# Regional economic development, strategic investors, and efficiency of Chinese city commercial banks

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## ARTICLE INFO

## ABSTRACT

We investigate the effect of strategic investors on bank efficiency in the context of regional economic development. The data on Chinese city commercial banks operating regionally are well-suited for the study. Our findings suggest that strategic investors significantly increase efficiency in Chinese city commercial banks, while the effect of strategic investors on the efficiency of Chinese city commercial banks is negatively correlated to the level of regional economic development. The negative correlation of the effect of strategic investors on Chinese city commercial banks' efficiency with regional economic development may be explained by the mix of local official promotion system and city commercial banks' governance structure.

## 1. Introduction

Attracting strategic investors has been one of three strategies to reform banking in China since its WTO entry in 2001.[1] Existing literature (Megginson, 2005; Berger et al., 2008) also shows that strategic investors have a significantly positive effect on bank efficiency in transition economies, including China. China, as the second largest economy, is not only vast in territory but it also has significant regional disparities in economic development (Qian and Litwack, 1998; Sun and Yamori, 2009). Different development levels of a regional economy create different demands for types of financial arrangements (Levine, 1997) and influence divergent entrepreneurship (Wennekers et al., 2005), which may result in significant differences in technical and allocative efficiency in Chinese financial institutions. The Chinese case is well-suited to investigate the effect

of strategic investors on bank efficiency in the context of regional economic development.

To examine the effect of strategic investors on efficiency in the context of regional economic development, suitable data need to be obtained. In China, as large banks often operate in geographically wide regions,[2] it is very hard to determine the regional efficiency of these banks.[3] For a typical large commercial bank, we only have access to aggregate financial data of branches distributed throughout the country. The aggregate data do not reflect regional efficiency of the bank.[4] On the contrary, "city commercial banks," which were created originally following the rule of one-city–one-bank, were located in central cities of every province (province-level or prefecture-level cities) and operated within each province. In this regard, city commercial banks are well-suited for a study on our topic in China. Although under the permit of the China Banking

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[1] Two other strategies are clearing up the NPLs and going public on stock exchanges. Strategic investors were usually financial institutions who contributed not only capital but also independent directors to Chinese banks and introduced new management skills and products (Dobson and Kashyap, 2006). In Chinese banking reform, almost all strategic investors were foreign financial institutions.

[2] These large banks usually include five state-owned commercial banks (i.e., Big-Five banks) and 12 joint-stock commercial banks.
[3] See Section 2 for details about Chinese city commercial banks.
[4] Even if the financial data of provincial-level branches (the highest level branch) of these banks are available, the data do not truly reflect the profit efficiency performance of local branches because the existence of an internal funds market within a bank usually allows the reallocation of deposits and/or loans across branches and provinces at the internal price.

Regulatory Commission (CBRC), several city commercial banks have rapidly expanded outside their own provinces since 2007, a vast majority of city commercial banks operate regionally. Therefore, it is feasible to investigate empirically the effect of strategic investors on bank efficiency in the context of regional economic development when employing the data on Chinese city commercial banks that operate regionally.

A wealth of literature on the efficiency of financial institutions focuses primarily on how market structure, deregulation, M&A, and foreign bank entry affect efficiencies in the US and European countries. Berger and Humphrey (1997) and Berger and Mester (1997) provide an extensive and valuable survey of literature. In contrast to those for developed countries, efficiency studies for developing countries have mainly focused on ownership, privatization, and their effects on governance and efficiency. Quite exhaustive surveys of the literature on bank efficiency for developing countries already exist (Megginson and Netter, 2001; Clark et al., 2005; Megginson, 2005; Boubakri et al., 2005). Several studies (Lucchetti et al., 2001; Bos and Kool, 2006; Hasan et al., 2009) in the finance-growth nexus area have recently emerged that investigate the relationship between bank efficiency and regional growth (or local economic environments) in developed countries.[5]

As an innovation to the existing literature on ownership and its effect on developing countries, we extend the effect of strategic investors on bank efficiency in the context of regional economic development. Based on the developing country case in China, we address the relationship between the effect of strategic investors on bank efficiency and regional economic development. We find that strategic investors significantly increase efficiency in Chinese city commercial banks, while the effect of strategic investors on the efficiency of Chinese city commercial banks is negatively correlated with the level of regional economic development. The negative correlation of the effect of strategic investors on the efficiency of Chinese city commercial banks with regional economic development may be explained by the mix of the local official promotion system and the governance structure of city commercial banks. Our findings suggest that further reforms of commercial banks are necessary to bring more efficient banking in China.

The remainder of the paper is structured as follows. In the next section, we provide background information on Chinese city commercial banks. The data on the Chinese city commercial banks are shown, and our empirical methodology is outlined in Section 3. In Section 4, we present the empirical results. Section 5 is the conclusions.

## 2. Background on city commercial banks in China

The precursor of the city commercial bank is primarily urban credit cooperatives, which evolved in the late 1970s. Due to poor management, many non-performing loans (NPLs) were formed in urban credit cooperatives. In 1995, the central bank, the People's Bank of China, decided to salvage urban credit cooperatives from the NPL-endangered situation. All urban credit cooperatives and some rural credit cooperatives and local financial institutions located in towns were ordered to merge and consolidate into newly formed joint-stock companies, i.e., city commercial banks. These city commercial banks inherited all NPLs from urban credit

cooperatives, but local public funds were injected into these city commercial banks as capital.

For the typical city commercial bank, new shareholders included local government, urban collective-owned firms, urban private-owned firms, and shareholders of former credit cooperatives. However, shareholders of former credit cooperatives were not allowed to purchase more stocks than originally assigned. City commercial banks were created following the rule of one-city–one-commercial bank. All city commercial banks were located in central cities: province- or prefecture-level cities. They were required to operate within their own administrative regions until 2006, when CBRC permitted the city commercial banks to set up branches in other provinces. Several city commercial banks have rapidly extended outside their own provinces since 2007.

Attracting strategic investors was an important strategy for better governance and performance. For example, the International Financial Corporation purchased a 2.4% stake in Xi'an Commercial Bank in 2001. In addition to attracting strategic investors, going public was another important strategy. For example, the Beijing Bank was listed successfully on the Shanghai Stock Exchange in 2007.

At the end of 2009, a total of 143 city commercial banks were distributed unevenly throughout the country. City commercial banks rank third in terms of business development among all the categories of Chinese financial institutions,[6] preceded by the Big-Five state-owned commercial banks (SOCBs) and 12 joint-stock commercial banks. As shown in Table 1, Chinese city commercial banks make up less than 9% of total assets, total liabilities, equity, profits after tax, and non-performing loans of all the Chinese banking. In contrast to the Big-Five state-owned commercial banks that dominate Chinese banking, city commercial banks are small.

## 3. Methodology

### 3.1. Specifications of the efficiency equation of city commercial banks

The most common efficiency estimations are nonparametric techniques, such as data envelopment analysis (DEA), and parametric techniques, such as the distribution-free approach and stochastic frontier approach. Nonparametric techniques generally focus on technological optimization rather than economic optimization. As we want to highlight the economic optimization and its determinants in this paper, we employ the stochastic frontier approach with the translog function to estimate the efficiency of Chinese city commercial banks.[7] We recognize that, compared to nonparametric techniques, parametric techniques have a disadvantage in that resulting efficiency scores are dependent on how accurately the chosen functional form captures the true production relationship. Here, to manage this disadvantage of parametric techniques that inaccurate functional form may lead to the specification

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[5] Lucchetti et al. (2001) find that regional growth in Italian provinces depends positively on the mean cost efficiency of banks serving local communities. Bos and Kool (2006) show that local environment factors, such as inhabitants, added value, investment, and commerce, do play a role in determining managerial inefficiency in the Netherlands, but only to a limited extent. Hasan et al. (2009) employ cost and profit efficiency estimates as quality measures of financial institutions and conclude that an improvement in bank efficiency spurs five times more regional growth than an identical increase in credit does in Europe.

[6] As of the end of 2009, the Chinese banking sector comprises 3 policy banks, 5 large state-owned commercial banks (i.e., Big-Five banks), 12 joint-stock commercial banks, 143 city commercial banks, 43 rural commercial banks, 196 rural cooperative banks, 11 urban credit cooperatives, 3056 rural credit cooperatives, one postal savings banks, four banking assets management companies, 37 local incorporated foreign banking institutions, 58 trust companies, 91 finance companies of enterprise groups, 12 financial leasing companies, three money brokerage firm, 10 auto financing companies, 148 village and township banks, eight lending companies, and 16 rural mutual cooperatives.

[7] Some of the disadvantages of DEA are that the results are sensitive to the selection of inputs and outputs; the best specification test cannot be done; and the number of efficient firms on the frontier tends to increase with the number of input and output variables. Furthermore, the distribution-free approaches that require a balanced pooled sample are not well-suited because only several city commercial banks have time-series observations on and off over the period of 2002–2009.