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## Bank monitoring, profit efficiency and the commercial lending business model

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### ABSTRACT

We build a bank-specific, fixed-effects regression model to develop proxies for a bank's monitoring effort. Our results show that banks that devote more resources to monitoring (based on these proxies) are more profit efficient and the effect is large. A very important theoretical literature in finance suggests that monitoring is value enhancing; we provide empirical evidence consistent with the theory. This research thus establishes an important link between the large literature on bank monitoring and the equally large literature on profit efficiency. Monitoring is a key technology in the commercial lending business model (e.g. Mester, Nakamura, & Renault, 2007). Thus, these results point to considerable strengths in the dominant business model used in the banking industry.

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Bank monitoring occupies a very important place in the literature in finance. In his classic work, Diamond (1984) constructed a theoretical model in which bank monitoring creates value by reducing asymmetric information problems in financial markets. This monitoring takes place in the context of an ongoing loan relationship. Winton (1995) extended this delegated monitoring model to a world in which the economy is finite and capital requirements exist. Other theoretical studies (e.g., Boyd & Prescott, 1986; Boyd & Runkle, 1993; Petersen & Rajan, 1994, 1995; Rajan, 1992; Ramakrishnan &

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Thakor, 1984) have reached similar conclusions about the impact of monitoring on bank value. (Bank credit analysis includes both the initial credit decision (underwriting) and subsequent screening of the loan customer (monitoring). Throughout this paper we use the term monitoring to refer to both underwriting and monitoring.)

Most, if not all, of these models assume that monitoring is costly. If these models provide an accurate description of how the financial system works, banks that devote more resources to monitoring should have superior financial performance, even if their expenses are somewhat greater than they would otherwise be. In other words, these models assume that resources devoted to making good loans and preventing loan losses generate or preserve more revenue than the monitoring itself costs. Although this proposition is extremely reasonable and has been tested using event study methodology (e.g., Billett, Flannery, & Garfinkel, 1995; James, 1987; Lummer & McConnell, 1989), to our knowledge it has not been tested using financial statement data from a comprehensive sample of commercial banks.

We fill this gap in the literature by estimating the effect of monitoring on profit efficiency. Profit efficiency is a sophisticated econometric measure of a bank's financial performance relative to a best practice frontier. It holds constant asset and liability composition and other variables affecting performance. In addition, it can be estimated for large samples of banks.

Profit efficiency and value are closely related. Banks that operate closer to a best practice frontier will certainly produce a stream of discounted cash flows that would result in higher valuations than other banks. Hence, our use of profit efficiency in this paper is consistent with the emphasis in the theoretical literature on the relation between monitoring and value. Data on value is unavailable if a bank is not publicly traded, which is the case for the vast majority of firms in the banking industry.<sup>1</sup>

Based on this theoretical literature that emphasizes the importance of asymmetric information in financial markets, we expect a positive relation between our monitoring proxies and profit efficiency. Using a sample of 2,295 banks associated with the commercial lending business model for the period 1999–2005, we find a strong positive relationship. Further, while Lee and Sharpe (2009) find that the effect of monitoring on the borrower's abnormal loan announcement return is small, we find that the effect on profit efficiency is large. In our study, monitoring is the second most important variable affecting profit efficiency (after fee income). While the relation between profit efficiency and monitoring only holds for banks above the median asset size (banks between \$167 million and \$194 billion, this is an extremely important component of the banking industry. It accounts for 94.32% of the assets of the banks in our sample in 2005, the latest year in the sample.

Our results are consistent with the notion that monitoring creates value when the bank devotes adequate resources to the process. This result points to considerable strengths in the commercial lending business model.

The financial crisis of 2007–2009 was caused in part by weak incentives and poor lending decisions in the “originate-to-distribute” business model used in mortgage lending (see, e.g. Bernanke, 2008; Kane, 2009), not by a weakness in the commercial lending business model.<sup>2</sup> “Originate to distribute” is another term for securitization. Financial institutions often make mortgage loans not to hold as assets on their own books but rather to sell (distribute) to other financial institutions. This is in contrast to commercial loans which are frequently very large in size and are often held on the bank's books. Thus, the bank is exposed to a significant risk if the loan goes bad. Therefore, the incentives for the bank following the “originate-to-distribute” approach are much higher.<sup>3</sup>

<sup>1</sup> There is not a large empirical literature on the relationship between bank profit efficiency and market value. One study dealing only with banks involved in mergers (Aggarwal, Akhigbe, & McNulty, 2006) finds that these two measures are positively related.

<sup>2</sup> The FDIC (2004) found that over half the firms in the banking industry are commercial lenders. For example, there were 4,424 commercial lenders, 1,730 agricultural banks, 990 mortgage lenders, 132 consumer lenders, 34 credit card banks, 5 international banks, 465 other specialized banks, and 1,195 institutions that were not classified. Thus, the commercial lending business model is clearly the dominant approach used in the industry. During the period 1995–2006, provisions for loan losses at U.S. commercial banks were under 0.5% per year, each year, with one exception. Commercial bank return on assets and return on equity were at record levels, with return on equity often exceeding 15% (e.g., Kidwell, Blackwell, Whidbee, & Peterson, 2006). Taken together, these data suggest that there are considerable strengths in the commercial lending business model.

<sup>3</sup> In response to a question from a reviewer about the extent that our sample banks actually followed an originate-to-hold business model, we computed various measures from the call reports. The primary issue raised is that, in the period immediately

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