Uncertainty and Financial Fragility

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I certify that all material in this thesis which is not my own work has been identified and that no material has previously been submitted and approved for the award of a degree by this or any other University.

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Abstract

My thesis analyzes various types of uncertainties and their effects on financial fragility in the context of information asymmetries and bank-run models. When various generations of currency crisis are considered, it is observed that the financial system and fragilities associated with it plays a critical role in more recent crisis episodes. Therefore, focusing on the financial system can possibly lead to a better understanding of how and why these crises took place. The analysis presented here aims to provide some new insights about this topic. In the first chapter, I tried to analyze how public borrowing can affect financial fragility when how a private bank finances its lending to the government is private information. I built a simple theoretical model where the government basically borrows from a commercial bank. The objective of the government is to realize borrowing at the lowest possible cost but at the same time it cares about the financial stability. The risk-averse commercial bank, on the other hand, maximizes utility by allocating the financing of its lending among a safe and a risky loan where the amount it uses from the safe source considered to be a measure of financial stability. Moral hazard arises as the amount of safe loan used is not observable to the government. Under the assumption that the risk premium is decreasing in income, I show, when the government is not able push the rate down below a certain level, it can trade a rise in borrowing costs with some financial stability. In other words, although pushing the rate down is good both for borrowing costs and financial stability, under asymmetric information, it may be optimal to design a contract with a reward scheme and accept a higher cost for borrowing for a relatively more reliable financial system. This chapter contributes to the literature by identifying a potential moral hazard problem in the process of public borrowing and displays how it can lead to a higher than optimal level of financial fragility when the economic policy gets obsessed with lowering the borrowing costs. The analysis provided is also interesting as it displays an unusual case where the borrower rather than the lender faces issues resulting from asymmetric information. In the second chapter, a bank-run model used to analyze effects of uncertainty on financial fragility in terms of maturity mismatch.
an extended version of the well-known Diamond and Dybvig model by introducing short term borrowing where the future cost of borrowing is unknown. This creates an additional source of maturity mismatch and the demand deposit contracts are now vulnerable to both depositor and lender panics. The key is when the borrowing and investment decisions are made the total cost of borrowing is unknown but the deposit contract can be written contingent on this cost. This creates different consumption paths for patient and impatient agents and they bear different degrees of interest rate risk. The characterization of the contract shows interest risk is mainly borne by early consumers particularly for higher roll over costs. In times of crisis the most liquid funds are the ones that are used first and hence consumers who need urgent liquidity suffers most. The main contribution of this part is that, it combines a bank run model with aggregate uncertainty with short-term borrowing. It also sheds some light on the dynamics of financial problems in developing countries. The last chapter analyzes risk sharing under private banking. Once again a version of Diamond and Dybvig framework is used. Instead of assuming a banking structure where consumers form a union to achieve optimal risk sharing, I consider a private bank that maximizes profits. I analyze the deposit contract under different assumptions about how the bank and the depositors consider the probability of a bank run. The original Diamond and Dybvig model, implicitly assumes the probability of a bank-run is sufficiently small to ensure participation. With a private bank, I allow partial participation and optimizing depositors automatically establish individual rationality. This leads to a supply of deposits (or demand for risk sharing function) which varies along with the payments offered in the contract. Therefore, the bank faces a trade-off between the rates it offer and the amount of deposits it can attract. This basically leads a new set of equilibrium contracts to come out which are not possible under standard risk sharing. Depending on the risk averseness of the consumers these alternative contracts produce different levels of financial fragility. This last chapter contributes to the literature by considering the possible risk sharing contracts under a profit maximizing monopolistic commercial bank. It also briefly discusses how this may affect financial fragility.
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