



Bank capital buffer decisions under macroeconomic fluctuations: Evidence for the banking industry of China [☆]



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ABSTRACT

This paper focuses on the capital buffer decisions of banks under fluctuations of business cycles and the channels through which countercyclical capital buffers may affect the macroeconomy of China. A one-step GMM estimator is applied to test the above-mentioned topics using a dataset of 45 commercial banks in the 2000 to 2010 period. The findings indicate that (1) capital buffers countercyclically fluctuate over the business cycles, which is different from evidence in developed economies; (2) countercyclical capital buffers are mainly built up by increasing the numerator of capital ratio; (3) credit growth takes on a countercyclical feature, and capital buffers help enhance its countercyclicality; (4) deposit premium is negatively related to capital buffer, and this effect is stronger during economic downturns; and (5) capital buffers are less effective in affecting loan premiums regardless of the business cycles.

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1. Introduction

Drawing lessons from the financial crisis in 2008, the Basel Committee revised the former Basel Accord and established a new regulatory framework, the so-called Basel III, which implies more stringent requirements for financial institutions. The countercyclical capital buffer, which aims to enhance the resilience of a bank in different business cycles, is a significant part under the new framework. Capital buffer refers to the gap between the capital ratio and regulatory requirement. The negative co-movement between capital buffer and business cycles is defined as procyclicality, and it has been considered an important factor that allowed banks to become vulnerable in the 2008 financial turmoil. Banks tend to adopt aggressive attitudes toward their businesses during economic upturns due to increasing loan demand and decreasing capital requirement. Therefore, their risk-taking levels increase, and they become vulnerable to adverse economic shocks.

The Basel Committee enacted the countercyclical capital buffer requirement to mitigate the procyclical capital buffer effects. This mechanism requires banks to establish extra capital buffers during an economic upturn as a precaution for future uncertainties. If this mechanism works, each bank needs to adjust its capital ratio in a countercyclical pattern. Changes in the capital ratios of banks affect the loan supply and risk-taking levels of the entire banking industry, thus smoothing economic fluctuations.

As the second largest economy, China has one of the largest banking industries in the world, with total assets equaling 245% of its GDP as of the end of 2011. The reforms in the banking industry in the past decade were led by the implementation of an 8% capital requirement for commercial banks by the China Banking Regulatory Commission (CBRC) in March 2004. By the end of 2011, all of the 390 commercial banks supervised by the CBRC met or exceeded the minimum 8% capital requirement, with an average of

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12.8%, which proved the widespread capital buffer holding behaviors in the Chinese banking industry. However, as a conflicting example of the prevalent procyclical capital buffer pattern, the banking industry of China seemed robust during the latest financial crisis. Banks did not experience capital shortfalls and credit crunches during the economic downturn. Moreover, their capital ratios increased between the first quarter of 2007 and third quarter of 2008, which signified the outbreak and spread of the financial crisis, and ensured the extension of bank credits during the implementation of the 4-trillion Yuan stimulus plan. These phenomena (Fig. 1) raise the question, “Would capital buffers in the banking industry of China, which seemed robust during the financial crisis, acquire a pattern different from those observed in the Western developed economies?” If so, how does capital buffer affect bank behaviors and consequently the macroeconomy?

After the financial crisis, the capital buffer and adjustment process of banks during business cycles have been discussed with renewed interest (Berrospide & Edge, 2010; Fonseca & González, 2010; Francis & Osborne, 2009; Stoltz & Wedow, 2011). To our knowledge, this is the first paper that uses the data of Chinese banks to examine the relationship between capital buffer and business cycles, as well as the channels through which capital buffers may affect the macroeconomy. The empirical results reveal a positive comovement between capital buffer and business cycles in China; this finding is different from that of studies on Western economies, which indicate that state-owned banks have a weaker countercyclicality. Moreover, the countercyclical capital buffer can reduce (increase) credit growth and increase (decrease) deposit premium during an economic upturn (downturn). The results may motivate supervisory authorities to consider including countercyclical capital buffer in the package of government-initiated macro-control policies.

2. Review of the academic literature

2.1. Capital requirement and bank behavior

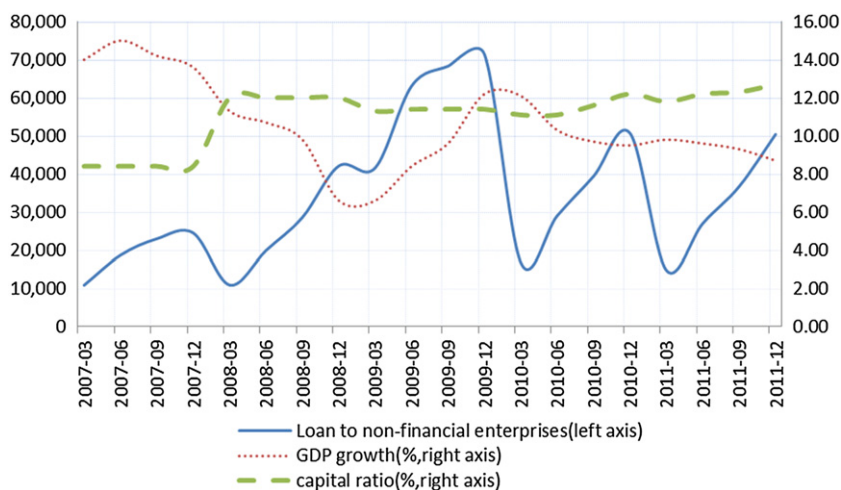
The introduction of capital requirement significantly affects the behaviors of commercial banks. In particular, after the implementation of the Internal Rating Based approach (IRB) in Basel II, commercial banks have maximized the IRB approach to decrease their risk weights. Related behaviors include the following:

Credit crunch: Banks tend to reduce loan supply in response to stricter capital requirements. This tendency has been discussed in several papers, including those of Bernanke and Lown (1991), Rime (1998), Chiuria et al. (2002) and Watanabe (2007).

Discrimination on extending credit to small- and medium-sized enterprises (SMEs): SMEs are often endowed with a higher risk weight and should be allocated with more capital. Commercial banks need to cut down the credit granted to SMEs to meet the capital requirement (Berger, 2006; Ma et al., 2011).

Capital arbitrage: Banks are inclined to remove their assets off balance sheets and hold them in a form with fewer capital requirements as a consequence of capital regulation (Dubecq, 2009; Montgomery, 2005).

Amplifying the procyclical effects of bank credit: During an economic upturn, the credit ratings of borrowers increase, which allows banks to spare more capital to accelerate credit expansion. In contrast, the credit ratings of borrowers decline and the risk weight increases and occupies more capital during an economic downturn. Thus, banks face a stricter capital requirement and must cut down their credit, thus reducing the “capital accelerator” effect (Chami & Cosimano, 2010; Repullo & Suarez, 2010).



Source: China Statistical Yearbook, CBRC

Fig. 1. Loan growth and capital ratios of the Chinese banking industry during financial crisis in 2008.

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