International Business Review xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

International Business Review

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

# An international examination of the economic effectiveness of banking recapitalization

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ARTICLE INFO

*Article history:*
Received 5 January 2016
Received in revised form 27 September 2016
Accepted 14 October 2016
Available online xxx

*JEL classification:*
G21
G28
E44

*Keywords:*
Banking crisis
Financial risk
Bank regulation
Banking recapitalization
International business

ABSTRACT

While the literature on capital adequacy and bank recapitalization agrees on the importance of a minimum capital requirement, recurring financial crises across the world do little to suggest that capital adequacy is enough protection for banks, even when they fully comply. By examining the case of regulation compelled banking recapitalizations in a cross-country context (during the period 1990Q1–2016Q2), we scrutinize the effectiveness of banking recapitalization on the economies of recently recapitalized countries. We provide implications for international business research, practice and policy by highlighting the need for countries adopting the Basel capital adequacy framework to pay attention to the peculiarities of their economies, the supporting regulatory mechanisms and their comparative spare capacities.



## 1. Introduction

The Basel regulatory capital frameworks focused on the need to create an adequate level of capital in the international banking system (Bank for International Settlements, 1988, 2001, 2011, 2013). Where there is a shortfall, banks are required or compelled by regulation to recapitalize. In agreement with such capital requirements, the bulk of the empirical literature in this space suggests that banking recapitalization improves the banking system's efficiency (Francis & Osborne, 2012; VanHoose, 2007). This literature argues that banking recapitalization increases the ability to expand the traditional lending role of banks in the economy and allows banks to have an increased ability to withstand adverse economic pressures, thereby providing more stability for international businesses and the international banking system (Berger & Bouwman, 2013; Repullo & Suarez, 2013). However, even in the face of complete adherence to such capital requirements, the international banking system has consistently witnessed crises. This has led to questions about the effectiveness of capital adequacy requirements in ensuring bank vitality and depositors' protection. For instance, the failure to avert the 2007/2008 global financial crisis is the most recent criticism regarding the effectiveness of the Basel banking capital requirements in ensuring banking system stability.[1]

Previous empirical studies examining the effectiveness of banks' capital requirements have focused on immediate banking sector indices such as profitability, competition, loan creation, cost efficiency, amongst other micro indicators (see for example, Apergis, Fafaliou, & Polemis, 2016; Berger & Bouwman, 2013; Francis & Osborne, 2012). These studies mostly relied on the assessments of banks' performance under inadequate and adequate capital, usually targeting periods, before, during and after recapitalization, to examine the effectiveness of banking recapitalization. However, there has been almost no attempt to

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[1] A recent study by Markman and Venzin (2014) examined the resilience of the banking industry using the recent financial crisis as a stress test.

http://dx.doi.org/10.1016/j.ibusrev.2016.10.002
0969-5931/

understand the wider effectiveness of banking recapitalization on macroeconomic indicators such as industrial production, stock market indices, inflation rates, amongst others, especially in regulation compelled recapitalizations. Through the reactions of macroeconomic variables within five economies (Malaysia, Mexico, Nigeria, Spain and USA) chosen based on a defined selection criteria (highlighted in Section 4), this paper addresses this gap in literature and makes two important contributions to international business discourse.

First, this paper examines the effectiveness of banking recapitalization in the economies where banks were compelled to recapitalize by regulatory authorities in recent times. Specifically, we tested for the counter suggestion in Barrios and Blanco (2003) which argued that market forces rather than regulatory changes should determine banks' capital requirements. We tested the influence of regulatory compelled banking recapitalization on broad economic indicators such as industrial production (IP), exchange rate (ER), stock market index (SI), inflation (IR) and lending rate (LR). Our approach differs from the extant empirical studies which focused more on immediate banking sector variables (Apergis et al., 2016; Berger & Bouwman, 2013; Francis & Osborne, 2012). Even while the studies of Angelini, Neri, and Panetta (2014) as well as Repullo and Suarez (2013) applied macroeconomic variables, these studies did not address the effectiveness of banking recapitalization on the economies of regulation compelled recapitalizing countries. While Repullo and Suarez (2013) concentrated on comparing Basel's capital regimes, Angelini, Neri and Panetta (2014) focused on the interaction between capital requirements and monetary policy. Similarly, Francis and Osborne (2012) only considered the exogenous effects of GDP (which is too general as an indicator of economic growth) on banking recapitalization. However, industrial production provides a more specific measure of banking recapitalization given its penchant for improving lending activities to the real sector of the economy (Dell'Ariccia, Detragiache, & Rajan, 2008). A further dimension of our contribution here is our analysis of the effect of banking recapitalization on different sectors of the economy, a perspective which the extant empirical studies have not considered.

Our second contribution to international business literature comes from our examination of the periodic effect of banking recapitalization. Studying short-run dynamics as compared to long-run equilibrium provides a better understanding of the recapitalization effect. This allows us to delineate whether such effects are enduring or short-lived. Here, previous studies mostly focused on the broad time effect, with limited effort aimed at understanding whether banking recapitalization has short-run or long-run economic effects. Some of the existing studies examined crisis and crisis-free times (see e.g., Yildirim & Philippatos, 2007). As such, the exogenous application of macroeconomic variables under a broad timeframe as seen in Francis and Osborne (2012) is varied in the current study to account for direct periodic effects. Accounting for periodic effect will enable us to understand the wider economic implication of banking recapitalization on the productive sector and the dynamics of banking recapitalization in a cross-country context.

The remainder of this paper is organized as follows. Section 2 reviews relevant literature, including the relationship between banking recapitalization and macroeconomic indicators. The methodology and models are discussed in Section 3. We present our data in Section 4, where we also explain the choice of our investigated variables. In Section 5, we present, analyze and discuss our results on the economic significance of banking recapitalization. In our concluding section, we present some implications of our study.

## 2. Review of literature on banking recapitalization: an international appraisal

The capital adequacy ratio stipulated in the Basel regulatory framework remains a widely acceptable measure for risk-based capital requirement internationally. This is vastly achieved through the stipulation of a minimum[2] capital adequacy ratio which regulators enforce in ensuring that banks can absorb reasonable amounts of losses due to their operations. Where this falls below the minimum, banks will be required to recapitalize. However, different countries have had diverse experiences from banking recapitalization. For example, the recapitalization experiences of Malaysia (Sufian & Habibullah, 2013), Mexico (Maudos & Solís, 2011; Yildirim & Philippatos, 2007), USA (Repullo & Suarez, 2013) and Spain (Montes, 2014) resulted in a stronger banking and financial system. Both Montes (2014) and Maudos and Solís (2011), respectively, pointed how the Mexican and the Spanish economies were able to use banking recapitalization in managing adverse consequences of economic crises. Also, Sufian and Habibullah (2013) discussed how the Malaysian banking recapitalization was able to steer the economy out of the 1997 Asian financial crisis. In contrast, the Nigerian banking system became exposed to distress, with eight out of the country's twenty five banks having to be rescued by the central bank less than three years after the country's 2005 banking recapitalization program (Central Bank of Nigeria, 2011).[3] The Nigerian example contradicts empirical findings, for example in Montes (2014) and Maudos and Solís (2011), which suggest that a country's banking sector would be capable of avoiding financial distress by recapitalizing.

Different countries also have divergent targets with regards to recapitalization. On the one hand, apart from the US which has the tradition of continuous banking sector reforms, most of the aforementioned countries went into banking recapitalization to avert or react to a financial crisis. The Malaysian banking recapitalization, for example, was largely a reaction to the 1997 Asian financial crisis (Sufian & Habibullah, 2013), while the Spanish banking recapitalization was a direct response to the 2007–2008 global financial crisis (Montes, 2014). On the other hand, Barrios and Blanco (2003) suggest that market forces, rather than, regulatory changes determine banks' capital requirements. This implies that an economy has to be witnessing expansion activities for an increase in the banking sector capital base to be able to make much impact. Therefore, a growth in industrial production which is linked to improved bank lending as a result of recapitalization is expected to impact the economy positively.

Despite adherence to the Basel regulatory risk-based capital requirement by most countries, it is still not clear if such a measure is able to achieve the desired protection for banks in recapitalizing countries. Even as we see a compelling level of support for banking recapitalization (Berger & Bouwman, 2013; Francis & Osborne, 2012; Repullo & Suarez, 2013; VanHoose, 2007), the effectiveness of such exercise on the economies of recapitalizing countries is not clear. However, banking recapitalization potentially increases banks' ability to expand their lending role as it gives access to more capital, which is expected to bring about economic expansion and stimulate more business activities.

However, the focus of previous studies has been on the assessments of banks' performance during and after recapitalization. Here, studies have traditionally not examined the effective-

[2] The Basel framework stipulates a common minimum holding of 8% risk-weighted assets for all international banks.

[3] We recognise that other factors relating to behavioural tendencies may contribute to some of these failures (for example, see Francis & Osborne, 2012; VanHoose, 2007).