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Subordinate debt, deposit insurance and market oriented monitoring of banks

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Abstract We present a model of a bank with endogenous risk choices, where delegated monitoring by an active market in subordinate debt helps in containing the bank's risk shifting in the presence of deposit insurance. In comparison to static ex ante contracting, an active market enables continuous monitoring by subordinate debt to penalise the bank's risk shifting. The model is instrumental in deriving optimal level of subordinate debt required to achieve equilibrium where banks choose risk levels consistent with the first best as envisaged by a social planner. The optimal quantity of subordinate debt further eliminates any risk shifting associated even with risk insensitive premiums.

Introduction

Banking firms are unique institutions both by the nature of their operation and also by the nature of their constitution. In the process of rendering efficient allocation of risk among depositors and firms, banks build up a book with small deposits and risky loans. These small deposits are usually held by unsophisticated depositors without the necessary information to efficiently monitor the portfolio of risky loans. Further, the claims of these depositors are usually very small which generates little incentive for them to gather costly information for monitoring.[1] This entails that the risky portfolio of banks remains largely opaque to the depositors. Therefore, as uninformed or partly informed depositors are inefficient in framing optimal contracts with the bank, they would mostly bear inordinate risk.

As deposits constitute the bulk of the liabilities, banks operate with high leverage with very small capital of their own. The high leverage makes the banks risky which when accompanied by opacity of the bank's portfolio to the depositors makes information based bank runs[2] more probable. In addition, high leverage and opaque bank portfolios can distort managerial incentives and encourage banks to look for further implicit leverage, which in turn makes the banks even more risky. Thus opaque portfolios provide risk shifting incentives to banks.

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[1] This is the basis of the representation hypothesis led by Dewatripont and Tirole (1993) in favour of an external regulator.

[2] See Jacklin and Bhattacharya (1988) for a discussion on panics and information based bank runs.

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Moreover, the nature of the balance sheet renders high degree of similarity between any two banks. Even if banks intend to differ in their asset composition, they are perceived to be similar by uninformed depositors, especially in times of distress. A run on bank A is perceived as increasing difficulties for another seemingly similar bank B. Assets of bank A are generic liabilities for bank B in a closely interconnected system of banks.[3] Thus, a run on bank A could pose immediate liquidity pressure on bank B and could further translate into solvency threats for bank B within no time. At the inception of such a loss and liquidity spiral,[4] bank B might otherwise be healthy. On account of such contagion, bank runs threaten the systemic stability by sucking up the liquidity from the system.

In an effort to address the aforesaid information asymmetry, we need agents to (i) avert information based bank runs by uninformed depositors, and (ii) monitor bank risk to restrain risk shifting. Explicit deposit insurance by government backed agents is perhaps the best aid discussed in the literature to reduce the possibility of information based bank runs.[5] Moreover, such insurance is desirable given that (i) uninformed depositors are unable to frame optimal debt contracts, and (ii) it would add the much needed implicit liquidity in the system by insulating banks from information based bank runs, as discussed in Diamond and Dybvig (1983).[6]

However, insured depositors lack the necessary incentive to monitor the risk of banks on their own. This provides banks with the risk shifting incentives to choose a level of risk which is socially suboptimal. Thus, the principal problem of checking the risk shifting incentives of banks still remains unresolved. To alleviate the risk shifting incentives of banks where depositors are insured, an important measure would be to charge risk based insurance premiums. However, government backed agents are not well equipped to estimate the risk sensitivity, and hence to estimate risk based premiums.[7]

In these circumstances, greater participation from market forces is warranted to contain the risk shifting incentives of the banks. As per Kaufman (2003), market discipline requires the existence of some de-facto at-risk stakeholders, who have an incentive to monitor the banks. A market oriented proposal to check the risk shifting incentive of a bank is the provision of subordinate debt[8] as an active monitor on banking books. Subordinate claims of these securities gives greater incentive for investors to monitor a bank's risk closely. While being active monitors, they can impart valuable signals to the markets and regulators. What would be interesting, however, is to explore conditions under which subordinate debt can act as a delegated monitor to check risk shifting incentives of the banks effectively.

In this context, this paper presents a model of a bank with endogenous risk choices, where delegated monitoring by subordinate debt helps to contain risk shifting by banks in the presence of deposit insurance. The model builds on past studies, where subordinate debt could not dynamically influence banks, largely by acting merely as a passive instrument after entering into a contract. The model here envisages an active market for subordinate debt which can continuously impart signals to the regulators and other at-risk stakeholders. This provides the necessary discipline for banks so that they may conform to solvency consistent behaviour.[9]

The joint feature is envisaged in the model (i) to reduce the possibility of bank runs by explicit deposit insurance to uninformed or partly uninformed depositors, and (ii) to check the risk shifting incentives of a bank by subordinate debt. The model helps us to derive optimal level of subordinate debt required to achieve an equilibrium where banks choose risk level consistent with the first best as envisaged by a social planner.[10] Further, subordinate debt could be resorted to, to price deposit insurance effectively.

The paper is organised as follows. The second section contains a brief review of related literature. The third section discusses the model. The fourth section describes risk shifting incentive for a bank provided with deposit insurance and subordinate debt, featuring them individually and simultaneously. The fifth section deals with pricing anomalies of deposit insurance and their rectification by subordinate debt. The sixth section discusses the implications, and the seventh section concludes the paper.

Related literature

While explicit deposit insurance could completely insulate banks from a possible run, there is no incentive for depositors to monitor the risk of the bank, which could aggravate the risk shifting incentives[11] and erode market discipline, apart from increasing systemic risk (Penati & Protopapadakis, 1988). Further, in such a scheme the government may have to tax depositors heavily for the provision of insurance, in case there is a need to provide liquidity. This may lead to possible deadweight costs in the system.[12]

[3] See Allen and Gale (2000) for domino model of bank contagion due to interrelated businesses.

[4] See Diamond and Rajan (2005) and Aghion, Bolton, and Dewatripont (2000) for contagious bank runs and subsequent system failure due to failure of one bank in an economy with several banks and the existence of interbank market.

[5] See Santos (2000) for a review of proposals to insulate banks from runs.

[6] See also Gorton and Pennacchi (1990) for theory of financial intermediation based on liquidity provisioning by banks.

[7] See Benston and Kaufman (1996) and Stiglitz (1993) for arguments discussing inability of government regulators in assessing risk.

[8] See Lang and Robertson (2002), Evanoff and Wall (2000), Calomiris (1999) and Wall (1989) for various proposals on subordinate debt.

[9] The model can be seen as a reinforcement of capital adequacy requirement in Basel 3.

[10] The social planner envisaged here is similar to a regulator or a government agent who intends to maximise social welfare.

[11] See, for example, Ioannidou and Penas (2010), Kunt and Huizinga (2004), and Cordella and Yeyati (2002) for empirical evidences on significant changes in banks risk-taking, ex post, in such deposit insurance programmes.

[12] Chan, Greenbaum, and Thakor (1992) give a contradictory view where they use a dynamic framework to show that future rents may be generated by a subsidised deposit insurance scheme, which leads banks to reduce their risk taking in order to raise the probability of reaping these future rents.

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