Journal of Asian Economics 23 (2012) 335–343

Contents lists available at SciVerse ScienceDirect

Journal of Asian Economics

Bank risk and non-interest income activities in the Indonesian banking industry

Wahyu Yuwana Hidayat [a,1], Makoto Kakinaka [b,*], Hiroaki Miyamoto [b,2]

[a] Balance of Payment Bureau, Directorate of Economic and Monetary Statistics, Bank Indonesia, Jl. M.H. Thamrin No. 2, Jakarta 10350, Indonesia
[b] Graduate School of International Relations, International University of Japan, 777 Kokusai-cho, Minami-Uonuma, Niigata 949-7277, Japan

ARTICLE INFO

Article history:
Received 29 November 2010
Received in revised form 5 March 2012
Accepted 27 March 2012
Available online 13 April 2012

Keywords:
Bank risk
Product diversification
Non-interest income activities

ABSTRACT

The recent trend of product diversification in the Indonesian banking industry underscores the importance of non-interest income activities. This study examines the relationship between product diversification and bank risk over the period of 2002–2008. Our analysis shows clear evidence that the effect of product diversification on bank risk depends highly on the bank's asset size. Specifically, the degree of product diversification is negatively associated with bank risk for small-sized banks. Conversely, the degree of product diversification is positively related to bank risk for large-sized banks. This finding suggests that deregulation encouraging banks to become more involved in non-traditional activities may have an adverse effect on the overall banking system where large-sized banks are playing a significant role in Indonesia.

1. Introduction

Recent trends in the integrated world economy with intensified competition spurred on by financial deregulation in Indonesia have encouraged commercial banks to diversify the range of financial services they offer clients. Product diversification under this new environment tends to increase the share of non-interest income in profits. Non-interest income stems from traditional services, such as checking and cash management, as well as from new financial services, such as bank account management and investment banking. As the supervisory authority, one concern for Bank Indonesia is whether or not the prevalence of product diversification increases bank risk. This issue is crucial since high bank risk gives rise to banking system instability. Given this context, this study discusses the relationship between bank risk and product diversification by empirically examining a set of risk and insolvency measures based on accounting data at the individual bank level in Indonesia over the period of 2002–2008.

The diversification of income toward non-traditional activities has been crucial in offsetting the decline in traditional income since the 1997 Asian financial crisis. At the same time, Bank Indonesia has also adopted a banking policy to encourage commercial banks to diversify their income toward non-traditional activities.[3] Indeed, the fee-based income ratio is now an

* Corresponding author. Tel.: +81 25 779 1421; fax: +81 25 779 1421.
E-mail addresses: wyuwana@bi.go.id (W.Y. Hidayat), kakinaka@iuj.ac.jp (M. Kakinaka), hmiyamot@iuj.ac.jp (H. Miyamoto).
[1] Tel.: +62 21 3818325; fax: +62 21 3800134.
[2] Tel.: +81 25 779 1464; fax: +81 25 779 1464.
[3] Since the 1997 Asian crisis, Bank Indonesia has adopted various banking policies. These policies include the Basel II Accord, the Indonesian Banking Architecture (API), the Indonesian Financial System Architecture (ASKI), and the development of Sharia Banking (see Bank Indonesia, 2009). For example, Bank Indonesia has been in the process of the introduction of Basel II Accord since 2008. Among 3 Pillars, Bank Indonesia has implemented to Pillar 1 (minimum capital requirement), but Pillar 2 (supervisory review process) and Pillar 3 (market discipline) have not been implemented yet.

1049-0078/$ – see front matter
http://dx.doi.org/10.1016/j.asieco.2012.03.008

important bank profitability indicator for Bank Indonesia.[4] To evaluate this banking policy, a more careful examination is required of the relationship between non-traditional activities and bank risk. If the prevalence of product diversification helps reduce bank risk, the banking policy will improve stability and the overall soundness of the banking system.

Many studies, most focusing on the US banking industry, examine the relationship between product diversification and bank risk (see Kwan & Laderman, 1999; Saunders & Walter, 1994, for a review). Kwast (1989), Santomero and Chung (1992), Templeton and Severiens (1992), Saunders and Walter (1994), and Gallo, Apilado, and Kolari (1996) show potential benefits of income diversification associated with the combination of US banking and non-banking activities. In contrast, studies such as Boyd and Graham (1986, 1988), Sinkey and Nash (1993), Demsetz and Strahan (1997), Roland (1997), and Kwan (1998) are inconclusive or present partial evidence supporting the notion that product diversification with non-banking activities results in increasing US bank risk.

In particular, De Young and Roland (2001), Stiroh (2004), and Stiroh and Rumble (2006) observe potential costs of product diversification by showing that non-interest income activities are positively related with earnings volatility in the US. This finding is due in part to a positive correlation between interest income and non-interest income. De Young and Roland (2001) also emphasize that product diversification may not reduce risk because of the relative instability of non-interest income, fixed costs associated with non-interest income activities, and large earnings fluctuations with a high degree of financial leverage associated with a lack of regulation. As for the relationship between product diversification and bank risk outside of the US, a study by Lepetit, Nys, Rous, and Tarazi (2008) on European banks for the period 1996–2002 finds that an expansion of their income into non-interest activities increased bank risk, mainly due to commission and fee activities rather than trading activities.

For the Indonesian banking industry, a risk supervision approach is attractive to policymakers who desire a sound banking system, and there are several studies related to risk in the Indonesian banking system. For example, Santoso (1998) examines the determinants of problem banks in Indonesia. Zulverdi, Gunadi, and Pramono (2007) study banks' behavior in portfolio selection and its impact on the effectiveness of monetary policy. However, to the best of our knowledge, no extensive study has examined how product diversification relates to bank risk in developing countries including Indonesia. Thus, this study is a first attempt to better understand this important issue in the Indonesian banking industry.

Following the work of Lepetit et al. (2008) on the European banking industry, this study empirically investigates the relationship between non-interest income activities and bank risk by utilizing alternative ways to measure bank risks based on income structure over the period of 2002–2008. This analysis also examines how the relationship is associated with bank size. Since fixed costs associated with fee-based financial services may enable large-sized banks to take a more aggressive position on non-interest services than small-sized banks, bank size might influence a banks' behavior in regards to non-interest income activities. In this study, to better understand the role of non-interest income activities, non-interest income is divided into two components: trading activities and commission and fee activities. Indonesian commercial bank annual report data is used and covers year-end balance sheets and income statements for 112 banks.

The analysis shows that bank size is a crucial factor determining how non-interest income activities are associated with bank risk. More precisely, a higher reliance on non-interest income activities entails a lower level of bank risk for relatively small-sized banks but entails a higher level of bank risk for relatively large-sized banks. The large-sized bank observation is consistent with the results of Kwan (1998), De Young and Roland (2001), Stiroh (2004), and Lepetit et al. (2008) in that non-banking activities increased bank risk. Furthermore, our results of size-dependent responses of bank risk for small-sized banks are in contrast to those of Lepetit et al. (2008) in that the positive link between non-interest income and bank risk is more significant for small-sized banks in the European banking industry.

The remainder of this paper is organized as follows: Section 2 introduces the empirical methodology and data with several measures of bank risks, including insolvency risk. Then the empirical results are presented and show the relationship between non-interest income activities and bank risk. In particular, we focus on how the relationship varies in response to the relative asset size of banks. Section 3 offers concluding remarks with several implications related to banking policy.

2. Empirical analysis

This subsection examines the relationship between product diversification and bank risk in the Indonesian commercial banking industry.[5] To capture the degree of product diversification of each bank, the average ratio of net non-interest income to net operating income (NNII) is used from each bank's income statements of annual accounting data from 2002 to 2008. Net operating income is the sum of net interest income and net non-interest income. Net non-interest income is computed as revenues from commissions and fees and from foreign exchange plus gains on investment in securities minus losses on investment in securities and foreign exchange transactions. Net interest income stems from traditional banking activities, while net non-interest income stems from non-traditional activities.

[4] The fee-based income ratio is one of the important indicators to determine a bank's profitability, as specified in Bank Indonesia regulation, Surat Edaran (SE) No. 6/23/DPNP, May 31, 2004.

[5] According to the Indonesian banking law, banking institutions are classified into commercial and rural banks. Commercial banks differ from rural banks in that the latter are not involved directly in the payment system with some restrictions on operational areas. In terms of the operational definition, banks in Indonesia are classified into non-Sharia and Sharia-based principle commercial banks. The Sharia principle is the agreement, based on the Islamic principle, between banks and counterparts to deposit with and lend to each other (Indonesia Banking act No. 7, 1992, as revised by Act No. 10, 1998).