

## Chapter 17

### Tools of Monetary Policy

## The Market for Reserves and the Federal Funds Rate

- *federal funds rate* ( $i_{ff}$ ) = interest rate on overnight loans of reserves from one bank to another
- Demand curve for reserves
  - reserves are composed of required reserves and excess reserves:  
 $R = RR + ER$
  - if  $i \downarrow$ , the opportunity cost of excess reserves falls, hence  $ER \uparrow$
  - thus, the demand curve slopes down

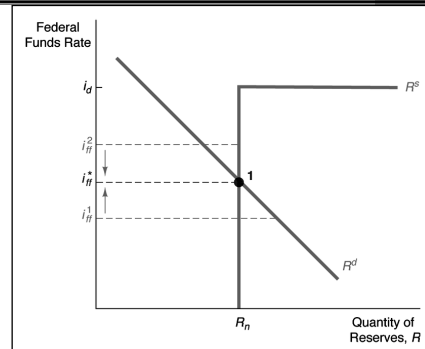
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## The Market for Reserves and the Fed Funds Rate

- Supply curve for reserves
  - banks can get loans from the nonborrowed reserves  $R^n$  of other banks or from the Fed (discount loans  $DL$ ):  
 $R^s = R^n + DL$
  - if  $i_{ff}$  is below  $i_d$  (the interest rate charged by the Fed), then there is no discount borrowing:  
 $R^s = R^n$
  - also, the supply curve is flat (infinitely elastic) at  $i_d$ : if  $i_{ff} > i_d$ , banks get only discount loans
- Market equilibrium
  - $R^d = R^s$  at  $i_{ff}^*$

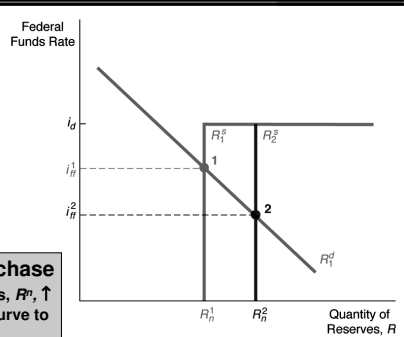
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## Supply and Demand for Reserves



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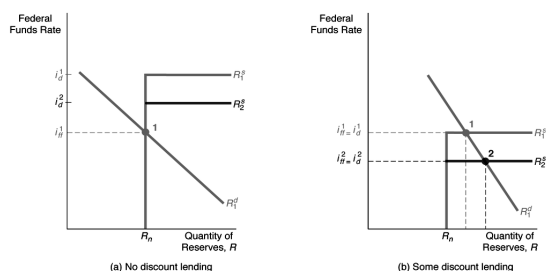
## Response to Open Market Operations



**Open Market Purchase**  
 Nonborrowed reserves,  $R^s$ ,  $\uparrow$   
 and shifts supply curve to  
 right  $R_n^1 \rightarrow R_n^2$ ;  $i \downarrow$  to  $i_n^2$

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## Response to a Change in the Discount Rate

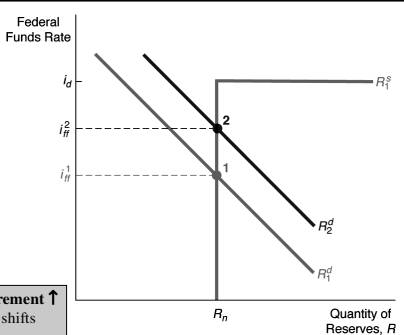


(a) No discount lending  
**Lower Discount Rate**  
 Horizontal to section  $\downarrow$  and supply  
 curve just shortens,  $i_{FF}$  stays same

(b) Some discount lending  
**Lower Discount Rate**  
 Horizontal section  $\downarrow$ ,  $i_{FF} \downarrow$  to  
 $i_n^2 = i_d^2$

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## Response to Change in Required Reserves



**Required Reserve Requirement  $\uparrow$**   
 Demand for reserves  $\uparrow$ ,  $R^d$  shifts  
 right and  $i_{FF} \uparrow$  to  $i_n^2$

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## Open Market Operations

- *open market purchases*:  $R \uparrow$  and  $MB \uparrow \Rightarrow M^s \uparrow \Rightarrow$  short-term  $i \downarrow$
- *open market sales*:  $R \downarrow$  and  $MB \downarrow \Rightarrow M^s \downarrow \Rightarrow$  short-term  $i \uparrow$
- two types of operations:
  - dynamic – meant to change the monetary base
  - defensive – meant to offset other factors affecting the monetary base (typically uses repos)
- advantages of open market operations
  - Fed has complete control
  - flexible and precise
  - easily reversed
  - implemented quickly

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## Discount Loans

- *discount window* = Fed allowing banks to take discount loans
- Types of discount loans
  - *primary credit* = backup source of funds for healthy banks (the interest rate  $i_d$ , called *discount rate*, is usually 100 basis points=1% higher than  $i_{ff}$ )
  - *secondary credit* – given to banks in financial trouble (interest rate =  $i_d + 0.5\%$ )
  - *seasonal credit* – given to small banks in vacation or agricultural areas

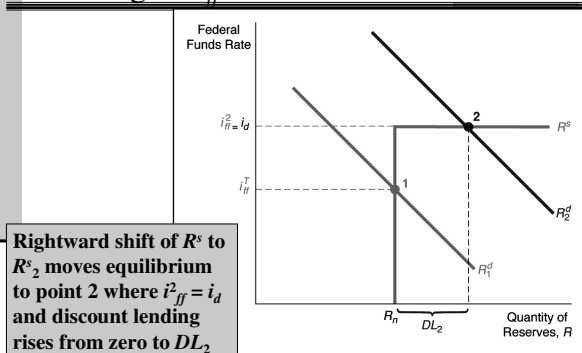
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## Discount Loans (cont.)

- Lender of Last Resort function
  - to prevent banking panics, since the FDIC fund might not be big enough and large deposits are not fully covered (for example, the case of Continental Illinois)
  - to prevent nonbank financial panics (for example, the 1987 stock market crash, or the September 11 terrorist incident)
  - but this also causes moral hazard problems

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## How Primary Credit Facility Puts a Ceiling on $i_{ff}$



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## Discount Policy

- Advantages
  - role of lender of last resort
- Disadvantages
  - confusion interpreting discount rate changes
  - fluctuations in discount loans cause unintended fluctuations in money supply
  - not fully controlled by Fed

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## Reserve Requirements

- Advantages
  - powerful effect (both on reserves/money supply and on the federal funds rate)
- Disadvantages
  - small changes have very large effect on money supply
  - raising them causes liquidity problems for banks
  - frequent changes cause uncertainty for banks
  - they are effectively a tax on banks

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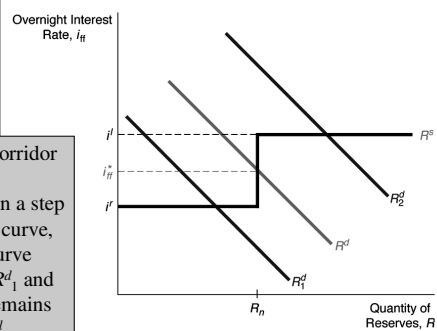
## Channel/Corridor System for Setting Interest Rates in Other Countries

- some countries (Canada, Australia, New Zealand) eliminated required reserves, but the central bank still has control over overnight interbank interest rates
- the channel-corridor system at work:
  - the central bank sets up a lending facility: stands ready to lend overnight any amount at the *lombard rate*  $i_l$  (usually 0.25% higher than the target rate)
  - the central bank pays a fixed interest rate  $i_r$  (usually 0.25% lower than target rate) on any reserves banks decide to keep at the central bank
- thus, the federal funds rate  $i_{ff}$  lies between  $i_r$  and  $i_l$

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## Channel/Corridor System for Setting Interest Rates in Other Countries (cont.)

In the channel/corridor system standing facilities result in a step function supply curve,  $R^s$ . If demand curve shifts between  $R^d_1$  and  $R^d_2$ ,  $i_{ff}$  always remains between  $i^r$  and  $i^l$



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