Macroeconomics A: EI056

Quizz

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1 Role of financial intermediation

Question: Why are financial intermediaries needed?

Answer: Financial intermediaries perform several functions. First, it is not efficient to have borrowers secure funding for their projects directly from retail investors, given the large number of small deposits needed to fund a large project. It is more efficient for retail investors to deposit their funds at a bank, and have borrowers secure funding from the bank.

Second, financial markets are replete with asymmetric information problems. Having all individual investors learning about the situation of borrowers is inefficient. Gathering information has returns to scale, so it is better that one agent (the bank) specializes in doing so and monitors the borrower.

Third, financial intermediaries allow to fund long term profitable project while keeping the possibility for investors facing liquidity needs to access their funds.

Finally, financial markets allow investor with different exposures to risk to trade assets in order to diversify the risk.

The relevance of financial intermediaries explain why bank failures can be very damaging, as it becomes then much harder to channel funds from retail investors to borrowers. If banks cannot operate, they cannot simply be replaced by having firms raise funds directly from retail investors.

2 Limits to interest rate movements

Question: Why can adverse selection or moral hazard prevent interest rates to be high enough to clear the credit market?

Answer: If there were no information frictions (that is lenders fully know the characteristics of borrowers, and can see what they are doing with the funds), the interest rate in the credit market would bring supply in line with demand. It could be the case that different borrowers be charged different interest rates.

Problems arise when information is incomplete. The first case is adverse selection when borrowers are of different types. Specifically, consider that there are borrowers with a safe project and borrowers with a risky project. If lenders could see whether a borrower is safe or risky, they would charge a lower interest rate to a safe borrower than to a risky one.

If lenders cannot see the nature of individual borrowers, they charge an interest rate at which the expected return on loans is the same that lenders can get on a safe bond. If the interest rate is not too high, the safe lenders are willing to participate even though they pay an interest rate that is higher than the one they would pay under perfect information. A lender faced with a high demand would want to raise the interest rate. If however he raises it beyond some threshold, the safe borrowers would choose not to borrow any longer as the interest rate is too high, and the composition of the pool of borrowers would change from a mix or safe and risky borrowers to only risky borrowers, which would in turn reduce the expected return to the lender. Raising the interest rate thus leads to an adverse selection as only risky borrowers remain. In that context lenders faced with excess demand for loans choose to only grant credit to some borrowers chosen randomly or to limit the amount borrowed (credit rationing).

Another type of problem is moral hazard. All borrowers are identical but can invest in two project. The first one is a safe project with a high probability of moderate gain and a small probability of failure. The second one is a gambling project with a small probability of high gain and a large probability of failure. Ex-ante the safe project is preferable as it leads to a higher expected gain.

The borrower faces limited liability. The worst that can happen is that the project fails and he repays nothing. If the interest rate is low enough, the expected payoff for the borrower on the safe project is high enough (after repaying the loan with interest) and the borrower chooses the safe project. If the interest rate increase beyond some threshold, the borrower prefers the gambling project. With a small probability he gets a very large gain (minus the cost of the loan), and otherwise doesn't loose anything. The safe project is less appealing, as most of the time the borrower would get a small surplus because the high cost of the loan eats most of the project payoff in case of success. The lender thus has an incentive not to raise the interest rate too high because otherwise the behavior of the borrower changes in a way that is detrimental to the lender.

The adverse selection and moral hazard problem both stem from information problem. Specifically, the lender does know the type of the borrower (risky or safe), or cannot constraint the borrower to undertake worthy projects instead of gambling. The first problem can be solved, or at least alleviated, by requiring more information from the borrower (income statements for instance). The second problem can be mitigated by having the borrower puts some of his own money in the project, so a failed gambling also entails a cost to the borrower.

3   Financial accelerator

Question: How does the financial accelerator work?

Answer: The financial accelerator operates when financial markets have frictions. For instance, lenders cannot observe the returns that borrowers get on their projects (the projects consist of

building capital). Borrowers then have an incentive to pretend that the project did not work out and not repay the loan. The lender keeps borrower honest by randomly checking projects, at a cost. This cost of verification is ultimately reflected in higher interest rates, so there is a gap between the marginal return of capital and interest rates. The cost implies that fewer projects will take place, and for the ones taking places resources will be spend on monitoring.

Borrowers can reduce their reliance on lenders through putting more of their own money in the project. A temporary boost in productivity raises the income of borrowers, and allows them to invest more of their own money. They thus face a reduced borrowing constraint and can produce more capital. The higher capital level leads to more output tomorrow, so temporary shocks have permanent effects.

4 Bank runs

Question: Why can self-fulfilling bank runs happen? What is the policy that can prevent them?

Answer: Bank runs stem form the maturity mismatch between short term deposits and long term projects. As long as the number of people withdrawing their deposits does not exceed what the bank has planned we are in a beneficial equilibrium where profitable long term projects are funded. If some depositors think that there will be many withdrawals, they will be left with little if they wait. Their optimal strategy is then to withdraw their funds as soon as possible. If enough depositors think so we are in an adverse equilibrium where the bank has to liquidate long term projects and cannot meet the terms of the deposits.

Such self-fulfilling bank runs can be stopped through deposit insurance, as the government commits to honor the terms that the bank promised its depositors. In that case there is no need to withdraw fund early if one has no short term liquidity need, and the adverse equilibrium is ruled out.

Such guarantee however gives the bank an incentive to take risky projects, as it keeps the upside while the government pays the downside. Insurance thus needs to be accompanied by regulation.