

## Chapter 14

### Monetary Policy and the Federal Reserve

## Introduction

- Monetary Policymaking Issues
  - What are the mechanics behind central bank influence over the money supply?
  - Why are excess reserves so high?

## Monetary Policy Mechanics

- A central bank does not directly control the money supply in a fractional reserve banking system
  - The central bank controls the “monetary base,” or “high-powered money,” the sum of currency and bank reserves.
    - Bank reserves include commercial bank deposits at the central bank plus vault cash.

## Modeling the Money Supply

$$M = CU + DEP$$

$$BASE = CU + RES$$

$$\frac{M}{BASE} = \frac{CU + DEP}{CU + RES}$$

## Modeling (continued)

$$\frac{M}{BASE} = \frac{CU + DEP}{CU + RES}$$

$$\frac{M}{BASE} = \frac{CU / DEP + 1}{CU / DEP + RES / DEP}$$

$$\frac{M}{BASE} = \frac{cu + 1}{cu + res} \quad \text{or} \quad M = \frac{cu + 1}{cu + res} BASE$$

## A Model

- Arithmetic becomes a model
  - If the ratios *cu* and *res* are interpreted as behavioral constants, or later explained as depending on other variables, the arithmetic previously described becomes a theory of the determination of the money supply.
  - Central bank controls the base directly through open market operations; it indirectly controls the money supply via the money multiplier.
    - The ratios *cu* and *res* are not perfectly predictable.
    - Required reserve ratios are a policy variable affecting *res*.
    - Central banks can also lend reserves (discount window).

## Fed Balance Sheet

- The Fed's Balance sheet has been changing
  - In the 6<sup>th</sup> edition of the text, total Fed assets were \$884 billion. On the liability side, the monetary base was \$814 billion
  - Now, total assets exceed \$2 trillion
  - The monetary base has roughly doubled since 2008 (going from around .8 trillion to about 1.8 trillion)
  - The money multiplier has fallen – why?
    - The reserve to deposit ratio has dramatically increased because banks are holding excess reserves

## Excess Reserves

- In August 2008, excess reserves held by depository institutions equaled \$1.9 billion.
- Now excess reserves equal \$1 trillion
  - The Fed has been paying interest on bank reserve deposits since April of 2008.
  - Currently the rate is 0.25%.

## Why Encourage Excess Reserves?

- Assume that each of two banks has \$10 in capital and \$100 in deposits
- Assume that each bank must hold 10% of deposits in the form of reserves
- Each bank also holds \$10 in government securities
- Bank A makes \$50 of loans to businesses
- Bank B makes \$130 in loans
- To finance the added loans, Bank B borrows \$40 from Bank A.
- These operations leave zero excess reserves in the aggregate
  - Total reserves are \$20 and total deposits are \$200

Bank A				Bank B			
Assets		Liabilities & NW		Assets		Liabilities & NW	
Reserves	10	Deposits	100	Reserves	10	Deposits	100
Loans	50			Loans	130		
Loan to Bank B	40					Loan from Bank A	40
Securities	10	Capital	10	Securities	10	Capital	10

## Excess Reserves (continued)

- Now suppose that market disruptions cause bank A to view loans to Bank B as excessively risky
- When its short-term loan to B is due, it will not roll over the loan
- In response, Bank B would normally need to reduce its loans to businesses to pay off Bank A
- the central bank instead loans \$40 to Bank B and Bank B uses the funds to pay off the loan from bank A
- The interbank loan from A to B disappears from both bank balance sheets
- Bank B now owes \$40 to the central bank and Bank A has increased its reserves.

## Excess Reserves (continued)

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- The interbank loan from A to B disappears from both bank balance sheets
- Bank B now owes \$40 to the central bank and Bank A has increased its reserves.
- By lending to Bank B, the central bank avoids a contraction of aggregate bank lending
- Excess reserves, specifically those held by Bank A, have decreased.



Bank A

	Assets	Liabilities & NW	
Reserves	50	Deposits	100
Loans	30		
Securities	10	Capital	10

Bank B

	Assets	Liabilities & NW	
Reserves	10	Deposits	100
Loans	120	Loans from CB	40
Securities	10	Capital	10

## A Question and Answer

- Q: Why has the Fed encouraged accumulation of excess reserves by banks?
- A: To avoid a contraction of bank lending.



The End

