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## Financial markets development and bank risk: Experience from Thailand during 1990–2012



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### ABSTRACT

The relation between financial markets development and bank risk in Thailand during 1990–2012 is examined. After controlling for macro-level and firm-level variables, stock market development is positively associated with banks' capitalization ratio, and is negatively related to their beta. While banking sector development has no effect on the banks' capitalization ratio, it has a positive effect on their beta. In addition, banking sector development is negatively related to the banks' capitalization ratio when measured as the Tier 1 capital to total risk-weighted assets ratio during 2000–2012. Overall, two dimensions of financial markets development seem to have opposing effects on bank risk. While stock market development tends to lower the banks' beta, banking sector development induces the instability of the banking system by lowering the banks' capitalization ratio and by increasing the banks' beta.

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## 1. Introduction

In this paper, I analyze the relation between financial markets development and three dimensions of bank risk – the capitalization ratio,<sup>1</sup> revenue diversification, and market beta. The longitudinal

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<sup>1</sup> It should be noted that leverage and capitalization of a bank are two sides of the same coin. In the banking literature, it is traditional to use a bank's capitalization ratio as a measure of its leverage. Thus, a highly leveraged bank would typically

study aims to understand the impact of the evolution of financial markets development bank behavior. The focus on Thailand during the period 1990–2012 therefore captures the events surrounding the Asian financial crisis of 1997–1998<sup>2</sup> and the global financial crisis of 2007–2009. Several studies have highlighted the benefits and costs of financial markets development. Essentially, financial markets development is thought to lead to economic growth by providing firms with better access to financing, thereby promoting domestic investments. Financial markets development (e.g., changes in bank regulations) can also affect the way in which banks operate and behave which, in turn, may have either positive or negative ramifications for the health of the banking system and the stability of the financial system.

This paper adds to the literature by analyzing the changes in financial markets development and the changes in capitalization ratios of commercial banks in Thailand over the period 1990–2012. During this period, there were two major financial crises – the Asian financial crisis of 1997–1998 and the global financial crisis of 2007–2009 – both of which directly affected emerging market countries. While the former mainly affected Asian countries, the latter had global impact. Secondly, the paper addresses the relationship between financial markets development and bank risk by addressing the following three questions: Does financial markets development encourage banks to be more leveraged? Does financial markets development affect banks' portfolio of assets? Did financial reforms implemented after the Asian financial crisis of 1997–1998 cause banks to be better prepared for future crises?

I find that a measure of stock market development is positively associated with a bank's capitalization ratio (measured as total capital/total assets), after controlling for macro-level and firm-level variables and is negatively associated with a bank's risk (implied by a bank's market beta from the market model). While the measure of banking sector development is not associated with a bank's capitalization ratio when measured as the total capital to assets ratio (*CTA*), but it is negatively related to a bank's capitalization ratio when measured as the Tier 1 capital to total risk-weighted assets ratio (*CART1*).<sup>3</sup> In terms of the economic significance, my estimated slope coefficient on the banking sector development measure (*BSD*) of  $-0.075$  (see Model 1 of Table 8) implies that a one-standard deviation increase of *BSD* will result in a  $0.133 (=17.608 \times -0.075/9.954)$  fall in *CART1* at the mean (of 9.954) during 2000–2012. I conduct further tests to show that the positive effect of stock market development on banks' capitalization ratios mainly appears during 1990–1999, and that this linkage disappears during 2000–2012. In the context of my analysis, two dimensions of financial markets development seem to have opposing effects on bank risk. While stock market development tends to have no adverse effect on banks' capitalization ratios and lower the level of a bank's beta, banking sector development induces the instability of the banking system by lowering the *CART1* ratios and by increasing the level of the beta. In addition, I find that both stock market development and banking sector development measures are not associated with a bank's revenue diversification (measured as the share of the non-interest revenue to net revenue). It is important to note that several studies provide evidence for a positive relation between non-traditional banking activities and profitability. For example, [Apergis \(2014\)](#) shows that there is a positive relation between the non-core banking activities and profitability (e.g., ROA) and that the non-core banking activities is positively associated with insolvency risk. In addition, in the context of the Philippines, [Meslier et al. \(2014\)](#) also show that the variation in bank revenue diversification is positively associated with the level of profitability. Hence, the finding of no relation between both measures of financial markets development and a bank's revenue diversification in this study seems to suggest that high levels of financial markets development do not necessarily destabilize the financial system with respect to the banks' non-core banking activities. However, the results regarding the effect financial reforms following the Asian financial crisis are mixed. On the one hand, the depth of stock markets seems to lower the overall risk of the banking sector; on the other hand, the banking sector development tends to increase the risk of the banking sector. The net

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refer to a bank with a low capitalization ratio (e.g., capital adequacy ratio). This notion is different to those used in the general finance literature where a firm's leverage is usually measured as a ratio of long-term debt (or total debt) to assets; hence, a highly leveraged firm would then refer to a firm with a high leverage ratio.

<sup>2</sup> Thailand receives the IMF financial assistance programs during the Asian financial crisis of 1997–1998.

<sup>3</sup> The Tier 1 capital to total risk-weighted assets ratio for Thai banks is available from 2000 onwards.

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