The contribution of Islamic bank towards the stability of financial system in Indonesia

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Abstract: The objective of this paper is to examine the role of Islamic banks in the stability of financial system in Indonesia. We perform the empirical exercise into two stages. We first employ confirmatory factor analysis to validate the measures of our financial stability. It is found that the performance indicators of Islamic banks have a substantial contribution to the formation of the micro- and macro-prudential dimensions of financial stability together with the institutional Islamic bank dimension itself. Finally, the regression results show that the three aforementioned dimensions of the financial stability play a significant role in determining the stability of the financial system.

Keywords: financial system stability; Islamic bank; macroprudential dimension; microprudential dimension.


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1 Introduction

There is an emerging question of the role of Islamic finance in the contribution to the stability of financial system since the financial global crisis in 2007. This discourse proves to be important since Islamic finance theory offers more stable concept (Iqbal, 1997 and IFSB, 2015) but empirically it has not yet given a strong evidence (Hussain, Shahmoradi and Turk, 2015).

This research is done because of two reasons. First, many previous studies focussed on a discussion of the impact of the financial crisis towards the stability of Islamic bank (Beck, Demirgüç-Kunt and Merrouche, 2013 and IMF, 2009). Second, if we are talking about the impact on financial stability, most previous studies (Čihák and Hesse, 2008; Khediria, Charfeddined and Youssef, 2015) interpreted financial stability as stability at the level of individual banking institutions. It has to be acknowledged that the huge cost in financial crisis is caused at the level system and not a crisis at the level of individual financial institutions.

For these reasons, this study aimed at examining the contribution of Islamic banks to the stability of financial system by taking Indonesia as a case due to the growing role of Islamic banks in Indonesia’s financial system. In addition, banks play an important role in providing credit to the Indonesian economy (Yudistira and Anggono, 2013), thus the stability of the financial system is crucial.

2 Theoretical framework

The financial stability has two dimensions: macroprudential and microprudential (Crockett, 2000). Both of them can be distinguished according to its purpose, focus, and risk characteristics (Borio, 2011). Because of that characteristics, the microprudential and macroprudential dimensions could be the two things that are mutually complementary or even conflicting (Osiński, Seal and Hoogduin, 2013). If the two dimensions are delegated to one institution, then the chances of complementary will be very large.

Since the establishment of the Financial Services Authority (FSA), the supervision of financial institutions in Indonesia wholly submitted to the FSA, thus Bank Indonesia is focussing on the macroprudential dimension, and FSA is addressing on the microprudential dimension (Bank Indonesia, 2007). Since this is managed by different institutions, this study assumed that there is a separation between macroprudential and microprudential dimensions.

This study also includes institutional Islamic bank as a separate dimension. The reason is the uniqueness of Islamic banks are reflected in the principles such as risk sharing, the prohibition against excessive speculative behaviour, and preserving the sanctity of contracts is a potency that is able to warrant the financial system more stable (IDB Group, 2010).

Following some previous researchers (Lim et al., 2011), this study used reserve requirement of conventional bank (RRcon) and Islamic bank (RRis), loan to deposit ratio of conventional banks (LDR) and Islamic bank (FDR) as an indicator of macroprudential dimension. For microprudential dimension, the research used return on assets of conventional banks (ROAcon) and Islamic banks (ROAis), capital adequacy ratio of conventional banks (CARcon) and Islamic banks (CARis), non-performing loans of conventional banks (NPL) and the Islamic bank (NFL) as indicators (Khediria,
Charfeddined and Youssef, 2015). As for the institutional Islamic banks dimension, we used indicators such as saving of mudharabah and wadiah contract (SAV), deposits with the mudharabah contract (DEP), the financing in the form of mudharabah (MDRB) and murabahah (MRBA), and profit-loss sharing (PLS).

3 Models and data

This study used two models of analysis, the confirmatory factor analysis which is then followed by regression analysis. The objective of the confirmatory factor analysis is to confirm whether the variables used as indicators in each dimension is appropriate. The formulation of the general equation is:

$$D_i = l_{i1}X_1 + l_{i2}X_2 + \cdots + l_{in}X_n,$$

where $D_i$ is a dimension (factor) to $i$ and $l_{ij}$ is a loading from variable $X_j$.

Furthermore, to see the contribution of each dimension to the stability of the financial system using regression analysis where the model equation is:

$$Y_t = \alpha_0 + \sum_{i=1}^{n} \alpha_i D_i + \epsilon_t,$$

where $Y$ is the index of financial stability system, $D_i$ is the dimension to $i$, $\epsilon$ is the stochastic error, and $t$ is the time.

There are two components as constituting the index of financial stability system in Indonesia: a component stability of financial institutions (banks and non-banks) and a component of market financial stability (Gunadi, Taruna and Harun, 2014). The higher the index, the more unstable financial system. This study used monthly data over the period 2006.1-2014.12 due to limited availability of data, especially data for Islamic banks. All data collected from various editions of the publications issued by Bank Indonesia and the FSA.

4 Discussion of results

4.1 Confirmatory factor analysis results

The confirmatory factor analysis needs to be preceded by an examination of the data used. The test shows that the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO–MSA) is 0.785, which is greater than 0.5 and significantly at a very high probability (0.000). It means that the data can be processed.

Table 1 describes the relationship between the indicators and the dimensions. The higher the loading, the stronger the correlation between an indicator and its respective dimension. All variables included as indicators of macroprudential dimension are right because everything has a loading above 0.5. It shows that variables of reserve requirement (RRIs and RRRec) have a stronger relation with macroprudential dimension rather than a variable of loan to deposit ratio (for an Islamic bank, FDR, as well as conventional bank, LDR). Then the reserve requirement of conventional bank and Islamic bank becomes the best predictor for macroprudential dimension.
Table 1  Matrix component

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Macroprudential</th>
<th>Microprudential</th>
<th>Institutional Islamic bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Load</td>
<td>Variable Load</td>
<td>Variable Load</td>
<td></td>
</tr>
<tr>
<td>RR(i)s</td>
<td>0.92</td>
<td>ROA(i)s</td>
<td>-0.22</td>
</tr>
<tr>
<td>FDR</td>
<td>-0.57</td>
<td>CAR(i)s</td>
<td>-0.76</td>
</tr>
<tr>
<td>RR(c)on</td>
<td>0.92</td>
<td>NPF</td>
<td>0.80</td>
</tr>
<tr>
<td>LDR</td>
<td>0.86</td>
<td>ROA(c)on</td>
<td>-0.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAR(c)on</td>
<td>0.72</td>
</tr>
<tr>
<td>NPL</td>
<td></td>
<td></td>
<td>0.87</td>
</tr>
</tbody>
</table>

Of the six variables, there is only one variable that is not appropriate to be an indicator of microprudential dimension, the return on assets of Islamic bank (ROA\(i\)s) for the loading absolute value is below 0.5. Meanwhile, the remaining five variables are worthy to serve as an indicator of credit risk such microprudential. The table also confirms that both non-performing loan (NPL) and non-performing financing (NPF) are the best measures of the micro-prudential dimension since they show the highest loading factors among the other items.

All variables were incorporated into the institutional dimension of Islamic bank, which is an appropriate indicator except financing in murabahah contract (MRBA), where its loading value is being smaller than 0.5. Meanwhile, the Islamic bank products with the mudharabah contract, either in the form of deposits (DEP) and financing (MDRB), are the best indicators for the institutional dimension of Islamic bank.

4.2 Regression results

Regression results using three dimensions of financial stability as independent variables after excluding the indicators have loading below 0.5 are presented in Table 2. It appears that all dimensions of financial stability have a significant coefficient on the level of a very high probability. This means that the three financial dimensions have an actual role in creating stability of the financial system in Indonesia.

Table 2  Estimated regression result

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.1025</td>
<td>0.0245</td>
<td>0.000</td>
</tr>
<tr>
<td>Macroprudential dimension</td>
<td>-0.3487</td>
<td>0.0649</td>
<td>0.000</td>
</tr>
<tr>
<td>Microprudential dimension</td>
<td>-0.2443</td>
<td>0.0480</td>
<td>0.000</td>
</tr>
<tr>
<td>Institutional Islamic bank dimension</td>
<td>-0.1067</td>
<td>0.0284</td>
<td>0.000</td>
</tr>
</tbody>
</table>

\(R\)-Squared 0.3472  Mean-dependent variable 1.1025
Adjusted \(R\)-squared 0.3283  Standard deviation-dependent variable 0.3116
Standard error of regression 0.2553  Akaike information criterion 0.1441
Asymmetric causality between exchange rate and interest rate differentials

Table 2  Estimated regression result (continued)

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of squared residuals</td>
<td>6.7822</td>
<td>Schwarz criterion</td>
<td>0.2434</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>−3.782</td>
<td>Hannan–Quinn criterion</td>
<td>0.1844</td>
</tr>
<tr>
<td>F-Statistic</td>
<td>18.438</td>
<td>Durbin–Watson statistic</td>
<td>0.3353</td>
</tr>
<tr>
<td>Probability (F-statistic)</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All of the coefficient signs are also in line with the prediction of the theory, which is a negative sign. It means that when the macroprudential, microprudential, and institutional Islamic bank dimensions improve, the financial system becomes more stable (lower index of financial system stability). Thus, it is clear that the presence of Islamic bank gives meaningful contribution to the stability of the financial system in Indonesia.

5 Conclusion

It was found that most indicators of Islamic bank, along with most indicators of conventional bank, have an important explanation for the microprudential dimension, macroprudential dimension, and institutional Islamic bank dimension of the stability of financial system. This study also confirmed that these three dimensions of the financial system stability have a significant role in producing the stability of financial system.

Nevertheless, these findings need to be interpreted cautiously because this study incorporated only the banking stability indicators and did not include indicators of the stability of other financial institutions and economic indicators that affect the stability of the financial system.

References


