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The regulator's trade-off: Bank supervision vs. minimum capital

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ABSTRACT

We develop a simple model of banking regulation with two policy instruments: minimum capital requirements and the supervision of domestic banks. The regulator faces a trade-off: high capital requirements cause a drop in the banks' profitability, whereas strict supervision reduces the scope of intermediation and is costly for taxpayers. We show that a mix of both instruments minimises the costs of preventing the collapse of financial intermediation. Once we allow for cross-border banking, the optimal policy is not feasible. If domestic supervisory effort is not observable, our model predicts a race to the bottom in capital requirement regulation. Therefore, countries are better off by harmonising regulation on an international standard.

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1. Introduction

As demonstrated by the recent financial crisis, asymmetric information between depositors and banks may cause a breakdown of financial markets. Empirical studies suggest that the probability of such a confidence crisis, i.e., the stability of the banking sector, responds to two factors: changes in the minimum capital requirement regulation (Barth et al., 2006; Laeven and Levine, 2009) and changes in domestic supervision (Buch and DeLong, 2008). However, supranational reforms focus on the design of capital regulation, whereas the specific standards of supervision remain left in the hands of national authorities.[1]

This paper disentangles the trade-off between higher capital requirements and more supervision by explicitly considering both policy instruments to secure the stability of a domestic banking sector. Due to the coexistence of moral hazard and adverse selection, we show that the regulator needs both instruments to ensure financial intermediation. Intuitively, both problems result from asymmetric information regarding the actual riskiness of banks. Capital regulation solves an individual bank's moral hazard, reducing the cost of a market breakdown, whereas supervision reduces the adverse selection problem and the probability of a collapse. Therefore, a regulator minimises the expected cost of a collapse via a neo-classical production function with both input factors. However, the cost burden of intervention differs: the cost of increasing capital is borne by the banks, and the cost of supervising and improving the banking sector is borne by the regulator and thus by taxpayers.[2]

We distinguish between household income and bank profits to include financial market frictions into our model. In a frictionless world where households have unrestricted access to perfect financial markets there is no role for banks, capital regulation, and supervision. Because we are interested in the interplay of both instruments, we exclude the direct access of households to the financial sector. Interestingly, this highly stylised model yields a rich set of results when we allow for a certain degree of biased preferences of the regulator.

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[1] Even after two substantial revision processes, the main focus of the Basel Accords remains the regulation of capital and liquidity standards. Although the regulatory framework encourages convergence towards common supervisory standards, the rather general implementation guidelines are by far less detailed and matured than the regulation of capital requirements, which leaves national authorities room to incorporate supervisory practices that are best-suited to their own national systems. As a result, there exist considerable variations in supervisory standards in jurisdictions that are adopting the Basel framework. Regulation differs, for example, with respect to definitions of the requested reporting items, time-tables, or technical details.

[2] This assumption is consistent with recent empirical findings, such as those by Masciandaro et al. (2007), who analyse the financial governance of banking supervision in a sample of 90 countries. The authors conclude that full public financing is the most common budgetary arrangement. However, some supervisory systems are financed by both taxpayers and supervised institutions, e.g. Germany where the banking sector pays half of the costs.

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First, we examine the optimal regulation of a banking sector in a closed economy that consists of banks, which differ with respect to their ability to control the risk of their investment projects. If depositors cannot observe the actual ability of each bank, they will deposit less money in banks compared to fully informed depositors. To reduce the inefficiency stemming from asymmetric information, the regulator selects an optimal combination of a minimum capital requirement level, which incentivises banks to control their risk, and supervisory effort, which influences the quality of the banking sector (i.e., the proportion of banks that are able to control their risky investments). The regulator's optimal choice depends on both the cost of supervisory effort in influencing the quality of the average bank and the weight she places on the rent or the size of the domestic banking sector. This political economic approach represents a rather broad view of regulation compared to the prudential framework found in most of the existing literature.

Second, we show that with institutional competition among regulators, the optimal combination of policy instruments crucially depends on the moving costs and observability of differences in national regulation in the banking sector. If depositors are able to fully observe country-specific regulatory regimes and to differentiate via adjusted interest rates, jurisdictions evolve into a "club" supplying a regulatory framework for banks. In such a situation, the regulatory costs of preventing the breakdown of financial markets increase with the mobility of banks. Moreover, if depositors cannot distinguish between different national regulatory regimes, incentives to underbid the other country's capital ratios appear, resulting in an even higher probability of a collapse. This finding implies that competition among regulators causes a rent-shifting between banks and taxpayers compared to the optimal policy mix in autarky, which always reduces domestic welfare.

Our results are related to the small but growing theoretical literature on the political economy of regulatory competition in banking. In a globalised world, regulators must consider that banks seek to go abroad, and thus must address externalities created by mobile banks. Empirical studies document increased foreign bank entry in many economies. Barth et al. (2006) show in a sample of 91 countries that on average 45% of banking assets were owned by banks that are more than 50% foreign owned. A recent study by Ongena et al. (2013) provides an analysis of spillover effects of national capital requirement regulation and supervision on the lending behaviour of cross-border banks. The authors find empirical evidence that stricter regulation and supervision reduces risk-taking among banks in the home country but increases risk-taking in lending in foreign countries. Their findings suggest that national capital regulation and supervision may have important spillover effects. Instead of enhancing bank stability, stricter capital regulation and supervision may simply reallocate the risk-taking behaviour to other countries.

Kilinc and Neyapti (2012) develop a general dynamic equilibrium model to analyse the joint welfare implications of stricter capital regulation and supervision. In their model banking regulation and supervision have the same impact on the economy: they reduce transaction costs and thus increase the efficiency of financial intermediation. Because more efficient financial intermediation facilitates economic growth, the authors show that an increase in regulation and supervision unambiguously increases welfare. Our paper makes a similar argument; however, we are interested in the particular adverse effects of each policy instrument on the efficiency and size of the banking sector. With a partial equilibrium analysis we derive the optimal input mix of both instruments to establish financial intermediation at minimum cost. In other words, we address the Coasian question of an optimal selection of regulatory policies in the banking sector – but we incorporate market frictions such as restricted access to markets and asymmetric information, which standard general equilibrium models not consider. Analysing the regulator's incentives to use each specific instrument then allows us to discuss the welfare implications of an international harmonisation of capital requirement regulation among heterogeneous countries.

For this purpose Dell'Arricia and Marquez (2006) develop in their seminal paper a two-country model with structural spillovers between two national banking systems. Without a supranational regulator, externalities induce nations to select sub-optimally low standards of minimum capital requirements. Trading off the benefits and costs of centralisation Dell'Arricia and Marquez show that nations with relatively homogenous banking systems have a stronger incentive to form a regulatory union. However, they do not allow for supervisory interventions. Complementary to their findings, Acharya (2003) discusses the desirability of uniform capital requirements among countries with divergent closure policies. He illustrates that ex post policies may have an incremental effect on the optimality of ex ante regulation. Therefore, the regulator has to consider these policies when designing prudential ex ante policies. He concludes that, with heterogeneous closure policies, level playing fields can result in a welfare-declining race to the bottom.

The main findings of Morrison and White (2009), however, suggest the opposite phenomenon. In their model, a less competent jurisdiction suffers from international financial integration, as good banks flee to the better jurisdiction, which is able to cherry-pick the best banks applying for licenses. Therefore, less competent jurisdictions benefit from the international harmonisation of regulation, although international capital requirements alone cannot prevent the exit of sound banks. One may conclude that the catching-up of the weakest regulator over the best-regulated economy takes place when capital is mobile. Therefore, in their view, level playing fields are desirable for weaker regulators.

Our model incorporates both of these ideas and analyses if competition among regulators leads to a race to the bottom in capital ratios or to an outcome where the more efficient regulator expects higher volumes of deposits. In contrast to Acharya (2003), who concentrates on the interlinkage of capital requirement and closure policies, our baseline model focuses on the link between optimal harmonised capital requirements and ex ante supervisory efforts that will change the pool quality, and thereby affect the stability of the banking sector within a jurisdiction. Moreover, we combine our results with the political-economic literature showing the distributional effects of regulatory competition between taxpayers and the banking sector which create incentives for lobbying activity. Finally, our analysis of cost-efficient regulatory intervention provides a rationale for the international harmonisation of minimum capital standards à la Basel when banks shop for their regulator. We show that the equilibrium outcome of regulatory competition is welfare-inferior compared to a world with closed economies. Consequently, there are two driving forces for the international harmonisation of capital requirements: (1) independently of the information structure, harmonised capital regulation counters a regulatory race that increases the overall cost of intervention and (2) the network benefits of harmonisation make optimal regulation cheaper for national supervisors.

This paper proceeds as follows: In Section 2, we introduce our basic model setup in a closed economy showing the conditions under which an unregulated banking sector may be characterised as a lemons market where no financial intermediation is possible. To prevent such a domestic market breakdown the regulator can now use capital standards and supervision. In Section 3, we allow for the free movement of banks and introduce regulatory competition to analyse the changes in the optimal policy mix. Section 4 discusses our main findings and Section 5 concludes.

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