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Chapter 14.1.1

The breakdown of liquidity insurance

Loan sales to finance deposit withdrawals

- Deposits can be withdrawn at any time, while loans are given for longer fixed terms
- If a bank faces a withdrawal of deposits, it might not have the amount of cash reserves to pay these depositors
- If not enough cash reserves are held, banks will need to sell loans to generate cash reserves
- Such sales will cause losses as loans often cannot be sold at full value

Return to depositors not withdrawing

- Banks retain some cash by not lending out all deposits
- Deposits are withdrawn, representing a fraction of these loans, γL
- Banks can sell loans and obtain a fraction of its face value, which needs to balance the deposit withdrawal
- $\gamma L = \lambda \hat{L}$
- Assume that $\lambda \geq \gamma$ and the bank can raise sufficient cash to repay all withdrawn deposits
- Depositors retaining deposits will receive the loan repayment on the outstanding loans and share this with all depositors that have not withdrawn
- $1 + \hat{r}_D = \pi \left(1 + r_L\right) \frac{L - \hat{L}}{D - \gamma L}$

Early withdrawal of deposits

- When withdrawing deposits, we assume no interest is payable, hence $r_D = 0$
- Depositors would not withdraw if $\hat{r}_D \geq r_D$

$\Rightarrow \lambda \geq \frac{\gamma\pi(1+r_L)}{\pi(1+r_L)-(1-\gamma)} > \gamma$

- If sales are not causing too much losses, depositors do not withdraw early

High withdrawal rates

- If loan sales are not able to generate sufficient cash to repay all early withdrawals, $\lambda < \gamma$, those retaining deposits will receive no repayment

$\Rightarrow 1 + \hat{r}_D = 0$

- Withdrawing depositors obtain the cash generated after selling all loans and share this among those withdrawing deposits
- $1 + r_D = \frac{D-(1-\lambda)L}{D-(1-\gamma)L} > 0$

$\Rightarrow \gamma > \gamma^* = \lambda \frac{\pi(1+r_L)-1}{\pi(1+r_L)-\lambda}$

- If sufficient depositors withdraw early, it is optimal for all depositors to withdraw early

Self-fulfilling prophecies

- If depositors belief early withdrawals are sufficiently high, they will also withdraw early
- This represents a bank run
- If depositors belief early withdrawals are sufficiently low, they will not withdraw early
- Their behaviour aligns with their belief and what they expect to occur, will happen

Summary

- Bank runs are based on expectations about the behaviour of other depositors, not information about the bank
- A swing in expectations can cause bank runs and it is optimal to join the bank run
- If expectations are such that no bank run occurs, it is rational to not withdraw deposits early

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