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Adjustment of Bank Capital Ratios:
New Evidence From Commercial Banks

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ABSTRACT

This study explores the speed of adjustment of the capital ratio, regulatory ratio, and tier- I ratio of commercial banks in China by employing the GMM framework from 2006 to 2020. The empirical analysis reveals that banks adjust their regulatory ratio and tier-I ratio faster than the capital ratio of Chinses commercial banks. The findings report that the pace of regulatory ratio, a tier-I ratio of well-capitalized, highly liquid, and high growth banks are faster than under-capitalized, low liquid and low growth commercial banks in China. In addition, the speed of adjustment of regulatory ratio, the tier-I ratio is faster than capital ratio during the GFC-2008 in China. These findings suggest that the regulators may consider the heterogeneity in the speed of capital adjustment across different bank characteristics to formulate new bank regulations; particularly, when assessing and adjusting the specific capital requirements through Pillar II of the Basel III agreement.

KEYWORDS

Capital ratio, Regulatory ratio, Speed of Adjustment, Tier-I ratio

1. INTRODUCTION

The Global Financial Crisis (GFC) of 2008 exposed the global banking system's vulnerabilities. It emphasized the critical role of risk-weighted capital reserves and capital buffers in mitigating risk and sustaining economic growth during times of economic instability. The causes and consequences of the GFC-2008 also emphasized the importance of a stable and robust banking system capable of coping with unanticipated financial and economic instability. Therefore, after the GFC-2008 Basel Committee revised the mechanism for banks to establish capital ratios during the up and downturn economic conditions as a precaution for future unexpected economic events (Abbas, Ali, & Rubbaniy, 2021). This new mechanism of Basel-III for holding and managing bank capital indicates that each bank requires adjusting its capital ratios. As the second-largest economy globally, China has one of the largest banking industries on the globe. In the past decade, the China Banking Regulatory Commission has implemented the Basel-III recommendations for the minimum capital requirement of 8% for their commercial banks (Huang & Xiong, 2015).

A rapidly growing literature analyzes different elements of the Basel-III recommendations for banks (Agoraki, Delis, & Pasiouras, 2011; Barth, Lin, Ma, Seade, & Song, 2013; Borio & Zhu, 2012;

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Bougatef & Mgadmi, 2016). In a particular context, Brandao-Marques, Correa, and Sapriza (2018) explore the role of regulations and bank risk-taking, Chalermchatvichien, Jumreornvong, and Jiraporn (2014) investigate the Basel-III, capital stability, risk-taking and ownership in Asian banking, and Chi and Li (2017) probe the economic policy uncertainty, credit risk and lending decision in China. Chiaramonte and Casu (2017) provide evidence for bank capital and liquidity for European banks, (Ding & Sickles, 2018, 2019) explore the frontier efficiency, capital structure, and portfolio risk of US banks. However, one part of the banking literature that is still absent is how banks change their needed capital ratios following an economic downturn. Furthermore, the speed of the adjustment process to achieve their target capital and variables contributing significantly to the capital adjustment process in the banking sector is also critical topics brought to researchers' attention. Although a few studies (Abbas et al., 2021; Bakkar, De Jonghe, & Tarazi, 2019; De Jonghe & Öztekin, 2015) have investigated the process of capital adjustment for banks but the evidence is still scant and inconclusive. To fill this gap the study attempts to address the following questions: Does the speed of adjustment varies across different types of capital ratios? How does the speed of capital adjustment vary across different levels of the factors for instance banks' capitalization, liquidity, growth, and economic conditions in China?

Our empirical analysis reveals that Chinese banks adjust their regulatory and tier-I ratios faster than their capital ratio. The results support that the speed of adjustment of various capital ratios of well capitalized, under-capitalized, high and low growth and high and low liquid banks of Chinese banks is heterogeneous. The findings report that the pace of regulatory ratio, a tier-I ratio of under-capitalized banks, is lower than well-capitalized banks. Similarly, the speed of regulatory ratio and the tier-I ratio of high liquid banks are quicker than low liquid banks. The rate of adjustment of regulatory ratio and the tier-I ratio of high-growth banks is faster than the adjustment of capital ratio. In addition, the speed of adjustment of regulatory ratio, the tier-I ratio is faster than capital ratio during the GFC-2008 in China.

This study contributes to the existing literature in a few ways. First, the study provides empirical evidence on the speed of capital adjustment using capital ratios, Tier-I ratios, and regulatory ratios, where the work is new in Chinese commercial banks' context. Second, the study investigates the speed of adjustment for well-capitalized and under-capitalized commercial banks, where the evidence is missing in China's context. Third, the study examines the pace of capital ratios for high and low liquid commercial banks in China, which has never been discussed in the existing literature. Fourth, the study provides empirical evidence on the speed of adjustment for high and low-growth Chinese banks. Fifth, the study investigates the role of GFC in the adjustment process of bank capital ratios. Finally, the findings have valued implications for regulators to devise new regulations for adjusting capital ratios. For instance, the results of the study suggest that the regulators may consider the heterogeneity in the speeds of capital adjustment of banks with varying capitalization, liquidity, growth and GFC-2008 for the formulation of new regulations; particularly, for analyzing and revising specific capital requirements following Pillar II of the Basel III agreement.

The remainder of the study is organized as follows: Section 2 analyzes the literature review and formulates hypotheses. Section 3 details the study's research design and methods. Section 4 interprets the analysis, and Section 5 contains the conclusion, policy implications, and study limitations.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Growing theoretical and empirical literature provides support for the presence of an optimal capital ratio (Abbas et al., 2021; Flannery & Rangan, 2008). The most recent and seminal study of Abbas et al. (2021) in the USA concludes that large commercial banks adjust their regulatory capital ratios faster than their traditional capital ratios. Bakkar et al. (2019) investigate the speed of capital adjustment of OECD economies listed banks over the period 2001 to 2012. The study provides evidence that banks adjust their capital ratio faster than regulatory capital ratios in OECD countries. (De Jonghe &