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# Bank regulation and supervision in the context of the global crisis



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#### ABSTRACT

We provide novel evidence on regulatory and supervisory practices around the world in the context of the global financial crisis, using data from a new World Bank survey covering 143 countries. Analyzing differences between crisis and non-crisis countries, we find that crisis countries had less stringent and more complex definitions of capital but exhibited lower actual capital ratios, faced fewer restrictions on non-bank activities, were less strict in the regulatory treatment of bad loans, were less able to demand banks to adjust their equity, provisions or compensation schemes, and had greater disclosure requirements but weaker incentives for private agents to monitor banks. Comparing regulatory and supervisory practices before and after the global crisis, there is evidence of few changes. While capital ratios increased, bank governance and resolution regimes were strengthened, private sector incentives to monitor banks

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## 1. Introduction

Bank regulation and supervision has been the subject of much recent debate and attention, due in large part to the global financial crisis that started in the late 2000s. The debate is still very much ongoing, with the crisis still not fully over yet, and the recovery being weak at best. A number of studies have pointed to weaknesses in regulation and supervision as one of the factors leading to the crisis (Dan, 2010; Lau, 2010; Levine, 2010; Merrouche and Nier, 2010). The crisis raised important questions on the appropriateness of the regulatory and supervisory approaches pursued in the run-up to the crisis, prompting regulators to consider changes in regulation and supervision. Despite the interest in the topic and numerous initiatives on the global regulatory framework (such as those by the Basel Committee on Banking Supervision), there is a surprising lack of consistent and up-to-date information on the regulatory and supervisory approaches employed in countries around

This paper addresses two important questions related to bank regulation and supervision in the context of the recent global crisis. First, how did the regulatory and supervisory frameworks of countries that were directly hit by the global financial crisis differ from the rest of the world? Second, how have national regulatory and supervisory practices changed during the global financial crisis? To address these questions, the paper performs a series of statistical tests using a new installment of the World Bank's Bank Regulation and Supervision Survey. The survey, conducted in 2011-2012, is an updated and substantially expanded version of earlier surveys of the same name, released by the World Bank in 2001, 2003, and 2007.<sup>2</sup> The current, fourth iteration of the survey provides detailed information on bank regulation and supervision for 143 jurisdictions in 2008-2010, allowing us to examine the recent state of bank regulation and supervision in a wide range of countries and to compare it to the pre-crisis situation.

Based on a series of univariate tests and probit estimations, we find significant differences between crisis and non-crisis countries

the world on the eve of the crisis and the changes brought about by this significant event.

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<sup>&</sup>lt;sup>1</sup> See Brunnermeier (2009) and Taylor (2009) for an account of the events and factors leading to the liquidity and credit crunch of 2007–2008.

<sup>&</sup>lt;sup>2</sup> The three previous surveys captured information as of 1999, 2001, and 2005, respectively (Barth et al., 2001).

in several aspects of regulation and supervision. First, crisis countries had less stringent and more complex definitions of capital and lower actual capital ratios. Second, banks in crisis countries faced fewer restrictions on non-bank activities such as insurance, investment banking, and real estate. Third, regulations concerning the treatment of bad loans and loan losses were less strict in crisis countries. Fourth, regulators in crisis countries were less able to demand banks to adjust their equity, provisions or compensation schemes. Finally, in crisis countries, there were greater disclosure requirements but weaker incentives for the private sector to monitor banks' risks.

Given the potential for endogeneity biases (arising from possible reverse causality and omitted variables) in our analysis of the role of regulation and supervision on the incidence of the crisis, we also undertake instrumental variable estimations.<sup>4</sup> Following Barth et al. (2004), we use legal origin, religious composition, and distance from the equator to instrument the regulation and supervision variables. For the most part, these estimations confirm the results discussed above. Nonetheless, to err on the side of caution, we interpret our results as associations and refrain from making assertions on the direction of causality.

Comparing regulation and supervision before and after the global crisis, using a series of tests and regressions, we observe that responses to the crisis have been evolutionary at best, with most features of regulation and supervision unchanged relative to the pre-crisis period. We do find, however, evidence of changes in some areas. In particular, capital ratios increased, reforms were introduced pertaining to bank governance and bank resolution, and deposit insurance schemes became more prevalent. This last change suggests that private sector incentives for monitoring banks' risks have deteriorated. Overall, the findings suggest room for improvements in regulation and supervision as well as in incentives for private sector monitoring of banks' risks.

This paper is related to other empirical studies that examine the link between financial crises and bank regulation and supervision.<sup>5</sup> In particular, this study is most closely connected to those of Barth et al. (2004), Beck et al. (2006) and Kim et al. (2012), which use previous waves of the Bank Regulation and Supervision Survey to examine the role of regulation in financial crises. There are three important differences between this paper and the studies mentioned above. First, we conduct our analysis not only with data from previous waves of the regulation and supervision survey, but also with updated data from the 2011 wave of the survey. Second, and related, ours is the first study to systemically document changes in regulation and supervision brought on by the recent global financial crisis. Third, rather than limiting our analysis to the indexes of regulation and supervision proposed by Barth et al. (2001), we undertake a more detailed analysis of the association between the incidence of the recent financial crisis and the regulatory and supervisory framework by examining each of the questions pertaining to the supervisory and regulatory environment in the period before and during the global crisis.

The rest of the paper is organized as follows. Section 2 introduces the data. Section 3 focuses on regulatory and supervisory differences between crisis and non-crisis countries. Section 4 studies changes in regulation and supervision during the crisis. Section 5 concludes.

#### 2. Data

The empirical analysis in this paper is based on the 2011–2012 Bank Regulation and Supervision Survey conducted by the World Bank.<sup>6</sup> The survey covers 143 countries, of which 37 are advanced economies and 106 are emerging market and developing economies (EMDEs).<sup>7</sup> These include most major economies (all G-20 countries except for Japan and Saudi Arabia) and countries from all regions (Fig. 1). Overall, the survey sample provides a broadly balanced representation of countries in terms of income level and population size.

In terms of topical coverage, the survey is quite comprehensive, providing a unique and valuable set of information on a wide range of issues related to bank regulation and supervision. It contains over 270 questions, some with sub-questions. In total, the survey covers about 630 features of bank regulation and supervision, in the following 14 broad areas: (1) entry into banking, (2) ownership, (3) capital, (4) activities, (5) external auditing requirements, (6) bank governance, (7) liquidity and diversification requirements, (8) depositor (savings) protection schemes, (9) asset classification, provisioning, and write-offs, (10) accounting and information disclosure, (11) discipline/problem institutions/exit, (12) supervision, (13) banking sector characteristics, and (14) consumer protection. For reasons of comparability with the previous three rounds of the survey, about a half of the questions in the 2011-2012 survey are similar to those in previous rounds. To result in more precise answers, a few questions have been reformulated. Also, almost half of the questions added focus on issues highlighted by the crisis (e.g. macro-prudential regulation and consumer protection) and on matters related to the implementation of the new Basel rules. Some 58% of the survey consists of binary questions that could be answered "Yes" or "No". About five percent of the questions are categorical questions, wherein respondents are required to choose one or more options from a set of alternatives. The remaining 37% are quantitative questions, which include various questions about ratios, currency amounts, and other numerical indicators.

### 3. Differences between crisis and non-crisis countries

What were the key differences in the regulatory and supervisory structure of countries that were engulfed in the recent global crisis and those that were not? Much has already been written about the causes of the recent global crisis (Caprio et al., 2010; Claessens et al., 2010; Demirguc-Kunt and Serven, 2010; Rajan, 2010; Barth et al., 2012, among others), and discussion on the explanations of the crisis is still ongoing. In this section, we examine the role of regulation and supervision by analyzing differences between crisis and non-crisis countries based on the 2007 and 2011–2012 Bank Regulation and Supervision Surveys. We consider both surveys because regulation and supervision could have changed during the crisis

<sup>&</sup>lt;sup>3</sup> The observation that crisis countries had lower capital-to-assets ratios cannot alone lead to the conclusion that capital ratios were suboptimal. Since the crisis primarily affected developed countries with traditionally less volatile economic environments and with more credible safety nets, the lower capital ratios might have been optimal ex-ante.

<sup>&</sup>lt;sup>4</sup> Another limitation of our analysis is that we examine the role of regulation and supervision based on what is reported by regulators. This somewhat limits our ability to distinguish between *de facto* and *de jure* regulation and supervision, although the questionnaire does ask questions covering both.

<sup>&</sup>lt;sup>5</sup> There is also a vast literature discussing the role of the government in regulating economic activity (Pigou, 1938; Stigler, 1971; Shleifer and Vishny, 1998).

<sup>&</sup>lt;sup>6</sup> Detailed methodology and results of the survey are at http://go.worldbank.org/WFIEF81AP0. For previous iterations of the survey see http://go.worldbank.org/SNUSW978P0.

<sup>&</sup>lt;sup>7</sup> See http://go.worldbank.org/WFIEF81AP0 for a country list. The distinction between "advanced economies" and "emerging market/developing/economies" follows IMF's September 2011 World Economic Outlook.

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