



Effect of Monetary Aspects on the Performance of Islamic Banks in Indonesia

Maya Panorama*

Faculty of Islamic Economic and Business, State Islamic University of Raden Fatah, Palembang, Indonesia.

*Email: maya.izuddin@yahoo.com

ABSTRACT

Actually, issue about bank performance is not special anymore. However, this topic in a dual banking system still an interesting issue. As in Indonesia, which have Islamic bank in a conventional economic system this Islamic bank performance (IBP) influence direct by monetary aspect. Using a quarterly panel data set from period 2001 until 2015; this research used econometric tools. Result shows that all variables are significantly affected. We prefer to used random effect that show the positive sign for money supply (MS), exchange rate (EXC) and interest rate (INTR) and negative sign for customer price index (CPI). Then the result on long term used autoregressive distributed lag approach found that for pooled mean group (PMG) variable MS and INT have positive significant while EXC and CPI variable are negative significant. In MG estimates (long term), MS, EXC and INTR are found to be positive significant while CPI variable have negative impact on IBP. Further more, in short time, PMG estimates result that MS and EXC shows negative impact and variables than have positive impact are CPI and INTR. While result in short run for MG estimates shows that MS, CPI and INTR have positive impact. Then EXC have negative impact. We suggest the government must always keep the monetary condition in a balance and healthy environment that support the development and improvement of Islamic Banking. Especially manage the INTR which is always have positive impact in all condition model.

Keywords: Islamic Bank Performance, Customer Price Index, Interest Rate, Money Supply, Exchange Rate

JEL Classifications: E52, G21

1. INTRODUCTION

Islam is one of religion that has a complete system of life. Islam is composed of legal maxim and rules to be adhered and practices by the followers in all field and life activities. It is sadly to mention that until quite recently, the Muslims in the whole world have never succeeded in compiling and practicing such laws and rules specifically when dealing with banking and financial affairs (Yatim et al., 2007).

According to Al-Jarhi (2004), there are three concepts related to its understanding about the issue of philosophical underpinnings of Islamic finance. First, the Islamic law (sharia) from which the idea of Islamic banking has been drawn. Second, monetary and macro theory, which helps explain why Islam considers dealing through the rate of interest as totally unacceptable, and the economy wide consequences of this prohibition. Third, banking theory it self

which help to explain the nature of Islamic banking and finance as well as to assess its comparative performance.

Perwataadmaja (2009), states that with their own witness to the impact of the economic crisis, banks where there are no Sharia bank become victims. ss can be checked on the Financial Reports P.T. Bank Muamalat Indonesia Year 1997, the only sharia public bank, this showed best performance with the increase in net profit to reach 134%, increase in assets of 14% of 515.5 billion Rupiah in 1996 to 588.5 billion rupiah in 1997, and the more steady belief that society can be seen from the increase in savings of public funds is 11%. Apart from that, although not obtained information about the performance Islamic Rural at the overall the record note that as many as 77 of these banks have been about 30% can be healthy.

Octaviana (2007) represented that trend of increasing interest rates (INTR) because an increase in the risk of displacement (the

diversion of funds from bank sharia to bank conventional) faced sharia banking. This has caused the growth of sharia banking deposit slightly obstructed in the quarter, especially when the estimated 3-2005 decade more than IDR1 trillion in client funds transferred, even if at the end of the year, sharia banking successfully restore depositor confidence in both the corporate and individuals with a marked growth of deposit at IDR 2, 2 trillion. In terms of profitability, in 2005 capable of sharia banking record level profit of IDR 238.6 billion or increased by IDR 76.3 billion (47%) from the previous year. However, there is a decrease in the ratio of profit to assets under management, from 1.41% (2004) to 1.35% (2005) caused by the increase in bank policy carefully in order to anticipate the increase in the risk of financing in line with the decrease of business climate. To anticipate the next request that is still quite high in the midst of economic conditions less conducive, in order to maintain the healthy condition of the capital, the banks attempt to increase the number of sharia capital. In 2005, commercial banks recorded capital sharia is increasing IDR 0.22 trillion, so that the capital adequacy ratio of commercial banks at the end of the sharia in 2005 was 12.9%, or still are healthy.

Ibrahim (2003), states that the government promotes a dual banking system that allows conventional banking and Islamic banking to operate side by side as a form of political wills to accommodate. Indonesian people who do not wish to place their funds in a conventional system and to have financial services based on sharia principles. The development of Indonesian banking system is not running without any challenge and obstacle. The most inexistence of efficient arbitrage institutions and adequate and proper regulating framework, inappropriate market perception about the nature of Islamic banking and the scarcity of high skilled human resources resulting in low level of operational efficiency of the industry.

The development of Islamic Banking is phased into three main stages that focus on different emphasizes. The first stage puts strong foundation for sustainable development. The initiatives conducted includes promotion for a better understanding of the Islamic norms by market players, improving foundation for prudential regulation and good corporate governance, supporting efforts to improve operational efficiency and equipping the system with analysis to support systemic stability. The second stage focuses on strengthening industrial structure. The initiatives conductive cover the implementation of a more effective integrated supervisory framework combining the financial aspect as well as sharia aspect, implementing risk based regulatory system for Indonesian Islamic Banking, supporting strategic alliance and cooperation with related supporting institutions and preparing an appropriate safety net scheme that sustain financial system stability nationally. The third stage focuses on efforts to comply with international standards for financial products and services. The initiatives conducted include the realization of integrated rating system that accommodates sharia and financial aspects, the promotion from the establishment of self regulatory banking, the support for the establishment of internationally competitive players, and finally supporting the realization of a comprehensive and integrated Islamic financial system (Ibrahim, 2003).

Karim (2009) suggested that sharia banking growth in Indonesia start with high speed and in any time this can caused over heating. In the context of Islamic banking, overheating by the rapid growth will increase financing problems and decrease for the saving from customer.

Since the first Islamic banking (Bank Muamalat) establish, development of Islamic banking In Indonesia raise up and growth faster. But its increase just from the number of bank or unit or branch not from market share. Until 2007, market share from Islamic banking in Indonesia just 2%.

Islamic banks seem only related to the real sector, even though when he competed out with other banks are many factors that can affect its performance including the monetary aspect.

The importance of the role of the monetary aspects of Islamic bank performance (IBP) in a dual banking system in Indonesia is an interesting phenomenon to be investigated. How much influence the monetary aspects of the performance of Islamic banks.

2. LITERATURE REVIEW

Wilson (1990), indicated that stagnation or development, the growth of Islamic banks the last two decades has been extremely impressive and there is little doubt that with their large customer base, Islamic financial institutions are here to stay and are not merely a passing phenomenon.

Money also contributes to economic development and growth. It does this by stimulating both saving and investment and facilitating transfers of funds out of the hoards of savers and into the hands of borrowers, who want to undertake investment projects but do not have enough of their own money to do so. Financial markets give savers a variety of ways to lend to borrowers, thereby increasing the volume of both saving and investment and encouraging economic growth. If uncontrolled, money can cause hyperinflation (Ritter et al., 2000).

According to Thomas (1986), from a board macroeconomic point of view, the principal economic goals which those responsible for monetary and fiscal policy are concerned with are: Full employment, price level stability, economic growth and balance of payment equilibrium or perhaps the value of the dollar in foreign exchange markets.

Majid et al. (2003) mentioned that the performance of Islamic banks must primarily be judged with reference to the extent they help in building up this sort of society. Once they cross and can stay above the breakeven points, profit efficiency can be, in a measure, traded off for promoting the stated Islamic norms. We need not judge the Islamic banks performance entirely on the mainstream criteria or compare them with conventional institutions on the latter's grounds. Social objectives of business in Islam moderate worldly temptations; people are required to overpower the relentless pursuit of profit in business. Majid et al. (2003) highlight four measures of performance such as: The net

non-interest margin (NIM), profit margin (BTP/TA), returns on assets (ROA), and returns on equity (ROE).

Rosly and Bakar (2003) represented ratios measuring bank profitability performances as follows. ROA; return on deposit (ROD); PM; asset utilization; operating efficiency ratio (OER); and investment/interest margin. The first profitability ratio, the ROA, shows a higher value for IBS books when compared with mainstream banks. Further evidence provided by the interest and investment margin ratio in mainstream and IBS banks. Investment margin is the difference between revenues from financing and payments on deposits divided by earning assets. It is a more accurate measure of efficiency given that fixed assets excluded since it does not earn interests or profits. Increasing banking profits by way of increasing productivity measured by the OER, which is equal to operating expenses divided by revenues. Since the bulk of operating expenses were borne by the parent bank, the results are predictable showing higher revenue generation by the IBS banks at a lower operating expense compared with the mainstream bank. The Islamic bank's average OER was 75.54% compared to 91.15% of the mainstream bank. The differences between the two means under study are statistically significant at the 5% level. Further impact on of the IBS banks given by the profit-margin ratio. Our results show that the PM for IBS banks is higher than mainstream banks at 19.78% and 5.92%, respectively. Similar to the above reasoning, the higher ratio for IBS banks can be explain by the overhead factor. Finally, ROD ratios for IBS banks and mainstream banks were inconclusive since the difference in means is not statistically significant. Thus, the higher ROD ratios reported for IBS banks have occurred by chance. This is true revenues and interest expense divided by earning assets. Investment margin is the difference between revenues from financing and payments on deposits divided by earning assets. It is a more accurate measure of efficiency given that fixed assets excluded since it does not earn interests or profits.

Bashir and Abdel (2000) proposed four measures of performance are used: The net NIM, profitability (BTP/TA), ROA, and ROE. In general, Islamic Banking operations characterized by a high degree of financial risks. Bashir use the ratio of total liabilities to total assets (LATA) as a proxy for risk. External to the bank, four sets of control variables expected to impact performance: The macroeconomic environment, the financial market structure, the regulation indicators, and country (dummy) variables. Sample used 14 Islamic banks from 1993 to 1998. Estimates the relation between profitability and bank characteristics and the taxation variables. Both EQTA and LOANTA have strong positive and statistically significant relationships with profitability, confirming previous findings. Intuitively, higher leverage and higher loans to assets ratios predict higher future profits. However, when these variables were interacted with gross domestic product (GDP), the signs of the association changes to inverse relationship but remained statistically significant. Short-term and consumer funding, CSTF, has the predicted negative association with PRM, although statistically insignificant. However, when interacted with GDP, its impact on profit became positive. Other meaningful determinants of profitability include NIETA, OVRGDP, FRNGDP, and LATA. The strong positive. Association between

the risk indicator, LATA, and BTP/TA should be emphasized. A part from revealing the importance of leverage in the practice of Islamic banks, it indicates that Islamic banks have incentives to undertake more risks. After controlling for the macroeconomic environment, the only bank characteristics impacting PRM are the ownership variable and its interaction with GDP. The impacts of EQTA and LOANTA are now statistically insignificant. He found that although the market capitalization variable, MCAP, has an inverse but statistically insignificant relationship with BTP/TA, the result shows a strong positive association between BTP/TA and BNK, BNKGDP and MCPBNK.

According to Hassan and Bashir (2003), the profitability of Islamic banks positively influenced by high capital and loan-to asset ratios, favorable macroeconomic conditions, and negatively to taxes banking markets, increased competition, negatively affected interest income, but was of no effect on non-interest income. They used a panel of Islamic banks from 22 countries, and multiple efficiency techniques including parametric and non-parametric methods.

Clair (2004) point out macroeconomic factor affecting the performance of Singapore's three local banks over a short/medium-term horizon. He suggested that theoretical determinants of banks performance and financial establishment can be analyze by two: Micro and macro. Micro bank specific such as: Individual risk exposure, operating strategies, and the degree of management expertise. Macro factors such as GDP growth, unemployment, INTR, exchange rates (EXC) and the level of competition.

Bacha (2004) said that by choosing a strategy of replicating the products of conventional banks, Islamic Banks (Ibs) have grown in tandem with the overall growth of the banking sector in Malaysia. He also argued that Islamic banks in Malaysia may be affected by INTR movements in the conventional sector.

Zeman and Jurca (2008), the authors apply the multivariaten regression method using real GDP, the output gap, exports, industrial production, oil prices, the customer price index (CPI), M1, nominal INTR, and nominal EXC as explanatory variables for NPL dynamics. Real GDP, the nominal EXC and the nominal INTR are the most important variables influencing NPL dynamics. He used the multivariate regression method to analyzed real GDP, the output gap, exports, industrial production, oil prices, the CPI, M1, nominal INTR, and nominal EXC as explanatory variables for NPL dynamics.

Arpa et al. (2001), found the main findings for the 1990s in Austria are as follows. Austrian banks increase risk provisions in times of falling real GDP growth rates and in times of rising bank operating income or operating results. The operating result of Austrian banks can be explained by and large by the same variables that explain their bank operating income. Overall, some macroeconomic variables such as INTR, real estate and consumer prices can be used to explain the income side, profitability and financial stability of Austrian banks. Structural changes, such as increased competition, joining the single market and the opening up of eastern European markets, have certainly also had a strong impact on Austrian banks.

Jiang et al. (2003), revealed the macroeconomic environment has played a central role in affecting bank profitability in recent years. Between 1992 and 1996, the average ROA rose by 0.7% points. Macroeconomic influences played a much smaller role in determining banks' profitability over this earlier period. The negative effect on profitability from lower inflation was offset by higher real INTR, while the slowdown in real GDP exerted a small negative effect on profitability. By contrast, macroeconomic factors seem to explain much of the decline in the average ROA of 0.7% points between 1997 and 2002. Deflation made the largest contribution to declining profitability. This was only partly offset by banks' efforts to respond to the adverse operating environment by diversifying into non-interest income business. Empirical analysis finds that both bank-specific as well as macroeconomic factors are important determinants in the profitability of banks. With regard to macroeconomic factors, real GDP growth, inflation and real INTR have a positive impact. Among bank-specific variables, operational efficiency and business diversification contribute to higher ROA, after controlling for differences in the credit quality of loans. The deterioration in profitability in recent years is mainly attributable to the adverse macroeconomic environment in Hong Kong.

Boyd and Champ (2006), who found that the impact of inflation on banking lending, assets return and bank profitability. According to them, Inflation reduces bank lending to the private sector, which is consistent with the view that a sufficiently high rate of inflation induces banks to ration credit. Moreover, inflation affects bank lending even at relatively low inflation rates. High inflation lowers the real ROA. They found that inflation is negatively associated with real money market rates, real treasury bill rates, and real time-deposit rates; that is, as inflation increases, the real rate of return on these instruments falls. Also there is no significant statistical relationship between inflation and the real bank loan rate. Inflation does appear to have a negative impact on bank profitability measures. The impact of inflation on real rates is most evident at the extreme. The economies in our highest-inflation quartile experienced real money market rates and real treasury bill rates of around zero percent on average during the time period studied.

Demirgüç-Kunt and Huizinga (1999) Claessens et al. (2000) represented, asset quality, measured by NPLs for bank i at time t ($NPL_{i,t}$). Macroeconomic variables reflecting by economic growth and inflation, financial variables reflecting by INTR and changes in property prices and bank-specific variable reflecting asset size and sectoral concentration in lending. Bank-specific variables that can be divide into three groups: (a) Variables capturing the structure of assets and liabilities; (b) variables capturing the structure of income and expenses; and (c) sector concentration.

3. METHODOLOGY AND DATA

The empirical model to test the influence of monetary aspects i.e.: INTR, inflation rate, EXC and money supply (MS). Models that we proposed here follows the work of Molyneux and Thorton (1992), Saliza and Ismail (2009), Hassan (2007), Drake et al. (2006), Şakar (2008), Burki and Niazi (2003) and others that mentioned in literature review. The simplest model based on Cobb-Douglas production function presented and the extension of the model is

then extended based on the existing literature.

In this study, our model adopted from Adongo and Deen-Swarrray (2005) with some modification as follows:

$$ROA = f(INTR_{it}, CPI_{it}, EXC_{it}, M2_{it}) + \mu_{it}$$

As data do not have the same numeric, in order to steer clear of heteroskedasticity issue, the translog model is transformed into a semilog model. Given the above literature discussed and the Equation (1), we proposed and empirical model for monetary aspects that affect the performance of Islamic banking as follows:

$$ROA_{it} = \alpha + INTR_{it} + CPI_{it} + \ln EXC_{it} + \ln M2_{it} + \mu_{it}$$

Where,

ROA = Performance of Islamic Banking (ROA) (percentage)

INTR = Interest rate consist of 3 months deposit rate of return (percentage) (Obiyathulla, 2004)

CPI = Customer price index (percentage)

lnEXC = Exchange rate i.e.: Nominal exchange rate (IDR)

lnM2 = Log of the money supply (IDR million)

μ = Standard error

i = Refer to Islamic Banking as individual

t = Time series

Based on the procedures in examining panel data, the most suitable estimation methods discussed under many conditions to enable the achievement of the study objectives. Majority of monetary data like rates of exchange, rate of interest are often non-stationary in a sense that it contains a unit root or a stochastic trend (Greene, 2003). The procedure are using fixed effect versus random affect; panel unit root tests Levin et al. (LLC, 2002); Im et al. (IPS, 1997); and Maddala and Wu (1999); finally using autoregressive distributed lag (ARDL) approach.

Characteristic of Islamic bank sample: BRI Sharia, BNI Sharia, Bank Muamalat Indonesia, Bank Sharia Mandiri, Bank Syariah Mega, Bank Jabar syariah, Bank HSBC Sharia, Bank Dki syariah, Bpd Riau Sharia, Bank Kalsel syariah, Bank Niaga syariah, Bpd Aceh Sharia, Bank Permata syariah, Btn syariah, BII Sharia. Moreover, the macro datasets are taken from the quarterly basis from the first quarter of 2005 until the fourth quarter of 2015.

4. RESULTS

4.1. Analysis of Monetary Aspects on Islamic Banking Performance

Typically, the indicator that measures financial stability can be divided into internal factors, external factors, and contagion factors

(Morttinen et al., 2005). In this study, the proposed monetary aspect as internal factors which have direct and indirect impact on the bank's performance.

Two primary features are highlighted when analyzing the state of the banking sectors and the macroeconomic conditions in the new EU members states (Brzoza-Brzezina, 2005); the catching-up process in these economies along with the banking sectors' general procyclicality, supports the requirement for growing credit; and the nominal convergence of decreasing INTR leading to the increase in the demand for leveraging among companies and boosting private consumption.

The Islamic banking in Indonesia practices dual banking system in an environment with dual regulations. So somehow INTR can take affect in times while in others, it does not. This situation also happen in regulation, regulation were chosen that works under dual banking system. In addition, the BI rate were chosen accordingly and therefore, its sign can be either positive or negative.

4.2. Fixed Effect and Random Effect

In order to maintain a constant individual heterogeneity Bank, random effects and fixed effects model were used and to make comparisons between the two effect, Hausman specification test (Hausman, 1978) is performed. A model correctly determined if the individual effects are not correlated with the independent variable where the effect of fixed and random effects estimators are not statistically different.

Individual effect is not correlated with the independent variable is received at a rate of 10% indicates that the difference between fixed effects and random effects systematic which means that it is in favor of a random effect. The heterogeneity and endogeneity problem banks controlled through the adoption of two-stage least squares estimation of fixed and random effects as recommended Baltagi (2006).

The Hausman statistic used to test the null hypothesis that the regressors and individual effects are not correlated in an attempt to distinguish between the effects of fixed and random effects models. Failure to reject the null hypothesis indicates that the random effects model is preferred. With the rejection of the null hypothesis, fixed effects model, fixed effects model fit. On the basis of statistics Hausman test, the null hypothesis is rejected, which shows that the country specific effects correlated with regressors. Thus, the fixed effects model accordingly and hence is preferred over the random effects model. As a former match, interpretation concentrated on it.

Hausman test is used to determine the model of the superior of the two; fixed effect of random effects. Stated differently, the test determines whether random or fixed effects are not correlated with the explanatory variables. The Hausman specification test statistics indicate that fail to reject the null hypothesis, and it showed no systematic differences between fixed and random models. This confirms that the random effects estimator is efficient in the framework of our empirical monetary indicators effect on the performance of Islamic banking.

The MS variable ($\ln M2_{it}$) coefficient has a positive sign by 2464 in a random effects model, and very significant at the 1% level. The positive sign indicates that the variable MS directly related to the performance of Islamic banking. These results are consistent with Kosmidou (2008); Mamatzakis and Remoundos (2003). As for the term or the M2 MS (M2 namely: M1 + time and savings) (www.bi.go.id), a positive sign indicates that if M2 increases, Bank Islam will increase performance. It is natural that the Islamic Bank's performance depends on the increase in output that is reflected in deposits (time and savings). If people are willing to spend their money (cash transactions) to invest in time and savings deposits.

The EXC variable ($\ln EXC_{it}$) intended as a proxy for foreign sector or balance trade. The distance variable in the random effects model has the right sign in the sense that it increases the IBP positively. The coefficient is 3.426 and statistically significant at 1% level. It is in line with Seuraj and Watson (2008). It indicates that this variable may influence Islamic bank activity on their input side; for example, from the other operational cost that comes from other operational expenses.

The customer price index variable (CPI_{it}) intended as a proxy for inflation rate. The CPI variable in the random effects model has the right sign in the sense that an increase in IBP negatively correlated with the CPI variable. The coefficient is at -1.359 and statistically significant at 1% level. This result is in line with the studies by Yap and Kader (2008), Akmal and Saleem (2008), Demirguc-Kunt and Huizinga (1999), Kosmidou (2008), Staikouras et al. (2008), Singh (2010).

The INTR variable ($INTER_{it}$) intended as a proxy for monetary sector. In the basic monetary theory, it directly affects bank system. This INTR frequently affect deposits and financing of Islamic banks. This is consistent with our result that shows positive sign relation (0.6833) and to IBP with statistical significance at 1% level. This result is in line with Demirguc-Kunt and Huizinga (1999), Staikouras and Wood (2003).

As expected, the IBP, ROA_{it} correlated significantly and positively with each other. The coefficient is 68.469 in random effects model and statistically significant at 5% level. Given the strong and positive relationship between IBP and monetary aspects, the existence of a strong significant correlation between IBP and MS, EXC, and INTR indicates that all of them are fairly effective in increasing IBP (Table 1).

The goodness of fit reflected by the R^2 , as well as the total number of observations were given in the final rows. The overall goodness of fit of estimation of the model can be concluded that the specified models explain the variable effect that the IBP extends.

4.3. Result of the Panel Unit Root Test

Concept of panel root tests carried out by researchers characterized by significant disadvantages in addition to the cross-sectional dependence as possible throughout the panel time series of individuals (e.g., Maddala and Wu, 1999; Levin et al., 2002; Im et al., 2003). However, when the assumptions to uncorrelate unit

cross section, this model is given to be the macro economy does not make sense as the correlation contemporary can be raised due to be eliminated is observed or not observed similar factors, the effects of spill-over spatial or interdependence of residual public persists even when common factors remain constant (Breitung and Pesaran, 2008).

In an effort to determine whether all of the variables in a dataset integrated panel in the same order, Im et al. (2003), Levin et al. (2002) and Maddala and Wu (1999) test was employed. The results showed that all variables are at the level of non-stationary and the first difference.

Similar to standard cointegration tests, it is important to determine the properties of stationary data to ensure the correct conclusion. This test is different from a standard unit root tests of individual time series. The test unit root tests augmented Dickey-Fuller (ADF) conventional strength testing revealed low (Coakley et al, 1996; Coakley and Kulasi, 1997). Their inability to reject the unit root null of data can be owed to strength testing. Panel unit root tests have been reported to have superior strength compared to the individual ADF unit root tests as the former consider the cross-sectional and time series variation in the data and this adds to the strength of the test because it will increase the number of observations available in the settings panel.

To see if their unit root in panel data settings and to confirm the results of the roots of the individual units of the ADF test, the test panel unit based on the Levin et al. (2002) and Im et al. (1997) procedure and Maddala and Wu (1999) (LLC and IPS and ADF respectively) used in the data panel. The test was developed so that the null hypothesis is tested with the inclusion of the entire series in the panel, which consists of a unit root against the alternative that none of them contain a unit root. Although the test allows for heterogeneity in the panel (in order lag or the right value to the parameter auto-regressive) all series should have a common stationary nature.

Findings of the LLC and IPS and panel unit root tests ADF at a level that indicates that all the variables I (0) in constant unit root panel regression. This indicates that the null hypothesis of the unit root panel on the level of the series cannot be rejected on various long

lag. Here the assumption is that there is no time trend. We tested for stationary allow for constant trend plus waktu. Tidak their constant trend plus the time, again we find that the null hypothesis has generally refused panel unit roots in all series in the form of levels.

This research believe that most of the variables are non-stationary in with and without time trend specifications at level by applying the LLC and the IPS tests which are also applied for heterogeneous panel to test the series for the presence of a unit root. The results of the panel unit root tests confirmed that the variables are non-stationary at this level.

The application of LLC and IPS tests calls for careful consideration of selecting the lag length for the ADF tests, as the underestimation of the actual number of lags may result in lack of power. The Akaike's information criterion (AIC) also employed in selecting the suitable number of lagged differences term for the five tests to calculate results. The AIC is widely used for choosing the maximum appropriate lag length (Shrestha and Chowdhury, 2005). McKinnon's tables reveal the aggregate distribution of both LLC and IPS test statistics.

The tests run for the full sample of the DMU 15 Islamic bank in Indonesia for the period 2005-2015. Presents the results of the LLC and the IPS panel unit root tests at the level indicating that all variables (money supply [$\ln M2_{it}$], exchange rate [$\ln EXC_{it}$], consumer price index [CPI_{it}], net export [$\ln NET_{it}$], interest rate [$INTER_{it}$]) are in the constant of the panel unit root regression. These results clearly show that the null hypothesis of a panel unit root in the level of the series cannot be rejected at various lag lengths. We assumed that there was no time trend. Therefore, we tested for stationary allowing for a constant plus time trend. In the absence of a constant plus time trend, again we found that the null hypothesis of having panel unit root was generally rejected in all series at level form.

Based on the data, we underline that most of the variables are non-stationary in with and without time trend specifications at level by applying the LLC and the IPS tests which are also applied for heterogeneous panel to test the series for the presence of a unit root. The results of the panel unit root tests confirmed that the variables are non-stationary at this level (Table 2).

4.4. The ARDL Approach

Two examine this research developed methods of statistical analysis of dynamic panel data namely, the mean group (MG) and the pooled mean group (PMG) estimation. The MG estimation obtains long-run parameters for the panel from the average of the long-run parameters from ARDL models for each country (Pesaran and Smith, 1995).

The estimation results from the PMG, MG and dynamic fixed-effect estimator (DFE) estimations are presented. DFE is the control estimation but PMG and MG are estimation of ARDL approach. In general, all the estimators are significant. Since the model is semi-log, so the impact of log variable (M2, EXC, NET) on IBP can be computed in percentage terms as:

$$100 \times [\exp(\beta \ln \text{Var}) - 1.00].$$

Table 1: Affect of monetary aspects on Islamic banking performance

Dependent variable: ROA_{it}		
Variables	Fixed effects model	Random effects model
Constant	68.481** (2.49)	68.469** (2.53)
$\ln M2_{it}$	2.468*** (4.31)	2.464*** (4.38)
$\ln EXC_{it}$	3.437*** (6.52)	3.426*** (6.63)
CPI_{it}	-1.360*** (-3.95)	-1.359*** (-4.02)
$INTER_{it}$	0.692*** (3.44)	0.6833*** (3.49)
F test	15.397 [0.937]	
LM test		7.75** [0.0056]
Hausman test	18.36 [0.90831]	
R ²	0.3834	0.3933
Number of observation	644	644

***Indicates significant at 1%, **indicates significant at 5%, and *indicates significant at 10%; t-statistics are in parentheses () and P value are in []

Table 2: Result of panel unit root test for all 15 DMUs

Islamic banks in Indonesia for the period 2005-2015						
Variable	Level					
	Constant			Constant+Trend		
	LLC	IPS	ADF	LLC	IPS	ADF
ROA _{it}	-0.863 (0.2327)	11.143 (0.9973)	0.627 (0.1078)	39.344 (0.9788)	8.327 (0.9999)	0.181 (0.9787)
lnM2 _{it}	-0.789 (0.2553)	3.187 (0.1090)	5.243 (0.10983)	4.868 (0.1083)	1.757 (0.9613)	7.136 (0.9889)
lnEXC _{it}	0.627 (0.7414)	-1.440 (0.0863)	44.074 (0.0571)	3.206 (0.1093)	0.757 (0.7827)	14.175 (0.1037)
CPI _{it}	-0.495 (0.3146)	-1.200 (0.1180)	35.341 (0.2318)	0.475 (0.6802)	-0.295 (0.3886)	23.647 (0.7892)
INTER _{it}	-1.613 (0.0554)	-1.388 (0.0851)	38.442 (0.1400)	0.714 (0.7605)	-0.924 (0.9977)	25.484 (0.7027)
Variable	First difference					
	Constant			Constant+Trend		
	LLC	IPS	ADF	LLC	IPS	ADF
ROA _{it}	-2.995*** (0.0114)	-1.826*** (0.0439)	152.648*** (0.0000)	-9.843*** (0.0000)	-13.046*** (0.0000)	191.687*** (0.0000)
lnM2 _{it}	-7.033*** (0.0000)	-5.258*** (0.0000)	76.597*** (0.0000)	-2.879*** (0.0031)	-2.495*** (0.0075)	40.581* (0.0953)
lnEXC _{it}	-5.125*** (0.0000)	-2.549*** (0.0066)	81.275*** (0.0000)	-2.856*** (0.0032)	-3.085*** (0.0021)	46.039** (0.0319)
CPI _{it}	-20.649*** (0.0000)	-8.798*** (0.0000)	263.389*** (0.0000)	-18.316*** (0.0000)	-14.570*** (0.0000)	204.794*** (0.0000)
INTER _{it}	-1.919** (0.0291)	-5.668*** (0.0000)	98.869*** (0.0000)	-6.996*** (0.0000)	-4.585*** (0.0000)	65.391*** (0.0003)

ADF: Augmented Dickey-Fuller. *****

According to the PMG estimation in the long-run period, IBP using the proxy of Performance of Islamic Banking allows ranking of all 15 Islamic banking. IBP positively and significantly responds to MS (lnM2) and interest rate (INTER) (5 and 0.05%, respectively) indicating that these explanatory variables have significant effect on IBP.

The other monetary aspects (EXC; CPI) showed negative signs and all the estimated coefficients are statistically significant. The lowest coefficient of PMG long-run model is INTR. The negative sign on the two variable implies that decrease in EXC and CPI increases on the IBP by 2.222% and 0.99%, respectively. On the other hand, MS and INTR variables are positively and statistically significant. The result implies that an increase in MS and INTR variables result in increase of IBP by 5.78% and 0.06%, respectively.

In short-run period (PMG estimates), we found that from all the explanatory variables (four monetary aspects), there is only one variable that have negative coefficients which is MS. The remaining three variables are found to have positive coefficients. However, all the variables are statistically significant and affect the IBP. Overall, in our study context, the PMG estimation allows for heterogeneous short-run dynamics and common long-run fertility IBP and explanatory variables elasticities. The default results of the PMG option include the long-run parameter estimates and the averaged short-run parameter estimates. In the output, the estimated long-run and short-run explanatory variables elasticities is significantly negative, as expected. Then if we unlog the variables M2, EXC we got the values; -0.05% ; -0.41 respectively.

While the MG estimator confirms the results of the PMG estimator, even if the magnitude of effects is different. Therefore, the results show that in the long run, three variables have positive coefficient significant at 1%. The variables that have positive coefficient are M2, EXC and INTR. The values of the coefficients are 6.37%; 2.24%; 0.06% respectively. However, we found that CPI have negative coefficients. For variable CPI, it is -0.099 and statistically significant at the level of 1% which means that 1% increase in CPI will decrease IBP by 0.9%.

In short-run period for MG estimation, we found that all of the explanatory variables coefficients in general are statistically significant and affect IBP. Most explanatory variables are significant at 1%. Variables that positively affect include M2, CPI, Inter (0.03; 0.18; 0.03, respectively) and the last 1 variables (EXC) negatively affect (0.46).

DFE, estimations show that all the explanatory variables have statistically significant affect on IBP. In the long run, The result shows that the M2, have the positive expected coefficients which are 0.380, respectively and statistically significant at 1%. MS (M2) is statistically significant at the 1% level in the long-run which indicates that a 1% increase in MS will decrease IBP by 3.8% (Table 3).

In the short-run period of DFE estimator, we found that all of the explanatory variables coefficients in general, are statistically significant and affect the IBP variables. All variables are significant at 1%. Only 1 variables have negative coefficient, i.e. M2.

Finally, from the ARDL specifications are highly consistent to the ones derived from the more traditional methods. The test of difference in PMG and MG estimations/models performed with the familiar Hausman test. The calculated Hausman statistic is 0.85 with $P = 0.9992$ and is distributed χ^2 . Here we conclude that the MG estimator, the efficient estimator under the null hypothesis, is preferred.

This study found that our study consisten with other studies on the commercial banks operating in various regions are impacted by many macroeconomic/monetary factors. These include Dietsch and Lozano-Vivas (2000) after a shock that that disrupts it. We also found that the size of the coefficient of the error correction term in MG estimation (-0.217) suggests a relatively low speed of adjustment from the short run deviation to the long run equilibrium Islamic banking performance but it is higher than the size of the coefficient of PMG. It indicates that around 21.7% of the deviation from long run IBP corrected every year.

The speed of the adjustment from the deviation in the long-run relationship between IBP and other determinants is slower in the DFE estimation (-0.201) relative to the MG estimation and PMG estimation. This means that the speed of adjustment of DFE to temporary IBP shocks is slower in the DFE as compared to the MG and PMG estimations indicating that around 19% of the deviation from long run IBP is corrected every year.

5. DISCUSSION AND CONCLUSION

When MS is reviewed as a measure of market size (Mamatzakis and Remoundos, 2003), a positive relation to bank profitability is found. This related to our finding in MG estimates. Our finding shows that both long run and short run effect of MS on Performance of Islamic banking is positively significant. This result is similar too, to the study by Kosmidou (2008).

Changes on supply of money will lead to changes in the price level. MS is determined by Bank Indonesia as central bank that regulates policy. This concept based on the quantity theory of money. It is determined by behaviour of household treatment

of money with some motive (transaction, speculative or precaucionary) and the bank in which the money is held. Due too this situation, government have to controlled it coincided with control the INTR for deposit. To persuade people spend the money to Islamic banking deposit, Bank Indonesia must push special regulation about setting of PLS margin in Islamic banking.

In the point of the EXC has a positive impact on Islamic banking performance while in the short run it has a negative one. The positive impact is inline with the result from Seuraj and Watson (2008); Clair (2004) and against Caner and Конторович (2004) that concluded a different discussion concerning Real EXC and the EXC volatility where REE was found to be negative, and the EXC volatility was found to be positive.

In the short run, bank performance is very sensitive to real EXC therefore an appreciation of the IDR to USD will reduce the bank performance. Martin and Mauer (2003) views that depreciation or apreciation of EXC can affect individual banks as directly and indirectly. It directly affects through the structure of assets and liabilities the banks denominated in foreign currency, non-asset based services, and off-balance sheet exposure. When assets and liabilities are invoiced in foreign currency, EXC depreciation directly increases the values of the assets and the liabilities in terms of domestic currency. The indirect effects of the EXC depreciation on the banks can be channeled through its effect on the demand for loans, the extent of competition, and other aspects of banking conditions (Chamberlain et al., 1997).

CPI were found to have a negative impact in the long run and positive impact in the short run. In the short run, CPI, a proxy of inflation, affects the price. Decrease on CPI will decrease inflation rate then decrease the price level and finally will affect consumer bank behaviour to spend more money for consumption rather than saving it. The decrease on saving will lead to inefficiency of bank.

In relation to higher expense and higher revenues, if there venue of the bank is rising faster than expense, inflation is expect to deploy a positive effect one performance. On the other hand, a negative coefficient is expect when expense is rising faster than

Table 3: PMG, MG and DFE

Variable estimates	Dependent variable: ROA_{it}								
	PMG estimates			MG estimates			DFE estimates		
	Coefficient	t-ratio	P value	Coefficient	t-ratio	P value	Coefficient	t-ratio	P value
Long-run									
lnM2	0.578	5.13	0.000	0.637	84.07	0.000	0.380	12.47	0.000
lnEXC	-0.222	-4.8	0.000	0.224	39.3	0.000	-0.211	-88.78	0.000
CPI	-0.099	-4.55	0.000	-0.099	-12.24	0.000	-0.101	-21.46	0.000
INTER	0.006	4.13	0.000	0.006	54.3	0.000	-0.006	-388.06	0.000
Joint Hausman test		H: 0.85		P: 0.9992			H: 3.376	P: 0.0000	
Short-run									
c	1.449	66.73	0.000	1.531	227.08	0.000	1.254	136.47	0.000
lnM2	-0.005	-8.27	0.000	0.003	25.38	0.000	-0.018	-14.66	0.000
lnEXC	-0.041	-97.46	0.000	-0.046	-60.8	0.000	-0.032	-13.26	0.000
CPI	0.018	262.0	0.000	0.018	32.04	0.000	0.017	41.8	0.000
INTER	0.002	73.57	0.000	0.003	38.04	0.000	0.002	15.79	0.000
ECM	-0.214	-67.31	0.000	-0.217	-28.53	0.000	-0.201	-24.95	0.000

PMG: Pooled mean group, MG: Mean group, DFE: Dynamic fixed-effect estimates

revenue. So inflation may have direct effects or indirect effect on performance of banks. When the effect is direct, it lead to an increase in the price of labor and when affect is indirect, changes in INTR and asset prices on bank occur.

The basic characteristics of Islamic banking are often referred to as business by joint stock (Dar and Presley, 2009), the participation of business with the use of funds on PLS, and the equity based element dominated by shareholder's equity and investment deposits based on the principle of PLS. In the essence of the argument – the term lending and borrowing short - banks, in general, may increase lending rates faster in light of percentage points more than their deposit rates. In addition, the rise in real INTR will increase the real debt burden of borrowers. This, in turn, may reduce the quality of the assets, thus encouraging banks to charge higher interest margin in order to compensate for the inherent risks. Although Islamic banks operate with the PLS system, but the macro economic system in Indonesia that shade islamic bank is still in the system environment usury and INTR. Therefore, the general INTR affects the rate of inflation and the price level.

Future studies can examine the impact of cross region monetary elements impact upon Islamic banking performance. Some additional variable concerning regulation can also lead to model enhancement. Other modifications to the study model include treating the independent variable (monetary indicators) as moderating variable or mediating variable.

Furthermore, the research will be more complete if it can analyze every monetary variables that represents in every region/province in Indonesia. This is because the regions/provinces in Indonesia have different characteristics in terms of geography and economic growth that will causes differences in the development of sharia banking in these areas.

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