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Banking crises and government intervention

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ABSTRACT

Intervention has taken different forms in different countries and periods of time. Moreover, recent episodes showed that in front of an imminent crisis, the promise of no interventions made by governments is barely credible. In this paper we address the problem of resolving banking crises from the government perspective, taking into account the fact that preventing banking crises is crucial for the government. In addition, we introduce the moral hazard problem, inherent in the banking system, and consider the interaction between regulation, policy measures and banks' behavior. To the best of our knowledge, this is the first paper that compares different policy plans to resolve banking crises in an environment where insufficiently capitalized banks have incentives to take risk, and the government has to decide whether to provide public services or impede crises. We show that when individuals highly value public services then the best policy in terms of welfare is to apply the tax on early withdrawals, as the government can transfer those taxes to the whole population by investing in public services (although at some cost). Conversely, when individuals assign a low value to consuming public services, recapitalization is the dominant policy. Finally, when the probability of a crisis is sufficiently high, capital requirements should be used.

1. Introduction

The recent financial crisis has restored the debate on how to improve the stability of the financial system. Whilst economists still discuss whether bailing out the financial system is an effective way to solve a banking crisis, in most financial crises there has been some kind of government intervention to prevent a deep credit contraction and its consequences on economic growth (Laeven and Valencia, 2008). Different mechanisms have been used in practice to prevent the propagation of crises, but all of them are costly and their effectiveness is at least uncertain.

Moreover, recent episodes showed that in front of an imminent crisis, the promise of no intervention made by governments is barely credible. Bailout policies create moral hazard problems, and this misbehavior has been pointed out at the core of the recent financial crisis.

There is therefore a general agreement on the need to limit the risk that banks take in order to have a stable system. One of the measures adopted by banking regulators in the mid-1980s was capital requirements, based on risk-weighted assets. These requirements restrict the leverage of the entity and induce banks to internalize a greater proportion of the risk of their assets. That is the essence of The Basel I Agreement. The beneficial effects that capital requirements have to reduce the likelihood of bank failure have been widely discussed from a micro-theoretical point of view. The main idea behind these studies is that increased capital requirements induce banks to take less risk. It is generally argued that if shareholders have a larger stake in the bank, the incentives to engage in risk are lower because shareholders are less likely to be bailed out than depositors.

Establishing capital requirements is also one of the three pillars of macro-prudential regulation.[2] In this paper we address the

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[2] In 2008, the Basel Committee introduced a new capital called the Basel II agreement. This new agreement is based on three pillars and aims to improve over the previous one. The first pillar introduces capital requirements. In particular, two approaches are considered in order to calculate the risk-weighted assets. The standardized approach is similar to the previous agreement, except that it has more categories and uses qualifications of external credit quality. Instead, the Internal

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problem of resolving banking crises from the government perspective, taking into account the fact that preventing banking crises is crucial for the government. Then, the government, when analyzing the best policy response, considers the "no-rescue" option just as a benchmark. In addition, we introduce the just mentioned moral hazard problem, inherent in the banking system, and consider the interaction between regulation, policy measures and banks' behavior.

We model an economy with a continuum of risk-averse agents (or depositors) and risk-neutral investors (or bankers). Consumers have the standard Diamond–Dybvig preferences. In addition, there is a government that raises taxes so as to provide public services, as for instance education, health, social security, national security, recreation activities, etc. These taxes can be alternatively used to provide some safety net to the banking system at a cost of consuming less public goods. Banks have access to illiquid long term investment projects, that allow depositors to increase their expected welfare. Bankers, anticipating a government bail out in case of a banking crisis, might also invest in a gambling asset when they are insufficiently capitalized. In particular, at $t = 0$, banks can choose between a safe asset or a risky one (the gambling asset) that yields a lower expected return. In order to introduce the moral hazard problem we assume that the gambling asset produces an additional unobservable return, which can be appropriated by the bankers. At $t = 1$, a proportion of depositors acquires information about banks' investments and may run on the bank, upon receiving negative information, leading to a banking crisis. We then analyze the effectiveness of the different policy measures available to the government for preventing systemic banking crises such as using taxpayers money to recapitalize banks, taxes on early withdrawals,[3] or increasing capital requirements.

The government faces a clear trade-off when choosing the optimal rescue package since some policies impede crises at the expense of the provision of public services (recapitalization), whereas others (the tax on early withdrawals or capital requirements) impose restrictions on the consumption of private goods, but do not affect the consumption of public ones. We show that when individuals highly value public services then the best policy in terms of welfare is to apply the tax on early withdrawals, as the government can transfer those taxes to the whole population by investing in public services (although at some cost). Conversely, when individuals assign a low value to consuming public services, recapitalization is the dominant policy. Finally, when the probability of a crisis is sufficiently high, capital requirements should be used.

This paper is related to several articles in the banking literature. Diamond and Dybvig (1983) were the first to introduce the idea of banks as liquidity providers, although in their model bank runs take the form of sunspots. In that respect, our paper is closer in spirit to the information literature where bank runs are information-induced (Chari and Jagannathan, 1988; Allen and Gale, 1998; Hasman and Samartín, 2008). Gorton (1988) in an empirical study of bank runs in the US during the National Banking Era (1863, 1913), found support for the notion that bank runs tended to occur after business cycle peaks. In particular, we build on the model by Brusco and Castiglionesi (2007) that analyzes the interaction between liquidity-constrained, risk-neutral bankers and risk-averse depositors, in a context of moral hazard. We modify their framework by introducing a government that raises taxes so as to provide public services (as in Hasman et al., 2011). As a consequence, the funds disposable for the private activity are reduced, which allows us to endogenize the origin of funds for the bail out plans. In this way, the government might try to prevent crises that imply the inefficient liquidation of projects.

Some of the policies analyzed in this paper have already been examined in previous papers, but each has been examined isolated from the rest, i.e., as an unique policy tool. For example, as mentioned above, the positive effects of capital requirements on risk have been widely analyzed from a theoretical point of view (see Buser et al., 1981; Furlong and Keeley, 1989; Hellman et al., 2000; Repullo, 2004 or Morrison and White, 2005). Nevertheless, other studies (see Blum, 1999 or Koehn and Santomero, 1980) have reached the opposite result. Overall, the theoretical literature has raised doubts about the effects of capital requirements on risk (Gale, 2010) and it has not proved to be completely effective in preventing bank failure, and indeed there is still a debate on whether it is or not an efficient policy (Hellman et al., 2000). In our model, capital requirements eliminate the moral hazard problem, but at a cost. As the amount of capital is exogenously given, the only way to fulfill the capital requirement is by increasing reserves, and hence, less resources can be invested in the long-term asset.

Recent contributions have also focused on bailout policies. These papers show that bailouts suffer from time inconsistency which induces banks' moral hazard in the form of high leverage, high-risk correlation and little liquidity holding (Acharya et al., 2007, 2011; Ennis and Keister, 2010; Farhi and Tirole, 2012; Jeanne and Korinek, 2013). Our paper takes a different approach, we assume that there is moral hazard due to an environment with insufficiently capitalized banks. We also assume that commitment is impossible and so neither depositors nor the government can solve the inherent moral hazard problem. In this framework, we then compare among different intervention measures, bailout policies (in the form of recapitalization), the tax on early withdrawals or capital requirements, that will have different cost effects, represented by either a lower provision of the private or the public good.[4] In this sense, the objective of the government is just to prevent runs, in order to give stability to the banking system.

To the best of our knowledge, this is the first paper that compares different policy plans to resolve banking crises, in an environment where insufficiently capitalized banks have incentives to take risk, and the government has to decide whether to provide public services or impede crises.

The rest of the paper is organized as follows. Section 2 presents the basic features of the model. Section 3 examines the social optimum. Section 4 analyzes the bank problem with moral hazard, and several intervention measures to prevent banking crises.

Risk Approach (IRB) differs completely from the previous agreement, as now the institution uses its own risk model. The second pillar deals with the regulatory response to the first pillar. The third pillar aims to complement the minimum capital requirements and supervisory review process by developing a set of disclosure requirements which will allow the market participants to gauge the capital adequacy of an institution. For more details, see Basel Committee on Banking Supervision (2004).

[3] The existence of a tax on early withdrawals creates incentives to use the assets that are not taxed, and as a result might decrease the incentives to run on banks. We study taxes on financial transactions that existed in some developing countries like Argentina, Brazil, Colombia and Serbia. These taxes, that are levied on every transaction, including bank accounts, have been used extensively in emerging markets not necessarily to prevent bank runs, as we analyze in this paper, but as a way to obtain government funding. Taxes on financial transactions represented an important source of funding for those governments (22,471.9 millions of dollars for Brazil and around 2700 millions of dollars for Argentina in 2007), and can be considered as a special case of the tax on early withdrawals. Even the United States during the period (1932–1934) levied a two-cent tax on bank checks (Lastrapes and Selgin, 1997).

[4] Corbett and Mitchell (2000) assume that public recapitalization (see also Mitchell, 2001 and Osano, 2002) of failing banks is equivalent to a subsidy, however Hasman et al., 2011 show that this is not necessarily true due to the opportunity cost of those funds.