



Contents lists available at ScienceDirect

Journal of Financial Stability

journal homepage: www.elsevier.com/locate/jfstabil



The value of bank capital buffers in maintaining financial system resilience

Christina Bui^a, Harald Scheule^a, Eliza Wu^{b,*},¹

^a Finance Discipline Group, UTS Business School, University of Technology Sydney, PO Box 123, Broadway NSW 2007, Australia

^b Discipline of Finance, The University of Sydney Business School, The University of Sydney, NSW, 2006, Australia

ARTICLE INFO

Article history:

Received 15 December 2016
Received in revised form 12 October 2017
Accepted 25 October 2017
Available online xxx

JEL Classification:

G21
G28

Keywords:

Capital buffer
Loan loss provisions
Systemic risk
Financial resilience

ABSTRACT

There is a current controversy concerning the appropriate size of banks' capital requirements, and the trade-off between the costs and benefits of implementing higher capital requirements. We quantify the size of capital buffers required to reduce system-wide losses using confidential regulatory data for Australian banks from 2002 to 2014 and annual public accounts from 1978 to 2014. We find that a moderate increase in bank capital buffers is sufficient to maintain financial system resilience, even after taking economic downturns into consideration. Furthermore, while banks benefit from paying a lower cost of debt when they have a higher capital buffer, lending volumes are lower indicating that credit supply may be hampered if bank capital levels are too high within a financial system.

© 2017 Elsevier B.V. All rights reserved.

1. Introduction

There is a current debate concerning the appropriate size of capital requirements for banks to mitigate system-wide losses, and the economic trade-off associated with raising more capital. [Admati and Hellwig \(2014\)](#) propose that financial institutions should raise their capital levels by 12% from current levels,² arguing that banks are unconstrained in their capital funding. The [Bank of England \(2016\)](#) has proposed to increase minimum capital levels via a systemic importance buffer of up to 2.5%.³ These numbers are in addition to the capital maintenance buffer and countercyclical capital buffer under Basel III. However, as equity is costly the trade-off between the costs and benefits of raising capital is controversial. Higher capital is often associated with higher funding costs⁴ and lower lending volumes, which in turn leads to lower economic activity.

² [Admati and Hellwig \(2014\)](#) propose increasing total bank capital from the current 13% to 25%.

³ The Bank of England's views have been acknowledged internationally in the context capital buffers. The Brexit referendum has had so far no consequence on bank capital regulations. It is unclear whether Britain will change these views in the future.

⁴ See [Cummings and Wright \(2016\)](#).

* Corresponding author.

E-mail addresses: Christina.Bui@uts.edu.au (C. Bui), Harald.Scheule@uts.edu.au (H. Scheule), Eliza.Wu@sydney.edu.au (E. Wu).

¹ The support by the Center for International Finance and Regulation (CIFR, project number F002) is gratefully acknowledged. CIFR was funded by the Commonwealth and NSW Governments and supported by other consortium members (see www.cifr.edu.au). We thank the Australian Prudential Regulation Authority and in particular Charles Littrell (Executive General Manager, Policy, Supervisory Support Division), David Connolly (Manager, Banking Statistics – Policy, Statistics and International Division) and Meghann Garry (Senior Statistics Analyst – Supervisory Support Division) for the provision of data as well as helpful feedback. We thank Michael Hawari and Mai Luong for valuable research assistance. Wu would also like to acknowledge the support from the Australian Research Council for DP170101413. We are grateful to Charles Calomiris, Talis Putnins, Lorenzo Casavecchia, Marco Navone, Ben Marshall, Shams Pathan, Amelia Pais Rodriguez, Alden Toevs, David Tripe, Bill Wilson, and two anonymous CIFR referees for helpful comments. All errors remain our own. We would also like to thank participants in seminars at the University of Technology Sydney and Massey University as well as the 7th Financial Markets and Corporate Governance Conference, the Paul Wooley Centre for Financial Market Dysfunctionality Workshop, the UTS PhD Symposium, the CIFR Banking Research Symposium and the IGF/ADB Financial Cycles, Systemic Risk, Interconnectedness, and Policy Options for Resilience Conference 2016. All errors remain our own

In this paper, we analyse the dynamics of loan loss rates and the interactions of such dynamics on banks' capital buffers and system resilience using a sample of Australian banks. In addition, we also examine the implications of raising capital for banks' funding costs and profitability. We define capital buffers as the difference between the observed capital of banks and the minimum capital requirements.

Australia offers a unique setting to study the link between systemic risk and capital buffers as it overcomes the data constraint faced in many other economies for which bank data has not been collected through periods of significant financial distress for a wide cross-section of banks. The finding of variations in systemic risk for different time periods can hence, be extrapolated and read with interest for many other open economies with limited downturn data, which in total comprise a significant proportion of global banking assets. In this study, systemic risk is defined as the common shock to loan loss provisions in excess of anticipated loan loss provisions and existing capital levels. The detailed prudential data collected by the Australian Prudential Regulation Authority (APRA) on Australian Deposit-taking Institutions is paramount to our objective to better understand the impact of bank capital on system-wide losses.

Our study contributes to the existing banking literature (in particular within the Asia-Pacific region) on banks' credit losses and their interactions with financial system resilience and capital buffers in several ways. Firstly, we provide empirical evidence on the role of the inclusion of economic downturns in measuring systemic risk. To the best of our knowledge, this study is the first that analyses the systemic risk of the Australian banking system whilst accounting for business cycles. We highlight the importance of using an economic downturn period in the analysis of bank loan losses. The evidence further suggests a possibility that banks that have adopted the internal ratings based (IRB) approach using recent data do not fully account for the likelihood of banking crises in their internal models and consequently may be undercapitalized during financial crises under the Basel capital adequacy framework.

Secondly, we quantify the relationship between banks' capital buffers and the size of the financial safety net. Most extant studies examine the direction of this relationship (see for instance, [Thakor, 2014](#)), yet few have looked at this aspect in measurable terms. Using our simulation study, we measure the size of financial safety nets based on the capital buffers and show that there is a non-linear impact on system resilience for larger capital buffers. The size of the Australian financial system protection schemes is measured by computing the absolute losses (in excess of capital buffers) in the system. These losses are not explained by loan loss provisioning models and hence, serve as a reflection of unexpected risk. Specifically, we examine two unconditional loss measures for systemic risk – Value-at-Risk (VaR) and Conditional Value-at-Risk (henceforth, Expected Shortfall). Our findings support the moderate capital buffer increase of about 2% on top of current levels as proposed by the Bank of England.

Thirdly, we are able to affirm that higher loss rates lead to higher funding costs faced by banks, while the funding costs decrease as banks' capital buffers increase. Specifically, an increase in banks' capital buffers is associated with a reduction in the cost of debt financing. Furthermore, we also document a slight decrease in loan growth following an increase in capital levels. The results contribute to the debate regarding the trade-off between the benefit of lowering banks' funding costs and the reduction in credit supply within the banking sector.

The paper proceeds as follows. Section 2 summarises the relevant literature that motivate the current study. Section 3 outlines the data. Section 4 describes the research design, and presents the main empirical results and robustness checks. Section 5 discusses

the controversial impacts of higher capital requirements. Section 6 concludes the paper.

2. Related literature

2.1. Financial system resilience

Our study relates to the growing literature on financial resilience. System resilience refers to the ability of the financial system to withstand or recover from losses, should they incur. The impact of system-wide losses on the real economy can be measured by examining the interconnections between the financial markets and various industry sectors. Banks are documented as the industry group that has most systemic risk in Australia ([Dungey et al., 2014](#)). Other international studies also apply different methods for systemic risk modelling ([Walimir et al., 2017](#)). For instance, [Souza \(2016\)](#) models the Brazilian banking system as a network of banks mutually exposed, in which the medium-sized banks can impose a significant contribution to systemic risk.

As shown in prior studies, systemic risk levels can also be used to provide early warning signals for ensuing financial crises and is closely related to future economic downturns ([Allen et al., 2012](#); [Zhang et al., 2015](#); [Acharya et al., 2017](#)).

Studies on Asia-pacific countries have mainly focused on market-based approaches to measuring systemic risk. Using equity price information, [Fong et al. \(2011\)](#) and [Wong et al. \(2011\)](#) assess the systemic risk, based on the Conditional Value-at-Risk, of the Hong Kong banking sector using loan loss provisioning and Merton default probabilities, respectively. To understand the build-up of systemic losses within a financial system, recent papers also measure the interconnectedness between banks and different sectors in the Australian economy and international markets ([Dungey et al., 2016](#); [Anufriev and Panchenko, 2015](#)). More recently, [Roesch and Scheule \(2016\)](#) develop an econometric model to analyse systemic risk in relation to bank lending for Asian economies using bank portfolio loss rates.

The related literature on bank financial resilience ([Brownlees and Engle, 2017](#); [Adrian and Brunnermeier, 2016](#); and [Acharya et al., 2017](#)) relies on traded share prices and credit default swap spreads that are available only for a small number of larger sized banks and this severely limits the usefulness of these existing systemic risk measures. [Brownlees and Engle \(2017\)](#) propose an index (SRISK) to capture the systemic risk contribution of a financial firm and the aggregate financial system using public information on market and firm returns. This index is measured by the expected capital shortage that a firm would experience in times of a substantial market decline, which is related to the conditional equity loss (i.e. Marginal Expected Shortfall).

Similarly, [Acharya et al. \(2017\)](#) look at an individual bank's contribution to systemic risk by measuring its systemic expected shortfall (SES) using bank assets, and the book and market value of equity. This SES measure is interpreted as the expected amount that a bank is undercapitalized in the event that the whole system is undercapitalized.

On the other hand, [Adrian and Brunnermeier \(2016\)](#) suggest an alternative systemic risk measure, which is the conditional Value at Risk (CoVaR) of a financial sector conditioning on whether a bank has had a VaR exceeding loss. The main distinction between the systemic risk measures of [Adrian and Brunnermeier \(2016\)](#) and [Acharya et al. \(2017\)](#) is that the CoVaR measure looks at the system's stress given that an individual firm is experiencing stress, while the latter analyses a financial firm's stress conditional on a systemic stress. Their empirical analysis also uses equity prices for US publicly traded financial institutions.

Download English Version:

<https://daneshyari.com/en/article/7409211>

Download Persian Version:

<https://daneshyari.com/article/7409211>

[Daneshyari.com](https://daneshyari.com)