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Is bank competition detrimental to efficiency? Evidence from China

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ABSTRACT

This paper addresses the relationship between bank competition and efficiency by computing Lerner indices and cost efficiency scores for a sample of Chinese banks over the period 2002–2011. Granger-causality tests are performed in a dynamic GMM panel estimator framework to evaluate the sign and direction of causality between them. We observe no increase in bank competition over the period, even as cost efficiency improves. In a departure from the empirical literature showing that competition negatively Granger-causes cost efficiency for Western banks, we find no significant relation between competition and efficiency. This suggests that measures to increase bank competition in the Chinese context are not detrimental to efficiency.

1. Introduction

The general view in the economic literature is that bank competition promotes economic growth (e.g. Claessens & Laeven, 2005). In China, however, the banking industry dominates the financial system (Allen, Qian, Qian, & Zhao, 2012). Just five state-owned banks held 47% of total banking sector assets at the end of 2011 (CBRC Annual Report, 2012).[1] The dominance of state banks presents obvious questions concerning competitiveness in the Chinese banking industry and the ability of the Chinese financial system to support economic growth of core industries over the long run. Yet academic assessments of bank competition in China remain impressively scarce. A rare exception is the study of Yuan (2006), who measures competition over the period 1996–2000. Competition, measured by a non-structural aggregate measure for the Chinese banking industry, is surprisingly shown to be perfect.

As competition often relates to banking system efficiency, the dominance of the five largest state-owned banks also raises the corollary issue of efficiency of the Chinese banking industry. Berger, Hasan, and Zhou (2009) note the lower efficiency of state-owned banks may reflect their dominant market position.

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[1] The "Big Four" (Industrial and Commercial Bank of China, Agricultural Bank of China, China Construction Bank, and Bank of China), plus the Bank of Communications. We refer to these in our analysis as the "Big Five."

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In this paper, we provide new evidence on the relationship between competition and efficiency in the Chinese banking industry by considering recent data on a large sample of Chinese banks between 2002 and 2011. This work has three objectives.

Our first aim is to measure the level and the evolution of banking competition in China over the past decade. This is of particular interest for the analysis of the banking industry. First, it provides information on the degree of competition for Chinese banks relative to other countries. Second, it assembles evidence on the evolution of bank competition in China during a decade marked by profound reforms of the Chinese banking industry, especially concerning the large state-owned banks. These reforms include a transfer of non-performing loans to asset management companies, bank recapitalization, and the entry of minority foreign strategic investors in several banks. China's accession to the WTO in 2001 allowed foreign banks access to the banking system, albeit market share held by foreigners remains very low. Our analysis helps assess the market power of banks over the decade. We check whether large state-owned banks differ in market power relative to other banks. This provides information about the effects on competition from the persistence of large state-owned banks and the entry of foreign banks.

Our second aim here is to investigate the efficiency of Chinese banks in recent years. Several studies analyze bank efficiency in China (e.g. Ariff & Can, 2008; Berger, Hasan, & Zhou, 2009; Chen, Skully, & Brown, 2005; Fu & Heffernan, 2007) but they rely on datasets from the 1990s and early 2000s. We update the discussion of efficiency of Chinese banks by looking at the situation after reforms in the banking industry. One topic of particular interest is whether large state-owned banks still suffer from lower efficiency than their counterparts.

The third aim is to investigate the relationship and causality between competition and efficiency in the Chinese banking industry as these characteristics of market structure are seen as related in other contexts. The intuitive “quiet life” hypothesis suggests that competition promotes higher efficiency. The theoretical “efficient-structure” hypothesis (Demsetz, 1973), in contrast, predicts a negative impact of efficiency on competition, as more efficient banks would benefit from lower costs and thus gain higher market shares. Furthermore, the specific characteristics of bank competition may negatively influence efficiency as reduced competition lets banks benefit from economies of scale in monitoring borrowers and through longer-term customer relationships.

The sign and direction of causality of the relationship between competition and efficiency in the Chinese banking industry have normative implications for bank regulators. If we find evidence showing a positive impact of bank competition on efficiency, the policy conclusion would be that regulators should favor pro-competitive policies in the Chinese banking industry as it promotes economic gains through greater consumer welfare and efficiency of Chinese banks. On the other hand, a finding that efficiency negatively impacts bank competition in line with literature on other countries (e.g. Casu & Girardone, 2009) would imply that bank regulators face a trade-off and should moderate their application of pro-competitive policies. In addition, the observation of a detrimental impact of efficiency on competition that accords with the “efficient-structure hypothesis” would imply pro-competitive policies have little relevance.

Fu and Heffernan (2009) analyze the interrelationships of profitability, cost efficiency, and market structure indicators (concentration indices and market share) for Chinese banks between 1985 and 2002. They find no relation between cost efficiency and market structure indicators. However, their study provides limited evidence relevant to our research question; market structure indicators are relatively crude measures of competition compared to measures based on the new empirical Industrial Organization (IO) approach such as the Lerner index. Furthermore, the relation is not analyzed within the dynamic panel framework and not tested for Granger-causality.

We analyze the relation and causality between competition and efficiency in the Chinese banking industry by computing Lerner indices to measure competition in line with recent studies on bank competition (e.g. Carbo, Humphrey, Maudos, & Molyneux, 2009; Turk-Ariss, 2010). We perform Granger-causality tests to check the direction of causality. Following Pruteanu-Podpiera, Weill, and Schobert (2008) and Casu and Girardone (2009), we embed Granger-causality estimations in Generalized Method of Moments (GMM) dynamic panel estimators designed to handle autoregressive properties in the dependent variable when lagged values are included as explanatory variables. Both papers analyze this issue for samples of European banks. They provide evidence in favor of a negative relation between competition and efficiency, that results from a detrimental impact of competition on efficiency. These results contradict the intuitive notion that competition is positively related to efficiency. We thus ask if a similar conclusion is warranted for the Chinese banking industry.

The rest of the article is structured as follows. Section 2 briefly describes the recent evolution of the Chinese banking industry and surveys the literature related to the relation between competition and efficiency, as well as banking in China. Section 3 discusses data and methodology. Section 4 discusses the results. Section 5 concludes.

2. Background

2.1. The evolution of the Chinese banking industry

The Chinese banking sector has gone through significant reforms in recent decades. Before 1978, the People's Bank of China (PBC) operated in a mono-banking environment. Today, all major Chinese banks measured by assets have staged successful initial public offerings and are listed. They all meet Basel I capital adequacy requirements and are moving to meet Basel II requirements. Four Chinese banks rank among the world's ten largest banks.[2] The banking sector constitutes the most important part of the financial system in China. Bank loans are the main source of external funding, accounting for 75% of all external funding sources at the end of 2010.[3]

[2] As of mid-September 2012, four of the world's ten largest banks in terms of market capitalization were Chinese (KPMG, 2012).
[3] People's Bank of China (2010), *The People's Bank of China Monetary Policy Report*.