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Effects of exchange rate depreciation on commercial bank failures in Indonesia

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Abstract

This paper examines the effects of exchange rate depreciation on commercial bank failures in Indonesia during the period from January 1995 to December 1999. This included the period of the Asian crisis during which the Indonesian currency depreciated by about 75% in nominal terms or 25% in real terms. The estimation results show that due to a higher amount of foreign currency assets relative to the amount of foreign currency liabilities, exchange rate depreciation led to a lower probability of bank failure. Through reduced profit on lending in foreign currency, exchange rate depreciation led to a higher probability of bank failure.

JEL classification: F31; G21; E44

Keywords: Exchange rate depreciation; Bank failure; Indonesia

1. Introduction

Liberalization of financial markets in many developing countries has given more latitude for banks in those countries to obtain funds and extend credits denominated in foreign currency. As a result, holding assets and liabilities denominated in foreign currency is prevalent in the banking sector of many developing countries. The evidence on the intensity of foreign currency assets and liabilities in the banking sectors of developing countries, for example, is given by Arteta (2002).

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Using data of 37 developing and transition countries ranging from late 1970 to 2001, he finds that the average ratio of dollar deposits to total deposits and dollar credits to total credits were 21.64% and 27.23%, respectively.

Regardless of the reasons for choosing currency denomination of assets and liabilities, banks are exposed to exchange rate risks when they hold assets and incur liabilities denominated in foreign currency. In developing countries, generally, banks do not incur the cost of hedging instruments in protecting risk due to the exchange rate changes. This could be due to the lack of such instruments in developing countries, or for other reasons such as the high cost of hedging. As pointed out by Sharma (2003), for example, short-term foreign borrowing was a relatively inexpensive source of funds for banks in Indonesia because those banks do not incur the cost of hedging against depreciation in the rupiah.

The purpose of this paper is to test the hypothesis that exchange rate depreciation led to a higher probability of commercial bank failures in Indonesia during the period from 1995 to 1999. Although commercial banks are engaged in various foreign exchange-related activities such as derivative and non-asset based services, this paper focuses on the balance sheets; the components of banks' balance sheet are sufficient to capture bank's net-worth, which is an indicator of bank insolvency. For the purpose of the study, we use data of individual commercial banks in Indonesia during the period from January 1995 to December 1999. During the 1990s the amount of foreign currency-denominated assets and liabilities in Indonesian banking sector increased significantly. The share of credits in foreign currency increased from 15% in December 1991 to 37% in December 1997. Similarly, the share of deposits in foreign currency also increased significantly, from 26% in December 1991 to 46% in December 1997. Even using the rupiah exchange rate in 1991, the share of credits and deposits in foreign currency in 1997 was substantially higher than the share of credits and deposits in foreign currency in 1991. Using the exchange rate of the rupiah in 1991, in 1997 the share of credits in foreign currency was 23% while the share of deposits in foreign currency was 30%.

Understanding the role of exchange rate depreciation on individual banks is important to anticipate banking sector stability or potential fragility due to the exchange rate depreciation. This paper provides empirical regularities between the exchange rate depreciation and the probability of commercial bank failures in Indonesia that in turn can be used by banking regulators and supervisors as an early-warning signal for banking sector fragility. In addition, the results of this paper are also important for exchange rate policy makers in understanding the implications of an exchange rate policy on the banking sector. Failure to understand the implication of the exchange rate depreciation on the fragility of the banking sector may result in an exchange rate policy that may lead to a large number of bank failures.

The remainder of the paper is organized as follows. In Section 2, we present a review of the related literature. In Section 3, we present an overview of banking sector development in Indonesia. In Section 4, we present the econometrics methodology. In Section 5, we present descriptive statistics of the data. In Section 6, we discuss the estimation results. Finally, we conclude this paper with Section 7.

2. Literature review

Many studies have investigated the relationship between exchange rate changes and banks' behavior. While there is an extensive literature on the determinants of bank failure based on bank-