



Article

# Bank Profitability Analysis in China: Stochastic Frontier Approach

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**Abstract:** China's banking system has a relatively high level of state control, while an important task in regulating the banking system is to manage the profitability of banks. Using the stochastic frontier approach to assess the profitability of commercial banks not only allows for the bank's ability to generate profits relative to the leading banks in the industry to be assessed but also takes into account the specifics of the management technologies used and the influence of the market environment. This article analyzes the profitability of the Chinese banking system for the period 2012–2020 using the stochastic frontier approach from the position of the central bank. The specifics of the analysis from the bank's perspective imply a focus on the position of most banks regarding the level of best practices and trends in changing the overall level of profitability. Analysis may be of interest to banking regulators and researchers. In general, the Chinese banking system demonstrates a high level of profit efficiency and cost efficiency, although the dynamics of these indicators are negative. The reason for the negative dynamics is a decrease in the economic growth rate of the economy, the instability of the financial market and ongoing reforms. State-owned commercial banks are becoming highly profitable, while national joint-stock commercial banks are facing increasing competition and reducing efficiency of profitability. City and rural commercial banks maintain a high level of profitability due to state support.

**Keywords:** bank profitability; stochastic frontier approach; commercial bank; ROA; ROE; profit efficiency; cost efficiency

**JEL Classification:** G21; G31



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## 1. Introduction

The banking systems of developing countries tend to have a relatively high level of state control. Many scholars believe that this inhibits competition and the efficient redistribution of financial resources according to Lee et al. (2020) and Le and Ngo (2020). According to Huang et al. (2021) and Mai et al. (2022), developing countries should pursue a policy of deregulation and develop market mechanisms. However, the 2008 crisis and subsequent prolonged stagnation in the banking sector of developed countries, against the background of China's significant economic success, force a new look at the regulation of financial institutions, competently combining administrative and market methods.

One important condition that central banks observe when regulating the banking system is the need to keep commercial banks interested in making profits. Control over the profitability of credit institutions can help in understanding how effectively banks of different types and sizes function, whether they need help, and whether changes in the existing mechanisms of market regulation are necessary. Central banks evaluate the profitability of individual banks using indicators such as return on assets and return on

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