NIM, effectiveness of cost management, and lastly profitability.

Internal determinants: Expense management

[Asma'Rashidah Idris, Asari, Taufik, Salim, & Jusoff \(2011\)](#) derive another research to explain the term, expense management which weak management of expenses will lead to poor profitability of the bank. [Rasiah \(2010\)](#) states that if banks wish to increase profit, the first focus point should be on expense management and followed fund-source management and fund-use management. The study suggests that the operating expenses included all expenses associated with the use physical and staff factors.

[Sufian & Habibullah \(2009\)](#) use the ratio of operating expenses to total assets (NIE/TA) to measure the variations of bank operating costs. The variables symbolize the entire value of wages and salaries, as well as the expenses of operating office

facilities. [Asutay & Izhar \(2007\)](#) adopted OC ratio which stands for operating cost as percentage of total assets and found that the high OC or NIE/TA ratio may affect the profitability hardly due to well-organized banks should operate in low cost. However, adoption of new electronic technology such as ATM and other electronic means of transporting services, which result in low OC ratio and in turn raising banks' profitability. Besides that, OC ratio not only examines the profitability of banks but also analyze managerial efficiency in producing operating earnings and managing the operating costs ([Moin, 2008](#)).

[Athanasoglou, Brissimis, & Delis \(2008\)](#) separate the total cost of the bank (net of interest payment) into operating expenses and another cost such as taxes and depreciation. In this case, only operating expenses can be considered as result of bank management ([Said & Tumin, 2011](#)). Due to the well-organized management of the operating costs will lead to increase efficiency and also improve revenue of banks, thus the ratio of expenses to total assets can be said as negatively associated with profitability. Operating expenses can be considered as a vital factor in profitability. Nonetheless, the harmful effects resulted from the lack of efficiency in management of expenses since banks transfer some raised costs to consumers and retain some expenses to profits. However, overcharge customers are not allowed in the particular competition among banking industry.

[Azhar Rosly & Afandi Abu Bakar \(2003\)](#) utilized the profit margin (PM) which analyzes the net profit after taxes per ringgit over total operating income. It is used to indicate the effectiveness of operating cost administration and service pricing policies of banks. But the only difference is commercial banks use interest income adds non-interest income as operating income, whereas Islamic banks use investment revenue and fee revenue as entire operating income. Banks actually can increase the ROE to shareholders by managing expenses which leads to maximizing earnings. They also mentioned that higher PM ratio implies that the banks are capable to decrease expenses or taxes or both efficiently.

Operating efficiency, which can be examined by numerous ratios, generated multiple results. [San & Heng \(2013\)](#) who define the cost to income ratio as it examines the operating expenses of banks and made a conclusion that the earnings and expenses are negatively linked as the higher the expenses, the lower the profits. Well-organized banks can really operate the business with lower cost to income ratio and incur higher profit. Nonetheless, sometimes the higher value of expenses probably linked with higher volume of banking business, and eventually produces higher profits. The conclusion is supported by the studies from ([Kosmidou, Tanna, & Pasiouras, 2005](#); [Heffernan & Fu, 2008](#)) who measure the operating efficiency by the ratio of cost to income and found a negative connection between the ratio and profitability.

In contrast, [Ben Naceur \(2003\)](#); [Bashir \(2001\)](#); [Athanasoglou, Delis, & Staikouras \(2006\)](#) utilized the operating expenses to total assets ratio to measure operating efficiency and concluded that the ratio has a positive effect on the profitability. However, [Molyneux & Thornton \(1992\)](#) concluded that the operating expenses ratio is positively related to profitability because the high revenue gained by firms most probably is generated from the higher payroll expenses which paid to activate more productive human resources. Followed by [Eichengreen & Gibson \(2001\)](#) who had found a similar result.

External determinants: Gross Domestic Product (GDP)

Economic growth (GDP) is the most common macroeconomic signs which aim to examine entire economic events within an economy. Amplified financial activity implies that there are more publics with higher living standards and hence have the ability to involve in banking activities. Additionally, the implication indicated there is more business for conventional financial institutions since they serve as agents of money exchange and eventually increase profitability or get better financial performance ([Murerwa, 2015](#)). Gross Domestic Product growth rate (GDPGR) is one of the measurements to reveal the situation of the economic cycle and GDPGR is supposed to impact the demands of bank loans ([Kosmidou, Tanna, & Pasiouras, 2005](#)).

GDP has shown the level of financial activity in the country. A high level of GDP implies that the economic environment in the country encourages the progress and development of business and the situations indicated that the customers have the ability to satisfy needs and to upgrade their living standards. After the people fulfill their basic needs, then they use the remained currency in the purpose of investment and or savings through the services provided by commercial banks in a particular country ([Murerwa, 2015](#)). Additionally, once the citizens placed their funds into conventional banks for the purpose of savings or investment which may improve the capital level of the banks and allow the banks to conduct lending activities. Thus, the banks are able to gain more interest income since they lend out more loans.

[San & Heng \(2013\)](#) defined the GDPGR is the annual change of GDP and the changes of GDPGR have direct impacts on the supply and demand for loans and savings. In addition, the study explained the GDPGR with economic expansion and recession. During the expansion period, the loan demand is expected to increase and also the asset quality will improve, thus bank can make more earnings. In contrast, the GDPGR will drop along with the economic recessions. Furthermore, the lending rate is expected to decline during the recessions and the banks may suffer higher credit risk and higher provision cost. Both variables will lead the banks into low profitability. In conclusion, the study found that GDPGR has an insignificant relationship with the profitability of banks. Followed by [Ben Naceur \(2003\)](#) conducted research with purpose to measure the Tunisian bank's profitability during year 1900 to 200 and found that GDPGR and inflation have no effects on the bank's profitability.

[Chua \(2013\)](#) prepared to use the GDPGR to identify the entire financial activity in a country. The explained higher real GDPGR may have significant impact on the demand for bank loans. The finding that they found is the GDPGR has positive effect on bank profitability. [Wasiuzzaman & Tarmizi \(2010\)](#) found similar results that GDPGR have positive impact on bank profitability.

[Yenesew \(2014\)](#) use real GDPGR to measure macroeconomic surroundings. The study argues that GDPGR is the most suitable sign of the status of financial development. Weak economic status can really deteriorate the superiority of the loan sets, hence declining profitability. On the other hand, development of financial status may impact the profitability of micro-financial institutions (MFIs). So, the study concluded that GDPGR has positive connection with the MFIs profitability.

There are some other researches that found the positive relationship between GDP growth and bank profitability such as [\(Pasiouras & Kosmidou, 2007; Heffernan & Fu, 2008\)](#). Followed by [Hassan & Bashir \(2003\)](#) who found that higher GDP growth results in higher bank profitability. [Kosmidou, Tanna, & Pasiouras \(2005\)](#) states, that inflation and GDPGR are determinants of profitability for UK banks. In the case of Malaysian conventional banks, both variables are not the determinants of profitability in terms of ROA, ROE and also NIM. Based on previous studies, economic growth is assessed by the GDPGR and it is expected to have significant positive relationship with the total economic activity in the country and also Islamic bank's profitability [\(Birhanu, 2012\)](#).

[Kanwal & Nadeem \(2013\)](#) whose study aims to examine the bank profitability in Pakistan and found that the real GDP has an unimportant positive impact on ROA whereas insignificant negative relationship existed between the real GDP and ROE. [Flamini, Schumacher, & Mcdonald \(2009\)](#) use the linear regression analysis to measure the effect of GDPGR and CPI on ROA and then they found that there is a positive relationship between both variables and ROA. [Staikouras & Wood \(2011\)](#), claim that the GDPGR has a significant negative relationship with commercial and savings banks' profitability.

External determinants: Inflation

Inflation is the rate that reflects that the level of prices for goods and services is rising in economy environment. The inflation can actually corrode the buying power of customers because the customers only can purchase fewer goods and services with same quantity of currency [\(San & Heng, 2013\)](#). Additionally, inflation is evaluated by computing the inflation rate of a price index, consumer price index (CPI). CPI is measured by the rate of variation in prices of a fixed basket of products and services and it characterizes the consuming model of all families in Malaysia. CPI is helpful for Department of Statistics Malaysia to post the inflation rate. So, CPI is the sign of inflation.

The inflation rate also serves as the once of the macroeconomic determinants of commercial banks' performance and some researchers placed attention on the relationship [\(Murerwa, 2015\)](#). In general, higher inflation rates force conventional banks to raise interest rates on borrowings and eventually generate higher profits. However, the impacts of inflation on bank performance are subject to whether inflation is predicted or unpredicted. In the case of totally predicted inflation rates, if the conventional banks had made altered on the interest rates corresponding to inflation rates which may result in positive impact on the conventional bank's performance.

In contrast, in the case of unpredicted on the raising of inflation rate, which may lead those local debtors faced the problem of financial distress and terminate the bank loan agreements before accomplishment of obligations, thus it will be resulting in loss on lending's for issuers who are these conventional banks [\(Swarnapali, 2014\)](#).

[Murerwa \(2015\)](#) claims that high inflation rates may lead the potential borrowers to transfer their attention from the purpose of investing or savings to focus on spending since the high inflation rates made them eroded their buying power. This situation will lead the customers keep withdraw funds from the conventional banks, which may result the banks' deposits level declined and thus eroded the banks' capability to lend loans to borrower. Since convention banks' major income is interest charged on the loans, the banks may produce less income from such a situation. [Abreu & Mendes \(2001\)](#) noted that negative relationship between the inflation rates and the banks' profitability in European countries.

[Revell \(1979\)](#) explained the problem of the effects of inflation and the causes of bank profitability. He states that the impact of inflation on bank profitability according to whether the banks' payrolls and operating costs rise more rapidly than inflation. The question is related to whether the banks can predict future inflation correctly in order to manage operating expenses.

[Vong & Chan \(2009\)](#), claims that high inflation will lead to higher costs and also higher profit. The situation only occurs when the banks' profit is increasing faster than the operating expense, and then only can say the inflation had positive impact on profitability. In contrast, negative effects happened when the operating expenses grow faster than the profit.

[Dietrich & Wanzenried \(2011\)](#) used multivariate logit analysis to measure the impacts of macroeconomic factors on the conventional bank's performance and they concluded that a significant relationship between macroeconomic factors and conventional banks' performance. Other than that, [Ben Naceur \(2003\)](#) measure 10 major savings conventional banks from the year 1980 until year 2000 by using the balanced panel data. The results stated that GDPGR and inflation rates do not have serious impact on conventional bank's performance in Tunisia. [Mamatzakakis & Remoundos \(2003\)](#) utilized the structure-conduct-performance framework with sample of 17 conventional banks from Greece and the study found that the

insignificant connection between CPI and real interest rate on the ROA and the ROE of the sample conventional banks. [Athanasoglou, Brissimis, & Delis \(2008\)](#) measure the effects by using GMM estimator approach and found significant positive connection between inflation rate and real interest rates with the conventional bank's performance in Greece. Followed by [Molyneux & Thornton \(1992\)](#); [Guru, Staunton, & Balashanmugam \(2002\)](#) whose studies also found positive connection between inflation and banks' profitability.

METHODOLOGY

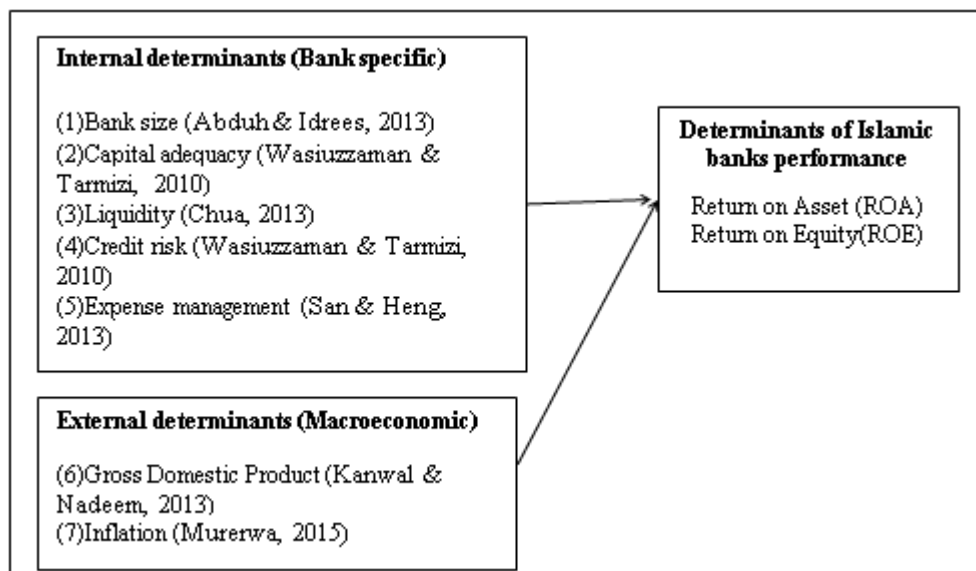


Figure 1: Theoretical framework

The observed variables for this study are the return on asset and return on equity which is the proxies for bank performance. The explanatory variables can be grouped into two categories. The first category is the internal factor which refers to bank-specific financial variables such as bank size, capital adequacy, liquidity, and credit risk and expense management. The second category refers to external factor that is beyond the bank's control such as macroeconomic factors. The macroeconomic factors that will be tested in this study will be Gross Domestic Product and inflation. The following paragraphs define the variables, their effect on bank's performance and how they are derived based on previous studies.

Return on Asset (ROA) is the most common indicator to measure banks' profitability or performance. ROA is measured by dividing the net income of the bank with its average total assets and it refers to the profit gained per dollar of asset. In addition, ROA also reflects the banks' ability to create profit based on the total assets in accounts. [Hassan & Bashir \(2003\)](#); [Abreu & Mendes \(2001\)](#) stated that ROA is not just measuring profitability but also as an important indicator to reflects banks' efficiency or management ability of banks. In order to measure the ROA of each Islamic bank, the ratio of net income to total assets will be taken as proxy for the measurement.

Return on Equity (ROE) is the alternative proxy used to measure banks' profitability. However but the objective differs from ROA since ROA views on whole company value, whereas ROE focuses on shareholders' value rather than company. ROE can be calculated by dividing the net income of the bank with average equity in the bank ([San & Heng, 2013](#)). ROE acts as an indicator to illustrate the effectiveness of bank management in using shareholders' equity to generate profits. Furthermore, ROE level was subject to the level of financial leverage (equity/asset) and ROA ([Hassan & Bashir, 2003](#)). Islamic banks' ROE calculation is similar to commercial banks. However, the nature of net income is difference since Islamic banks are prohibited to involve in interest-bearing investment.

Banks' with large size usually create higher level of profitability due to economy of scale which decrease the cost of gathering information or information processing and these banks also benefit from the economies of scope which allow large banks to diversify loan portfolio and access into capital market which small banks could not enter ([Abduh & Idrees, 2013](#)). In order to measure the bank size of each Islamic bank, the total assets held by the bank is used as proxy to evaluate the bank's size. [Menicucci & Paolucci \(2016\)](#) found that though bank size will result in high profitability and economies of scale, economies of scope would disappear due to the increased divarication at the time also increased more risks.

Capital serves as the wealth of banks in terms of cash and assets they owned and capital generally reflects the financial strength of the banks themselves. [Kosmidou, Tanna, & Pasiouras \(2005\)](#) defined that the ratio of total equity to total assets (EA) as a proxy to measure banks' capital strength. Furthermore, [San & Heng \(2013\)](#) explained capital adequacy reflects the banks' ability to absorb losses from investing activities by the adequate amounts of bank equity meanwhile EA ratio reflected banks' capacity to afford losses or financial risks. In addition, banks with higher level of capital usually could adhere regulatory requirements easily and the excess capital could be used to perform business activities to create revenue

(Gul, Irshad, & Zaman, 2011). Kosmidou, Tanna, & Pasiouras (2005) found that well-capitalized banks usually take lower expected bankruptcy costs and thus improve their earnings which implies that capital adequacy affects profitability positively.

Liquidity is the health of banks that refers to cash availability. In general, cash availability reflects how quickly the banks can convert assets into cash to meet the demands of lenders and borrowers. The more the liquid assets banks owned, the higher level of liquidity the banks were (Samad, 2004). Aref (2014) used the ratio of Liquid Assets to Total assets to measure banks' ability to solve financial obligations. Other researchers used other ratio to measure positive relationship between liquidity and bank profitability which is the ratio of Loans to Total Assets (LA) to measure liquidity level. In addition, the higher ratio in LA implies more liquid the banks are. Thus, superior level of liquidity is associated with inferior banks' profitability.

Credit risk was explained by Elgari (2003) which related to the borrowers' capability to repay loans on time. In the events of default, which means borrowers could not repay the principal and interest, thus, it became loss or risk for lenders or banks and the level of credit risk usually measured by the loan-loss provision to loans ratio (PL). Rhoades & Rutz (1982) explained banks' revenue usually depend on value or composition of loans portfolio since interest revenue generated from these loans. Additionally, the credit risk of Islamic banks usually arises from the events of default of repayment and eventually leads to credit risk and also liquidity risk. Athanasoglou, Brissimis, & Delis (2008) found the reverse relationship between PL ratio and ROA/ROE. Bashir (2003) found positive relationship between credit risk and profitability because if debtors are able to repay loans, the banks will generate higher profitability.

Expense management refers to the management of all expenses in the banks' operation. Rasiah (2010) suggest if banks wish to enhance profit, the banks should firstly focus on expense management and followed by fund-source management and fund-use management. Sufian & Habibullah (2009) used operating expenses to total assets (NIE/TA) or Operating Cost ratio to measure variations of banks' operating costs. The expenses included the total value of wages and salaries and also the expenses from operating office. Besides that, OC ratio not only measure the profitability of banks but also analyze managerial efficiency in producing operating earnings at the same time managing operating costs. Asutay & Izhar (2007); Said & Tumin (2011) suggest that well-organized management of operating expenses lead to increase efficiency and also profitability of banks, thus OC ratio is affecting profitability negatively. In contrast, Molyneux & Thornton (1992) concluded that OC ratio has positive effect on banks' profitability since high revenue gained by banks most probably is generated from the higher payroll expenses which paid to encourage human capital become more productive.

Gross Domestic Product (GDP) is used to measure the level of financial activity in the country. In addition, this situation may result in increasing business volume for conventional banks since the banks serve as agent of money exchange at the time the banks generates profit from the businesses or portray better financial performance (Murerwa, 2015). Kosmidou, Tanna, & Pasiouras (2005) explained the Gross Domestic Product growth rate (GDPGR) is one of the proxies to reveal the situation of the economic cycle and it is expected to affect the demand of bank loans. San & Heng (2013) provided further explanation for GDPGR as it symbolizes the annual change of GDP and the changes of GDPGR impact supply and demand for loans and savings directly. During economic expansion period, demand for loans is expected to increase according to the expansion and also the quality of the loan became more dependability, thus banks result in high profit. In contrast, the GDPGR will drop along with the economic recession which may decrease consumption power and also demand for loans. Pasiouras & Kosmidou (2007) found positive relationship between GDPGR and banks' profitability and the statement was supported by (Hassan & Bashir, 2003). Therefore, the hypothesis for Gross Domestic Product (GDP) is formed as below:

Inflation reflects the rise in the level of prices for goods and services in the market. The increased price for goods and services can actually corrode customers' buying power because they can purchase fewer goods and services with same amount of money (San & Heng, 2013). In general, higher inflation rate forces banks to increase interest rates on borrowings and the banks are getting higher profit from the enhancement of interest rate. Murerwa (2015) suggests that the impacts of inflation on banks' performance depending on whether inflation is predicted or unpredicted. In the predicted events, if banks had made amendments on interest rates along with the change of inflation rate, hence, inflation rate may influence banks' performance positively. In contrast, unpredicted inflation rate may lead debtors face financial distress which increases credit risk or potential losses for banks. Vong & Chan (2009) suggests that high inflation rate will lead to higher costs and also higher profit. This situation only occurs when banks' profit is increasing faster than the operating expense. Athanasoglou, Brissimis, & Delis (2008) found that the inflation rate has significant positive effect on conventional banks' performance. Followed by (Molyneux & Thornton, 1992; Guru, Staunton, & Balashanmugam, 2002).

The hypotheses tested are as follows:

H1a: Bank size significantly affects Islamic banks' profitability in terms of ROE.

H1b: Bank size significantly affects Islamic banks' profitability in terms of ROA.

H1c: Capital adequacy significantly affects Islamic banks' profitability in terms of ROE.

H1d: Capital adequacy significantly affects Islamic banks' profitability in terms of ROA.

H1e: Liquidity significantly affects Islamic banks' profitability in terms of ROE.

H1f: Liquidity significantly affects Islamic banks' profitability in terms of ROA.

H1g: Credit risk significantly affects Islamic banks' profitability in terms of ROE.

H1h: Credit risk significantly affects Islamic banks' profitability in terms of ROA.

H1i: Expense management significantly affects Islamic banks' profitability in terms of ROE.

H1j: Expense management significantly affects Islamic banks' profitability in terms of ROA.

H1k: Gross Domestic Product (GDP) significantly affects Islamic banks' profitability in terms of ROE.

H1l: Gross Domestic Product (GDP) significantly affects Islamic banks' profitability in terms of ROA.

H1m: Inflation significantly affects Islamic banks' profitability in terms of ROE.

H1n: Inflation significantly affects Islamic banks' profitability in terms of ROA.

Samples and Data source

Samples of ten local Islamic commercial banks are selected for observation. The following conditions must be fulfilled by the study's sample of banks.

- Islamic banks should be in Malaysia.
- The business activities carried out by these banks are similar to each other.
- The business activities of Islamic banks are in compliance with the Shariah principle.
- All the Islamic banks have own branch network.
- Islamic banks have ability to create profit.
- Most of the financial products and services of these Islamic banks are similar to each other.

The data were extracted from the annual report of each local Islamic commercial bank for 10 consecutive years from year 2007 until year 2016. The annual reports are obtained from the official website of each Islamic bank. Other relevant data are being extracted from the webpage of Bank Negara Malaysia (BNM). 100 observations have been conducted for this study.

Research Methodology

The basic equation or method used to examine the relationship between dependent and independent variables is through sum up all observations data among the 10 local Islamic commercial banks in Malaysia. The methodology being used to analysis are ordinary least square model (OLS) and fixed-effect model. The following equation will be tested to examine relationship between independent and dependent variables.

$$\text{Prof}_{it} = \beta_0 + \beta_1 BS + \beta_2 CAP + \beta_3 LIQ + \beta_4 CR + \beta_5 EM + \beta_6 GDP + \beta_7 INF$$

Where:

i : Number of local Islamic commercial banks (1, 2, 3.....10),

t : Time indicator (2007-2016)

Prof: Profitability is measured by ROA and ROE.

ROA: Return on Assets is being measured by the equation of net income/average total assets

ROE: Return on Equity is being measured by the equation of net income/average total equity

BS: Bank size is being measured by total bank assets.

CAP: Capital adequacy is being measured by the equation of total equity/total assets.

LIQ: Liquidity is being measured by the equation of liquid assets/total assets.

CR: Credit risk is being measured by the equation of total loans/total assets.

EM: Expenses management is being measured by the equation of operating expenses/total assets.

GDP: Gross Domestic Product is being measured by the total economic activity.

INF: Inflation is being measured by the annual inflation rate.

RESULTS AND FINDINGS

Table 1: Summary Statistics

Variable	Mean	Median	S.D.	Min	Max
ROE	0.133	0.119	0.071	0.042	0.631
ROA	0.009	0.008	0.004	0.002	0.022
BS	23.8	23.8	0.813	21.9	25.9
CAP	0.073	0.072	0.030	0.032	0.319
LIQ	0.997	0.998	0.003	0.984	1.00
CR	0.612	0.656	0.131	0.236	0.833
EM	0.011	0.010	0.004	0.002	0.028
GDP	0.047	0.055	0.023	-0.017	0.072
INF	0.024	0.021	0.012	0.006	0.054

Based on table 1, the mean of Return of Equity (ROE) is 0.133 with standard deviation of 0.071. The result of ROE indicated that 10 Islamic banks in Malaysia were achieved an average percentage of 13.3% for their shareholders from the period of 2007 to 2016. However, the standard deviation for ROE of 0.071 means that every bank's ROE is dispersing by 0.071 from mean over 10 years. The maximum value of ROE for 10 Islamic banks is 63.1%, which belongs to Bank Islamic Malaysia Berhad in year 2007. In addition, the minimum value over the 10 years is 4.2% that attributed to Bank Muamalat Malaysia Berhad in year 2008.

Based on table 1, the mean of Return of Assets (ROA) is 0.00924 with a standard deviation of 0.004. The result of mean discloses that the 10 Islamic banks in Malaysia were generated an average of 0.924% income by utilizing their assets. Additionally, the standard deviation of 0.004 disclosed that every bank is deviating by 0.004 on average from the mean. Since the nominator of measurement for ROA is using same element with ROE, the net income, hence the rivalry among Islamic banking industry has considered fierce.

The mean bank size is 23.8 and the value of bank size was measured by arithmetical calculation of natural logarithm. However, the standard deviation of bank size is the highest among all variables with a value of 0.813. The result shows that there are Islamic banks with relatively large sizes and banks with relatively small sizes in Malaysia Islamic banking industry. Therefore, the average means that every bank is maintaining the size of total assets or bank size at the level of 21 billion on average.

By viewing the data set of capital adequacy, the calculation showed that average capitalization for 10 Islamic banks in Malaysia is 7.3%. As updated by Bank Negara Malaysia, Islamic banks should maintain capital adequacy ratio of 8% at all times. In the cases of 10 Islamic banks, they have not achieved the requirements imposed by BNM. The standard deviation of 0.03 indicated the 10 Islamic banks are maintaining almost same capital ratio in terms of percentage. The ratio of capital adequacy disclosed the strategies that the particular has chosen in surviving in the industry. Lastly, the 10 Islamic banks are maintaining their capital ratio in the range between 5% and 10% to avoid bankruptcy.

Next, Liquidity serves as a crucial part of a bank or Islamic bank in case the bank suffers a solvency problem. From table 1, the mean of liquidity for the 10 Islamic banks in Malaysia is getting 99.7% from period of 2007 to 2016 with standard deviation of 0.003. Since Shariah law prohibited Islamic banks involving in high-risk investments, which is the reason why the results stated Islamic banks are highly liquid compared to commercial banks. In addition, the low standard deviation indicated that most of the Islamic banks are maintaining their liquidity at the level of 98% to 99%.

Credit risk level reflects the level of financing that the bank loans to customers. Since the credit risk measured by total loans divided by total assets, the result is the indicator that shows how much the bank uses to finance customers. Based on table 1, it showed every bank is financing their customer with their total assets of 61.2% on average. The standard deviation is 0.131, which disclosed that there are only a few banks used less than or more than 61.2% of total assets to finance customers.

The last variable for internal determinant is expense management, which resulted in 1.08% of mean with standard deviation of 0.004. This indicated that most of the Islamic banks are using at least 1% of capital to pay their operating expenses every year from 2007 to 2016. No matter how the banks are growing with the bank size, the operating expense has increased that corresponding to the bank size. However, expense management has measured by dividing operating expenses with total assets that capture profitability of bank.

Based on table 1, it indicated that the average economic growth of Malaysia over 10 years is 4.7% with standard deviation of 0.023. The GDP is the measurement of economic performance or the indicator of national development for a country. Therefore, the highest GDP growth rate of 7.2% in the year 2010 is the greatest progress that Malaysia achieved over the 10 years. Whereas, -1.7% of GDP implies that Malaysia is suffered setback in economic performance for the year 2009.

The inflation rate reflects that the level of prices for goods and services is rising in the market. However, the highest inflation rate over the 10 years is 5.4%. Therefore, the goods' and services' prices are going to increase by 5.4% from the original price in the year 2007. From year 2008 to year 2009, the highest inflation rate is dropping to the lowest inflation rate (5.4% to 0.6%). This implies that the goods and services are priced higher by 0.6% from the price of year 2009.

Multicollinearity

Table 2: Correlation coefficients

5% critical value (two-tailed) = 0.1966 for n = 100							
BS	CAP	LIQ	CR	EM	GDP	INF	
1	-0.402	0.199	0.405	-0.172	0.065	-0.087	BS
	1	-0.290	0.136	0.063	0.075	-0.041	CAP
		1	0.443	-0.557	0.024	-0.123	LIQ
			1	-0.241	0.071	-0.026	CR
				1	-0.072	-0.014	EM
					1	0.338	GDP
						1	INF

Based on table 2, none of the independent variables is highly correlated. Therefore, all of the independent variables can be used in the analysis together.

Table 3: Pooled OLS, using 100 observations

Pooled OLS, using 100 observations

Included 10 cross-sectional units

Time-series length = 10

Dependent variable: ROE

Robust (HAC) standard errors

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	3.482	1.764	1.975	0.080	*
BS	0.016	0.008	1.981	0.079	*
CAP	-0.378	0.143	-2.646	0.027	**
LIQ	-3.641	1.864	-1.953	0.083	*
CR	-0.046	0.094	-0.491	0.635	
EM	-2.170	1.846	-1.176	0.270	
GDP	0.082	0.393	0.209	0.840	
INF	-0.774	0.331	-2.338	0.044	**
R-squared	0.103		Adjusted R-squared	0.035	
F(7, 9)	6.914		P-value(F)	0.005	
			Durbin-Watson	0.697	

Notes: * 10% significant level; ** 5% significant level; *** 1% significant level

From table 3, the R-squared means that only 10.3% of changes in ROE can be explained by the 7 independent variables that covered in this study. Besides that, the coefficient value serves as a trend whether the independent variable is positively or negatively affecting the dependent variable, which depends on the value, is positive or negative.

The bank size is significantly affecting ROE at a 10% level of significant value because the p-value or significant value is only 0.079 or 7.9% and bank size is positively affecting ROE since the coefficient value is 0.016. The positive relationship means that the larger the bank size, the higher the profitability in terms of ROE that Islamic banks can generate. Therefore, hypothesis 1a has been supported which is bank size is significantly affecting profitability in terms of ROE.

Besides, capital adequacy is significantly affecting ROE at a 5% level of significant value due to the p-value is having only 0.027 or 2.7% and capital adequacy is negatively affecting ROE since the coefficient value is -0.3780. Based on the negative relationship, it implies that the greater the capitalization, the lesser the profitability in terms of ROE that Islamic banks can generate. Therefore, hypothesis 1c has been proved which capital adequacy significantly affecting profitability in terms of ROE.

Additionally, liquidity is significantly affecting ROE at a 10% level of significant value, which the p-value or significant value is 0.083 or 8.3%. Besides, liquidity is negatively affecting ROE since the coefficient value is -3.64. The negative relationship between liquidity and ROE indicates that the worse the liquidity for Islamic banks' operation, the greater the profitability in terms of ROE that Islamic banks can gain. Therefore, hypothesis 1e has been supported which liquidity is significantly affecting profitability in terms of ROE.

Furthermore, credit risk is not significantly affecting ROE since the p-value of 0.635 or 63.5% is higher than a 10 % level of significant value and credit risk is negatively affecting ROE since the coefficient value is -0.046. The negative relationship between credit risk and ROE implies that the higher the credit risk will result in lesser profitability in terms of ROE that Islamic banks can earn. Therefore, hypothesis 1g is rejected which credit risk is not significantly affecting profitability in terms of ROE.

The last internal determinant is expense management, which is not significantly affecting ROE since the value of 0.270 or 27% is higher than a 10 % level of significant value and expense management is negatively affecting ROE since the coefficient value is -2.17. Based on the negative coefficient value, it indicates that the greater the expense management, the lesser the profitability that Islamic banks can generate. Therefore, hypothesis 1i is rejected which expense management is not significantly affecting profitability in terms of ROE.

The first external determinant is the gross domestic product (GDP), which is not significantly affecting ROE since the value of 0.840 or 84% is higher than 10 % level of significant value and GDP is positively affecting ROE since the coefficient value is 0.082. The positive relationship between GDP and ROE implies that high GDP growth rate will results in high profitability in terms of ROE that Islamic banks can generate as well. Therefore, hypothesis 1k is rejected which GDP is not significantly affecting profitability in terms of ROE.

Lastly, the inflation rate is significantly affecting ROE at 5% level of significant value because the p-value is 0.044 or 4.4% and inflation rate is negatively affecting ROE since the coefficient value is -0.774. Based on the negative relationship between both variables, high inflation rate will reduce the profitability or ROE of Islamic banks. Therefore, hypothesis 1m has been proved which inflation rate is significantly affecting profitability in terms of ROE.

Table 4: Pooled OLS, using 100 observations

Included 10 cross-sectional units

Time-series length = 10

Dependent variable: ROA

Robust (HAC) standard errors

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	0.185	0.155	1.191	0.264	
BS	0.0004	0.0008	0.588	0.571	
CAP	0.062	0.016	3.882	0.004	**
					*
LIQ	-0.191	0.151	-1.270	0.236	
CR	0.002	0.0053	0.390	0.706	
EM	-0.038	0.188	-0.202	0.844	
GDP	-0.016	0.022	-0.725	0.487	
INF	-0.016	0.030	-0.532	0.608	
R-squared	0.265	Adjusted R-squared		0.209	
F(7, 9)	41.383	P-value(F)		0.000004	
		Durbin-Watson		0.915	

Notes* 10% significant level; ** 5% significant level; *** 1% significant level

From table 4, the R-squared means that only 26.5% of changes in ROA explained by the 7 independent variables covered in this study. Besides, the coefficient value serves as a trend whether the independent variable is positively or negatively affecting the dependent variable, which depends on the value, is positive or negative.

The first internal determinant is bank size, which is not significantly affecting ROA since the value of 0.571 or 57.1% is higher than 10 % level of significant value and it is positively affecting ROA since the coefficient value is 0.0004. According to the positive relationship between bank size and ROA, larger bank size is the source to lead an Islamic bank to generate higher profitability or ROA. Therefore, hypothesis 1b is rejected which bank size is not significantly affecting profitability in terms of ROA.

Besides, capital adequacy is significantly affecting ROA at a 1% level of significant value because p-value is 0.004 or

0.4% which is much lower than the 1% of significant level and capital adequacy is positively affecting ROA since the coefficient value is 0.062. The positive relationship implies that the greater the capitalization, the better the profitability in terms of ROA that Islamic banks can earn. Therefore, hypothesis 1d has been supported which is significantly affecting profitability in terms of ROA.

Furthermore, liquidity is not significantly affecting ROA since the value of 0.236 or 23.6% is higher than 10 % level of significant value and liquidity is negatively affecting ROA since the coefficient value is -0.191. The negative relationship between liquidity and ROA states that the better the liquidity that Islamic bank has, the worse the profitability in term of ROA that Islamic bank can generate. Therefore, hypothesis 1f is rejected which capital adequacy is not significantly affecting profitability in terms of ROA.

Additionally, credit risk is not significantly affecting ROA since the value of 0.706 or 70.6% is higher than 10 % level of significant value and credit risk is positively affecting ROA since the coefficient value is 0.002. Based on the positive relationship, it implies that higher credit risk will lead the Islamic bank to earn more profit or higher ROA. Therefore, hypothesis 1h is rejected which credit risk is not significantly affecting profitability in terms of ROA.

The last internal determinant is expense management, which is not significantly affecting ROA since the value of 0.844 or 84.4% is higher than 10 % level of significant value and expense management is negatively affecting ROA since the coefficient value is -0.038. The negative effect between both variables informs that better expense management will lead to low profitability or ROA for an Islamic bank. Therefore, hypothesis 1j is rejected which expense management is not significantly affecting profitability in terms of ROA.

The first external determinant is GDP, which is not significantly affecting ROA since the value of 0.487 or 48.7% is higher than 10 % level of significant value and GDP is negatively affecting ROA since the coefficient value is -0.016. Based on the negative relationship, it implies that the higher the GDP growth rate, the lesser the profitability or ROA that Islamic banks can generate. Therefore, hypothesis 1l is rejected which GDP is not significantly affecting profitability in terms of ROA.

Lastly, inflation is not significantly affecting ROA since the value of 0.608 or 60.8% is higher than 10 % level of significant value and inflation is negatively affecting ROA since the coefficient value is -0.016. According to the negative relationship, it implies that lower inflation rate will lead Islamic bank to generate higher profitability or ROA. Therefore, hypothesis 1n is rejected which is not significantly affecting profitability in term of ROA.

Table 5: Fixed-effects, using 100 observations

Included 10 cross-sectional units

Time-series length = 10

Dependent variable: ROE

Robust (HAC) standard errors

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	2.535	2.556	0.992	0.347	
BS	-0.050	0.051	-0.981	0.352	
CAP	-0.942	0.480	-1.965	0.081	*
LIQ	-1.071	3.198	-0.335	0.745	
CR	0.027	0.073	0.368	0.721	
EM	-7.706	4.555	-1.692	0.125	
GDP	0.257	0.456	0.563	0.587	
INF	-1.236	0.334	-3.697	0.005	**
					*
LSDV R-squared	0.431		Durbin-Watson	1.105	

Joint test on named regressors -

Test statistic: $F(7, 9) = 4.4081$

with p-value = $P(F(7, 9) > 4.4081) = 0.022$

Robust test for differing group intercepts -

Null hypothesis: The groups have a common intercept

Test statistic: Welch $F(9, 36.4) = 7.62228$

with p-value = $P(F(9, 36.4) > 7.62228) = 0.000003$

Notes: *10% significant level; ** 5% significant level; *** 1% significant level

From table 5, the R-squared means that only 43.1% changes in ROE explained by the 7 independent variables covered in this study. The p-value = $P(F(9, 36.4) > 7.62228) = 0.000003$ is an indication that implies which model is more appropriate over the other model. If the p-value is more than 1%, Hypothesis 0 can be formed as pooled ordinary least square is appropriate. If not, then Hypothesis 1 can be formed as fixed effect model is appropriate. Since the p-value is less than 1% (0.0003%), therefore H1 can be formed as below:

H1: The fixed effect model is appropriate.

Based on table 5, bank size is not significantly affecting ROE due to the p-value of 0.352 or 35.2% is higher than 10% and bank size is negatively affecting ROE since the coefficient value is -0.050. Based on the negative relationship, the larger the bank size for an Islamic bank, the lesser the profitability or ROE that the Islamic bank can gain. Therefore, hypothesis 1a is rejected which bank size is not significantly affecting profitability in terms of ROE.

Besides, capital adequacy is significantly affecting ROE at 10% level of significant value because the p-value is 0.081 or 8.1% and capital adequacy is negatively affecting ROE since the coefficient value is -0.942. The negative relationship between both variables indicates that the greater the capitalization, the higher the profitability or ROE that an Islamic bank can generate. Therefore, hypothesis 1c has been proved which capital adequacy is significantly affecting profitability in terms of ROE.

Apart from that, liquidity is not significantly affecting ROE due to the p-value of 0.745 or 74.5% is higher than 10% and liquidity is negatively affecting ROE since the coefficient value is -1.071. According to the negative relationship, it implies that the worse the liquidity for an Islamic bank, the higher the profitability or ROE that the Islamic bank can earn. Therefore, hypothesis 1e is rejected which liquidity is not significantly affecting profitability in terms of ROE.

Additionally, credit risk is not significantly affecting ROE due to the p-value of 0.721 or 72.1% is higher than 10% and credit risk is positively affecting ROE since the coefficient value is - 0.027. The positive relationship between both variables informs that the greater the credit risk for an Islamic bank, the higher the profitability or ROE that the Islamic bank able to earn. Therefore, hypothesis 1g is rejected which credit risk is not significantly affecting profitability in terms of ROE.

The last internal determinant is expense management, which is not significantly affecting ROE since the p-value of 0.125 or 12.5% is higher than 10% and expense management is negatively affecting ROE because the coefficient value is -7.705. Therefore, the negative relationship implies an Islamic bank will generate lesser profit or ROE if the Islamic bank is having better expense management. Lastly, hypothesis 1i is rejected which is not significantly affecting profitability in terms of ROE.

In the part of the external determinant, GDP is not significantly affecting ROE since the p-value of 0.587 or 58.7% is higher than 10% and GDP is positively affecting ROE because coefficient value is 0.257. The negative relationship between both variables informs that higher GDP growth rate will lead an Islamic bank to generate low profitability or ROE. Therefore, hypothesis 1k is rejected which GDP is not significantly affecting profitability in terms of ROE.

Lastly, inflation is significantly affecting ROE at 1% level of significant value because the p-value is 0.005 or 0.5% and inflation is negatively affecting ROE since the coefficient value is -1.236. Thus, the Islamic bank will produce lesser profit or ROE if the year's inflation rate is higher. Lastly, hypothesis 1m has been supported which inflation is significantly affecting profitability in terms of ROE.

Since the fixed effect model is more appropriate than pooled ordinary least square model, the results of fixed effect model are being adopted in analyzing the findings in chapter 5. Hence, the significance and coefficient of the independent variables that correlated to the dependent variable have been organized and listed down in table 6 as below.

Table 6: Fixed-effects, using 100 observations

Included 10 cross-sectional units

Time-series length = 10

Dependent variable: ROA

Robust (HAC) standard errors

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	0.151	0.171	0.884	0.400	
BS	-0.001	0.002	-0.635	0.541	
CAP	0.047	0.009	5.510	0.0004	**
					*
LIQ	-0.118	0.189	-0.625	0.548	

CR	-0.002	0.004	-0.486	0.639
EM	0.033	0.116	0.282	0.785
GDP	-0.006	0.022	-0.284	0.783
INF	-0.031	0.026	-1.201	0.261
LSDV R-squared	0.592		Durbin-Watson	1.584

Joint test on named regressors -
Test statistic: $F(7, 9) = 197.731$
with p-value = $P(F(7, 9) > 197.731) = 0.000000004$
Robust test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: Welch $F(9, 36.4) = 7.26184$
with p-value = $P(F(9, 36.4) > 7.26184) = 0.000006$

Notes: * 10% significant level** 5% significant level*** 1% significant level

From table 6, the R-squared means that only 59.2% of changes in ROA explained by the 7 independent variables covered in this study. The p-value = $P(F(9, 36.4) > 7.26184) = 0.000006$ is an indication that disclose which model is more appropriate over the other model. If the p-value is more than 1%, Hypothesis 0 can be formed as pooled ordinary least square is appropriate. If not, then Hypothesis 1 can be formed as fixed effect model is appropriate. Since the p-value is less than 1% (0.0006), therefore H1 can be formed as below:

H1: The fixed effect model is appropriate.

Based on table 6, bank size is not significantly affecting ROA due to the p-value of 0.541 or 54.1% is higher than 10% and bank size is negatively affecting ROA since the coefficient value is -0.001. The relationship discloses the larger the bank size, the lesser the profitability in terms of ROA that an Islamic bank can earn. Therefore, hypothesis 1b is rejected which bank size is not significantly affecting profitability in terms of ROA.

Besides, capital adequacy is significantly affecting ROA at 1% level of significant value because the p-value is 0.0004 or 0.04% and capital adequacy is positively affecting ROA since the coefficient value is -0.047. Therefore, the greater the capitalization for an Islamic bank, the higher the profitability in terms of ROA that the Islamic bank can generate. Lastly, hypothesis 1d has been proved which capital adequacy is significantly affecting profitability in terms of ROA.

Apart from that, liquidity is not significantly affecting ROA because the p-value of 0.548 or 54.8% is higher than 10% level of significant value and liquidity is negatively affecting ROA since the coefficient value is -0.118. The negative relationship for both variables informs that an Islamic bank will generate lesser profit or ROA if the Islamic bank is operating the business with high liquidity. Therefore, hypothesis 1f is rejected which liquidity is not significantly affecting profitability in terms of ROA.

In addition, credit risk is not significantly affecting ROA because the p-value of 0.639 or 63.9% is higher than 10% level of significant value and credit risk is negatively affecting ROA since the coefficient value is -0.002. Based on the negative relationship, an Islamic bank will gain lesser profit or ROA if the Islamic bank is having high credit risk. Therefore, hypothesis 1h is rejected which credit risk is not significantly affecting profitability in terms of ROA.

The last internal determinant of expense management is not significantly affecting ROA because the p-value of 0.785 or 78.5% is higher than 10% level of significant value and it is positively affecting ROA since the coefficient value is 0.033. Thus, the relationship implies that the better the expense management, the higher the profitability in terms of ROA that an Islamic bank can generate. Lastly, hypothesis 1j is rejected which expense management is not significantly affecting profitability in terms of ROA.

Apart from the internal determinant, GDP is not significantly affecting ROA because the p-value of 0.783 or 78.3% is higher than 10% level of significant value and GDP is negatively affecting ROA since the coefficient value is -0.006. Based on the negative relationship, an Islamic bank will produce lesser profit or ROA if the year's GDP growth rate is higher. Therefore, hypothesis 1l is rejected which GDP is not significantly affecting profitability in terms of ROA.

Lastly, inflation is not significantly affecting ROA because the p-value of 0.261 or 26.1% is higher than 10% level of significant value and inflation is negatively affecting ROA since the coefficient value is -0.031. The negative relationship informs that the higher the inflation rates of the particular year, the lesser the profitability in terms of ROA that an Islamic bank can gain. Therefore, hypothesis 1n is rejected which inflation is not significantly affecting profitability in terms of ROA.

CONCLUSION

This study conducted against Islamic banks performance in term of Return on Equity (ROE) and Return on Assets (ROA).

Whereby some of the variables are significantly affecting the performance and some are not. By viewing the results from fixed effects model, capital adequacy and inflation rate are significantly affecting ROE and only capital adequacy is significantly affecting ROA. For these variables that significantly affect Islamic banks performance, there are some individuals might be interested in this study for example, investors, investment analyst and Islamic banker. In addition, ROE and ROA are the measurements for viewing corporate health and commercial or Islamic banks performance. Thus, ROE and ROA serve as the criteria for the observation of investor to decide investment direction. Since the ROE is being affected significantly by the capital adequacy and inflation rate, investors may look in the variables to observe how the variables affect Islamic banks performance. Capital adequacy also knew as the capital level in the financial institutions, which tell investors which option is better, shareholder or creditors. As mentioned early, capital adequacy is negatively affecting the Islamic banks performance. Thus, investors are able to know how the volatility of capital level affects the ROE and compare the ratio of multiple Islamic banks in order to choose the best option. In addition, the changes of the capital level are an indication that the Islamic bank may be planned to fund a superb project. That's why the Islamic bank needs capital or external funding's. Hence, investors are able to know the better return among two options such as choose to become shareholders or depositors according to the return.

Besides that, capital adequacy not only affected the ROE but also the ROA positively. In other words, the increases in capital level will increases the ROA of an Islamic bank as well. Based on the changes in capital level, investors will notice that the ROA is supposing to increase which implies that the Islamic bank's management on loans portfolio is efficient. Investors will benefit from this study that they will understand how good the Islamic banks in utilizing the capital or external funds to generate returns for them. If the ROA is not improving when the funds are increased, investors should re-conduct the research about the investment in Islamic banks.

Inflation is also one of the variables that impact the percent of ROE negatively and the negative relationship implies that investors owned not enough funds to make an investment while the inflation is high. Therefore, investors should notice that the ROE of an Islamic bank may drops while the inflation rate is higher than previous. The reason is the borrowers of Islamic banks are unable to afford the increasing price of raw material or essential part of business. So, Islamic banks are forced to absorb the losses based on the profit or loss sharing ratio which reduces the profit of Islamic banks and reduces the ROE simultaneously. Hence, investors should take inflation into consideration to examine the performance of Islamic banks when they are interested in this area of investment. Islamic banking industry is particular investment opportunities that possess unique features for the operation such as interest-free or Riba for the deposit and the financing. Therefore, investment analysts should examine the opportunities carefully by measuring the capital adequacy and inflation and corresponding effects on ROE and ROA.

For future researchers who interested in the topic of Malaysian Islamic bank's performance or profitability, the researcher recommends that future studies should cover all Islamic banks in Malaysia since this study only analyses 10 Islamic banks. Instead, there are 16 Islamic banks are located in Malaysia. Therefore, the study of 16 Islamic banks' performance will discover results that are more reliable and improve the feasibility of these kinds of research. Besides that, future studies should include risk analysis to examine the performance of Islamic banks in order to conclude the results that are more helpful for reality practice. Due to most of the ratios in this study are using static elements to measure the performance of Islamic banks, hence the future study should cover risks in the variables to transform the static variables become too dynamic variables. Therefore, the results of the future study will fill up gaps that this study is not yet studied. Last and foremost, future studies should compare the results of Islamic banking with the performance of commercial banking in order to perfect the analysis of the performance of banking industry in Malaysia. Since this study only focuses on the performance of Islamic banking, hence the efficacy of this study would less helpful for third parties. Therefore, the comparison between Islamic banking with commercial banking is more applicable to third parties to conduct researches. Lastly, the analysis of both types of banking is contributing to the government to observe the financial environment and adjust the monetary or fiscal policy.

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