How should we measure bank capital adequacy for triggering Prompt Corrective Action? A (simple) proposal

Lucy Chernykh a,1, Rebel A. Cole b,*

a Clemson University, 336-D Sirrine Hall, Clemson, SC 29632, United States
b DePaul University, 1 E. Jackson Blvd. – Room 5531, Chicago, IL 60604, United States

ARTICLE INFO

Article history:
Received 6 March 2015
Received in revised form 26 June 2015
Accepted 19 August 2015
Available online 28 August 2015

JEL classification:
G21
G28
G32
G33

Keywords:
Bank failure
Banking supervision
Basel
Capital adequacy
Forbearance
Prompt corrective action

ABSTRACT

In this study, we test the predictive power of several alternative measures of bank capital adequacy in identifying U.S. bank failures during the recent crisis period. We find that an unconventional ratio – the non-performing asset coverage ratio (NPACR) – significantly outperforms Basel-based ratios including the Tier 1 ratio, the Total Capital Ratio, and the Leverage ratio – throughout the crisis period. It also outperforms in predicting failures among “well-capitalized” banks (as defined by the current Prompt Corrective Action guidelines). Based on our results, we argue that NPACR outperforms other ratios in at least five aspects: (i) it aligns capital and credit risks – the two primary risks of bank failures – in one measure; (ii) it is easier to calculate than the Tier 1 and Total Capital ratios, as it requires calculation of no complex risk weights; (iii) it allows one to account for various time period and cross-country provisioning rules and regimes, including episodes of regulatory forbearance and cross-country differences; (iv) it removes the incentives of both banks and regulators to mask capital deficiencies by creating/requiring insufficient loan-loss reserves; and (v) it outperforms all other commonly used capital ratios in predicting bank failures. We believe that all the above features of proposed measure promise its effective use in the prompt corrective actions by bank regulators. We also expect that this single and informative measure of bank risk can be efficiently used in empirical banking studies. The results of this study also shed light on regulatory forbearance during the recent banking crisis.

© 2015 Elsevier B.V. All rights reserved.

1. Introduction

How should we measure bank capital adequacy for triggering prompt corrective action by supervisors? The answer to this seemingly simple question is the central piece of the prudential regulation in modern banking and the core element of ongoing regulatory, practitioners’ and academic debates. Regulators and supervisors need a simple and timely measure that is a reliable and robust indicator of a bank insolvency risk and that can trigger prompt corrective actions. Practitioners need a simple, intuitive, and robust measure that is easy to calculate and monitor. Scholars want all of the above – plus the ability to calculate a consistent measure over long time series and across countries whose bank regulators collect only rudimentary supervisory data.

Amid the evolving Basel accords, regulators around the world have used increasingly complex measures of bank capital adequacy. As these measures become more complex and tedious to calculate, they account for a broader range of potential bank risk factors, but differ substantially among banks of different size, scope of operations, and from different national regulatory regimes. Haldane (2011) notes that, under Basel I, only a few calculations would produce a representative large bank’s regulatory capital ratio; under Basel II, closer to 200 million calculations are needed. The latest iteration of capital adequacy rules under Basel III does little to reverse this mind-numbing complexity. Haldane (2012) argues that “the type of complex regulation developed over recent decades might not just be costly and cumbersome but sub-optimal for crisis control.”

In this study, we follow Haldane’s advice by offering a very simple, timely, and robust measure of capital adequacy that we argue is superior to Basel regulatory capital ratios for use in prompt corrective action. We support our claim with macro- and bank-level evidence from the U.S. banking system documenting early warning performance for our proposed capital adequacy measure that is superior to the Basel regulatory capital ratios.
Our proposed capital adequacy ratio, which we call the Non-performing Assets Coverage Ratio (NPACR), explicitly accounts for the capital-constrained banks’ reluctance (or inability) to build up adequate reserves for anticipated future loan losses, and for regulators’ forbearance in enforcing loan-loss reserving requirements. More specifically, our proposed simple formula for the NPACR ratio is as follows: total equity capital plus loan-loss reserves less non-performing assets, all divided by total assets (all in book values).\(^2\) Each component of this formula is readily available from a representative bank’s regulatory filings. The intuitive interpretation of the NPACR as a capital adequacy measure also is straightforward: it is the ratio of equity to assets when every bank is forced to adequately provision against its non-performing assets. Insufficient loan-loss reserves against accumulated nonperforming bank assets should effectively reduce bank capital adequacy while excessive loan-loss reserves should strengthen the bank’s capital position.

We empirically test the NPACR ability to detect problem banks and to predict bank failures using the large sample of U.S. depositary institutions around the recent financial crisis. When compared to other commonly used regulatory capital ratios, we find that the NPACR is more sensitive as an early warning indicator of bank solvency problems. Using U.S. bank-level data for the 2007–2012 period, we also show that the NPACR reveals severe regulatory forbearance and delays in closing banks with extreme levels of non-performing assets and grossly insufficient loan-loss reserves, but with “adequate” traditional capital ratios. This forbearance enabled U.S. bank regulators to skirt the prompt corrective action (PCA) regulations put into place after the last U.S. banking crisis, which saw more than 1000 bank closures during 1984–1992.\(^1\) Finally, we document that, even in the faced of the regulatory forbearance, NPACR can predict bank failure outcomes at least as well as the more computationally intensive measures including the Basel 2 risk-weighted capital ratios.

By relying on the macro- and bank-level evidence provided in this study, we argue that NPACR has at least five important strengths compared to all other commonly used capital adequacy ratios. First, it allows us to account for the two primary banking risks – capital adequacy and asset quality – in one simple measure. Second, it is informative, intuitive, and easy to calculate; as such, it simplifies bank monitoring by regulators and market participants. Third, it eliminates incentives of bank management to mask capital deficiencies by failing to create sufficient loss reserves and/or failing to write off non-performing assets as required by regulations. Fourth, the incorporation of NPACR information into the formal bank supervision and prudential regulation is a low-cost solution that should constrain regulators’ discretion in addressing shortcomings of loss recognition and provisioning by problem banks. Last, but not the least, the NPACR can be successfully used as a capital adequacy measure across countries, and, within countries, across time.\(^4\)

At the same time, on a less optimistic note, we presume that the NPACR-based monitoring would be adamantly opposed not only by the banking industry, but also by bank regulators, as it closes a number of loopholes for the regulatory arbitrage in bank capital management and limits the discretion (i.e., “regulatory forbearance”) of bank supervisors in enforcing prompt corrective actions. However, from the banking system stability and the market discipline enhancement points of view, the NPACR measure offers easy-to-calculate yet informative indicator that brings to the surface the banks’ actual capital position and singles out seemingly well-capitalized banks with massive nonperforming assets and insufficient cushion for these anticipated losses.

Our study makes three important contributions to the literature on financial institutions. First, we contribute to the literature on bank capital adequacy (see, e.g., Pettway, 1976; Sharpe, 1978; Buser et al., 1981; Kashyap et al., 2008; Allen et al., 2011b; Admati et al., 2013; Rosengren, 2013). We demonstrate that the simple and intuitive NPACR outperforms the complex Basel regulatory capital ratios in forecasting bank failures in the U.S. Because the NPACR is simple to calculate across time and across countries, it holds great promise for researchers looking to analyze capital adequacy, but limited by the availability of supervisory data needed to calculate Basel regulatory capital ratios.

Second, we contribute to the literature on regulatory forbearance and prompt corrective action (see, e.g., Dahl and Spivey, 1995; Jones and Kester-King, 1995; Aggarwal and Jacques, 2001a,b). We provide convincing new evidence that U.S. bank regulators engaged in a massive scheme of forbearance during 2008–2013 that subverted the prompt corrective action provisions of the FDIC Improvement Act of 1991. Our evidence points to the need for new laws and/or regulations designed to limit the discretion of regulators in enforcing laws duly passed by the U.S. Congress.

Third, we contribute to the literature on bank failures (see, e.g., Sinkey, 1975; Bovenzi et al., 1983; Lane et al., 1986; Gajewski, 1989; Thomson, 1992; Cole and Gunther, 1995, 1998; Estrella et al., 2000; Halling and Hayden, 2006; Cole and Wu, 2014; Mayes and Stremmels, 2012; Cole and White, 2012; Berger and Bouwman, 2013; Cole and Wu, 2014). We offer a new measure of capital adequacy, and then demonstrate that it is superior to Basel regulatory capital ratios in predicting bank failures.\(^5\) Because of its simplicity, the NPACR holds great promise for researchers seeking to analyze bank failures across time and/or across countries.

One important caveat: This is a study of alternative capital ratios; it is not a study of the determinants of bank failures. For recent evidence on the determinants of banks failures, we refer the reader to DeYoung and Torna (2013), Cole and White (2012), and Shaffer (2012); for a survey of the literature on bank failures, we refer the reader to Demyanyk and Hasan (2009).

The rest of the paper is organized as follows. In Section 2, we provide a short review of the literatures on capital adequacy and prompt corrective action. In Section 3, we briefly discuss the evolution of the regulatory capital ratios in the U.S. banking system and the recent state of the regulatory and academic debate on the reliable bank capital measures. Section 3 also introduces the NPACR measure by illustrating its relevance in detecting

\(^2\) The NPACR is similar in spirit to the so-called “Texas Ratio” developed during the 1980s by Gerard Cassidy and others at BRC Capital for analyzing troubled banks, which is defined as nonperforming assets divided by the sum of equity capital and loan-loss reserves. More recently, the Basel Committee on Banking Supervision has proposed a “net NPA ratio” as a measure of asset quality, defined as (Non-performing loans and leases + Provisions) + (Non-performing debt securities and other interest-bearing balances – Provisions)/(Total loans and leases + Total debt securities + Interest-bearing balances. See BIS (2014, p. 6). However, neither of these ratios have the intuitive interpretation as a capital ratio.

\(^1\) Section 131 of the FDIC Improvement Act of 1991 included a set of regulations designed to eliminate regulatory forbearance by requiring U.S. bank regulators to place into conservatorship within 90 days any depository institution whose tangible equity capital fell below two percent of assets. By failing to require that troubled banks write off non-performing assets, regulators were able to avoid this requirement during the 2009–2013 period. At the end of 2013, the FDIC reported that more than 500 banks remained on its “problem bank” list, while only 22 such banks were closed during all of 2013. Hence, it appears that forbearance is alive and well in the U.S.


\(^5\) Like us, Mayes and Stremmels (2012) contrast a simple unweighted measure of capital adequacy based upon the leverage ratio with the complex Basel risk-weighted ratios. They find the former to be more accurate than the latter.
دریافت فوری
متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات