

Chapter

# 6

This is Macroeconomics

**Income, Consumption (spending),  
Saving, the Spending Multiplier,  
Money Market, Loanable Funds Market,  
and the Phillips Curve**

**review for  
the exam**

1. this chapter is about consumers' **disposable income**
  - A. the income that households receive in wages, dividends, and interest payments plus transfers they may get from the government minus any taxes they pay to the government)
2. this chapter is also about how likely it is for consumers to spend or save their disposable income

**what is the formula for  
the marginal propensity  
to consume?**

## The Marginal Propensity to Consume (Spend)

1. a concept related to disposable income is the **marginal propensity to consume (MPC)**

- A. the MPC measures how much people consume (spend) rather than save when there is a change in income
- B. the MPC is always between 0 and 1, but hardly ever 0 or 1
- C. the term **propensity** refers to "the inclination to"

The change in consumption below is \$50. The change in income is \$100; thus the  $MPC = 50 / 100 = .5$

**macro  
formula  
#12**

$$\frac{\text{change } (\blacktriangle) \text{ in consumption (spending)}}{\text{change } (\blacktriangle) \text{ in income}} = \text{MPC}$$

$\frac{\$50}{\$100} = .5$

Examples:

- 1.If you receive \$100 more and spend \$50 more.  $MPC = .5$
- 2.If you receive \$100 more and spend \$80 more.  $MPC = .8$
- 3.If you receive \$100 more and spend \$25 more.  $MPC = .25$

**what is the formula  
for the marginal  
propensity to save?**

## The Marginal Propensity to Save

1. another concept related to disposable income is the **marginal propensity to save (MPS)**

- A. the MPS measures how much people save rather than consume (spend) when there is a change in income
- B. the MPS is always between 0 and 1, but hardly ever 0 or 1
- C. together, the MPC and MPS always equal 1 because spending or saving are the only two options with what to do with your money

macro  
formula  
#13

$$\frac{\text{change } (\blacktriangle) \text{ in savings}}{\text{change } (\blacktriangle) \text{ in income}} = \text{MPS}$$

\$50  
\$100

Examples:

- 1. If you received \$100 and save \$50.    MPS=.5
- 2. If you received \$100 and save \$20.    MPS=.2
- 3. If the MPC is .6, what is the MPS?    MPS=.4

*what is the formula for the money multiplier?*

## The Spending Multiplier

1. a concept directly related to the marginal propensity to consume or save is the **spending multiplier**

A. aggregate spending is always either increasing or decreasing in an economy and the impact/ripple effect on GDP/AD can be calculated

macro  
formula  
#14

$$\frac{1}{\text{marginal propensity to save}} = \text{spending multiplier}$$

*2.5*  
*.4*

Examples:

1. The government spends \$1 billion on defense and the MPS is .4

$$\frac{1}{\text{marginal propensity to save}} = \text{spending multiplier}$$

*2.5*  
*.4*

*2.5 x \$1 billion = \$2.5 billion increase in GDP/AD*

2. The government spends \$1 billion less on defense and the MPS is .5

$$\frac{1}{\text{marginal propensity to save}} = \text{spending multiplier}$$

*2*  
*.5*

*2 x -\$1 billion = -\$2 billion decrease in GDP/AD*

## Macroeconomics Do-Now

Please do this:

1. If the government spends \$1 million and the MPC is .4, what is the spending multiplier and the amount of the impact on the economy?

$$\frac{1}{\text{marginal propensity to save}} = \text{spending multiplier}$$

.6

1.66  
*graph the  
money  
market in  
equilibrium*

\$1 million  
x 1.66  
\$1,660,000 million  
impact on the  
economy

2. If the government spends less money and the impact on the economy is -\$330 and the MPC is .7, how much did the government stop spending?

$$\frac{1}{\text{marginal propensity to save}} = \text{spending multiplier}$$

.3

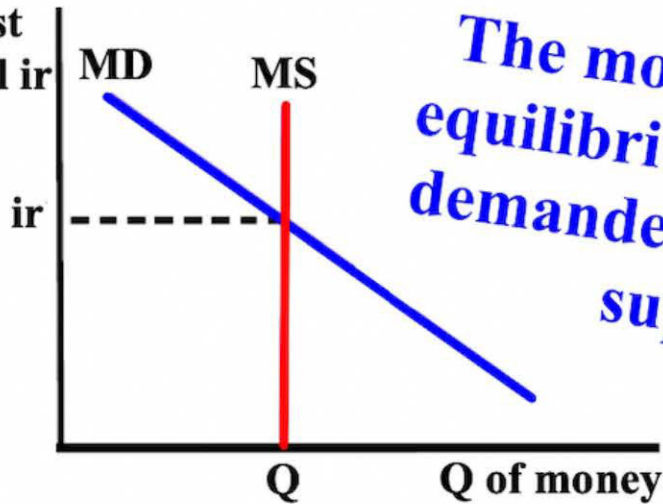
- \$333  
/ 3.33  
-\$100 (stopped  
spending)

## The Money Market- (cont.)

1. the **money market** is where short term loans are traded

A. focuses on increasing and decreasing the economy's money supply

nominal interest  
rate or nominal  $ir$



**The money market in equilibrium: the money demanded = the money supplied**

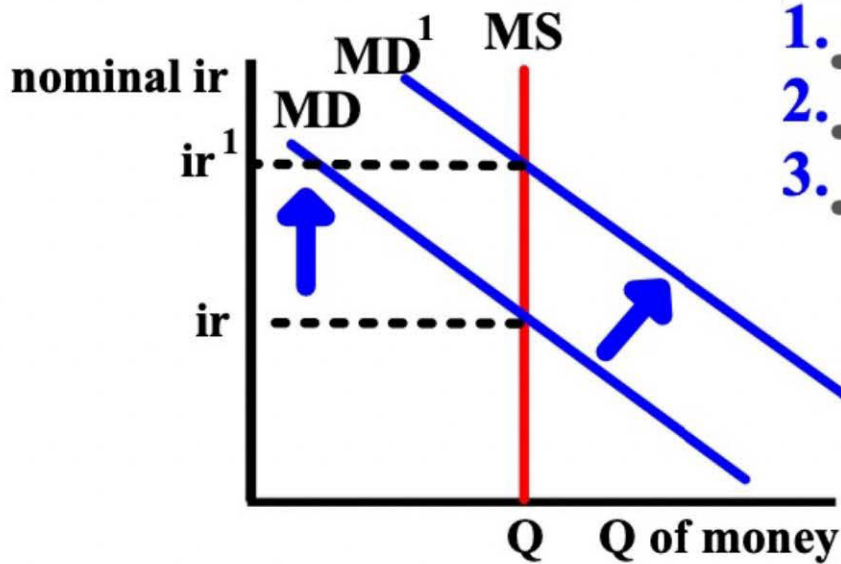
**graph the money market in equilibrium then show the impact of an decrease in technology or an increase in price levels**

The Money Market- (cont.)

The Demand for Money- An Increase

Money demand shifters

- 1. price level ↑
- 2. income ↑
- 3. technology ↓



graph the money market in equilibrium then show the impact of an increase in technology or a decrease in price levels

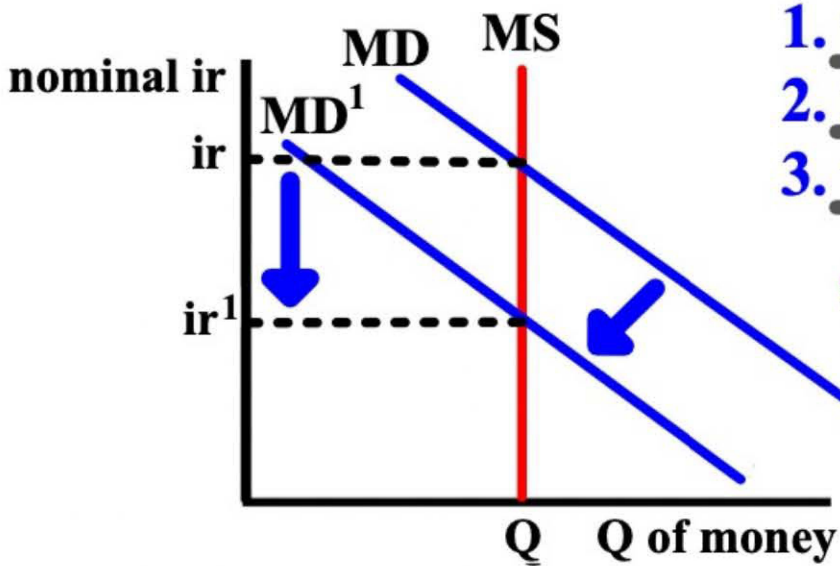
**P  
I  
T**

The Money Market- (cont.)

The Demand for Money- A Decrease

Money demand shifters

- 1. price level ↓
- 2. income ↓
- 3. technology ↑



graph the money market in equilibrium then show the effect when the FED either buys bonds/securities or lowers the discount rate or required

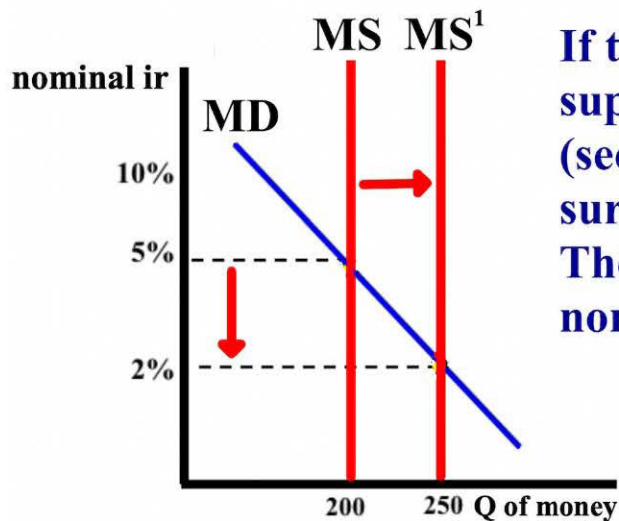
**P  
I  
T**



## The Money Market- (cont.)

*buy= bigger*  
**FED buys bonds** The Money Market

### Increasing the Money Supply



If the FED increases the money supply by buying bonds (securities) from banks, a surplus of money will occur. The surplus will cause the nominal interest rate to fall.

How does this affect AD?

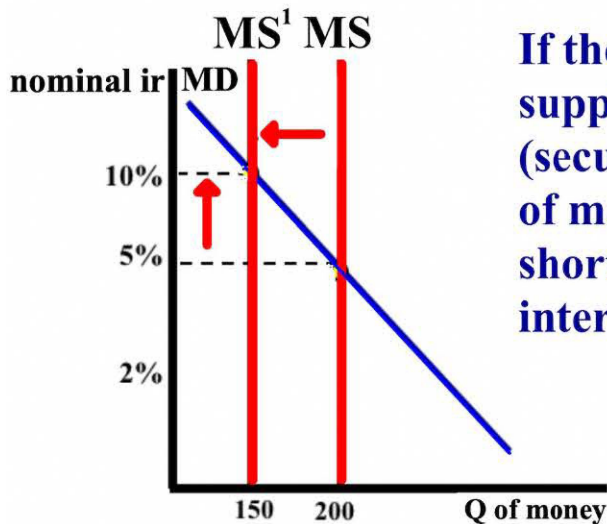
Increased money supply → Decreases interest rate → ↑ C, I, & X spending / investment → Increases Real GDP/Y/AD

## The Money Market- (cont.)

*sell= smaller*  
**FED sells bonds**

## The Money Market

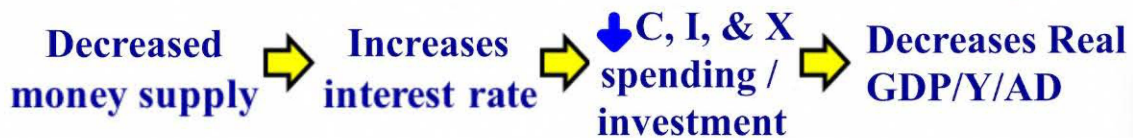
### Decreasing the Money Supply



If the FED decrease the money supply by selling bonds (securities) to banks, a shortage of money will occur. The shortage will cause the nominal interest rate to rise.

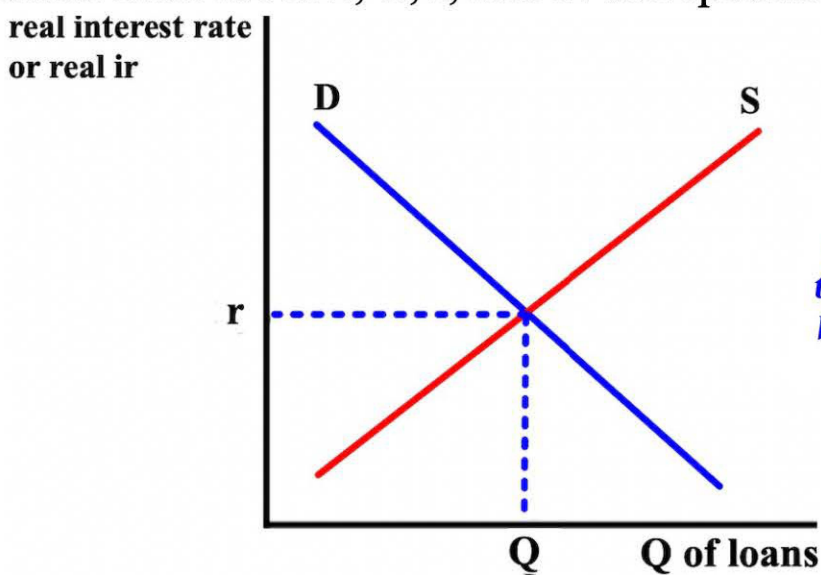
How does this affect AD?

*graph the loanable funds market in equilibrium*



## The Loanable Funds Market

1. the **loanable funds market** is controlled by the money market and is where the private sector (C, I, and X) gets their loans
2. the loanable funds market focuses on the supply and demand of loans
3. if interest rates are high, C, I, and X will spend/invest/borrow less
4. if interest rates are low, C, I, and X will spend/invest/borrow more



*The loanable funds market in equilibrium: the money demanded by borrowers = the money supplied by lenders*

The Loanable Funds Market (cont.)

**The Loanable Funds Market**

**Demand Shifters**

**Supply Shifters**

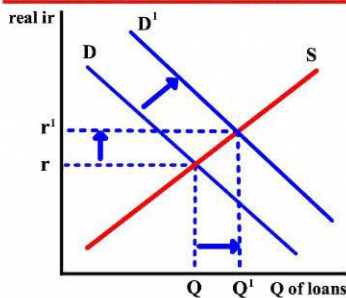
**B  
O  
B**

1. budget deficits and surpluses  $\uparrow$  or  $\downarrow$
2. opportunities in business  $\uparrow$  or  $\downarrow$
3. borrowing by the govt.  $\uparrow$  or  $\downarrow$

**S  
I  
P**

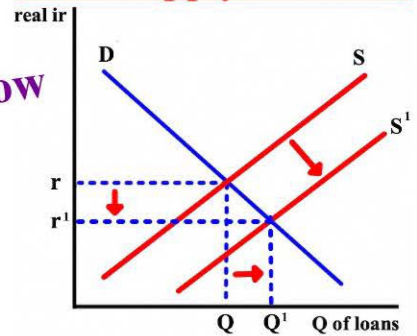
1. savings by public and/or private  $\uparrow$  or  $\downarrow$
2. investment by foreign nations  $\uparrow$  or  $\downarrow$
3. profitability expectations  $\uparrow$  or  $\downarrow$

**Loan Demand Increase**



*graph the loanable funds market then show the impact of deficit spending or business opportunities*

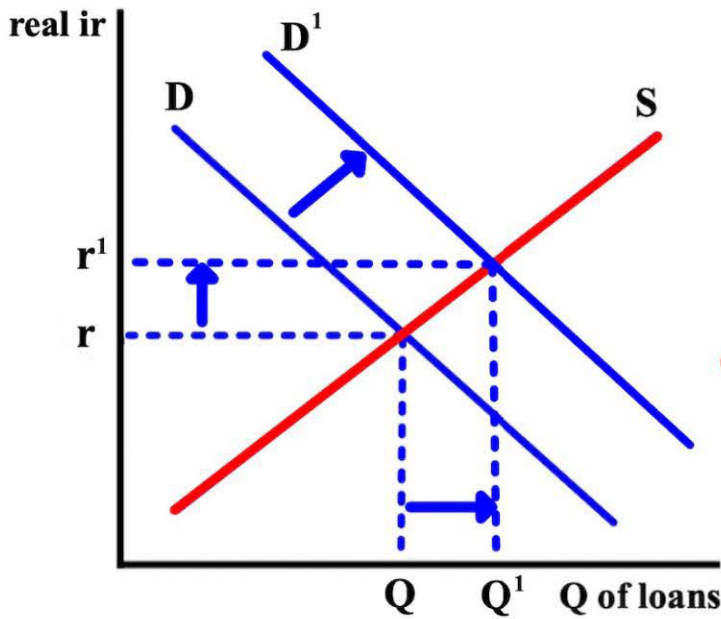
**Loan Supply Decrease**



The Loanable Funds Market (cont.)

**Loanable Funds Market**

The government increases deficit spending and borrows from the private sector



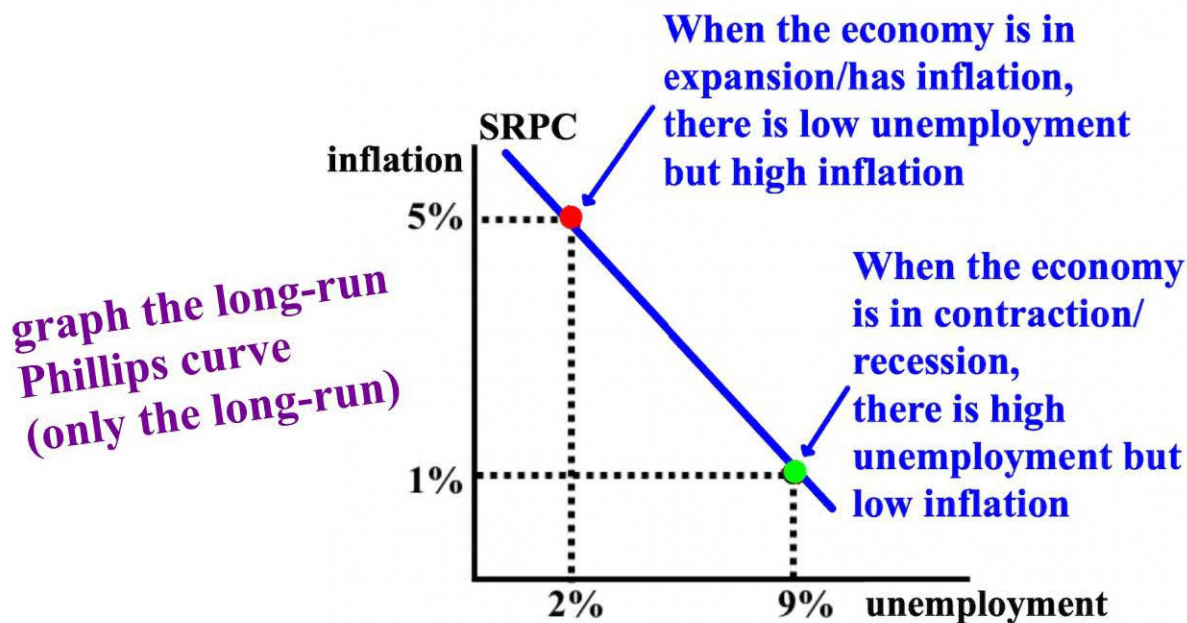
Real interest rates increase causing crowding out :-)

graph the short-run Phillips curve

## Inflation and Unemployment- The Short-run Phillips Curve

1. to show the inverse relationship between the inflation rate and unemployment and its overall impact on real GDP (Y), we use the short-run Phillips curve (SRPC)

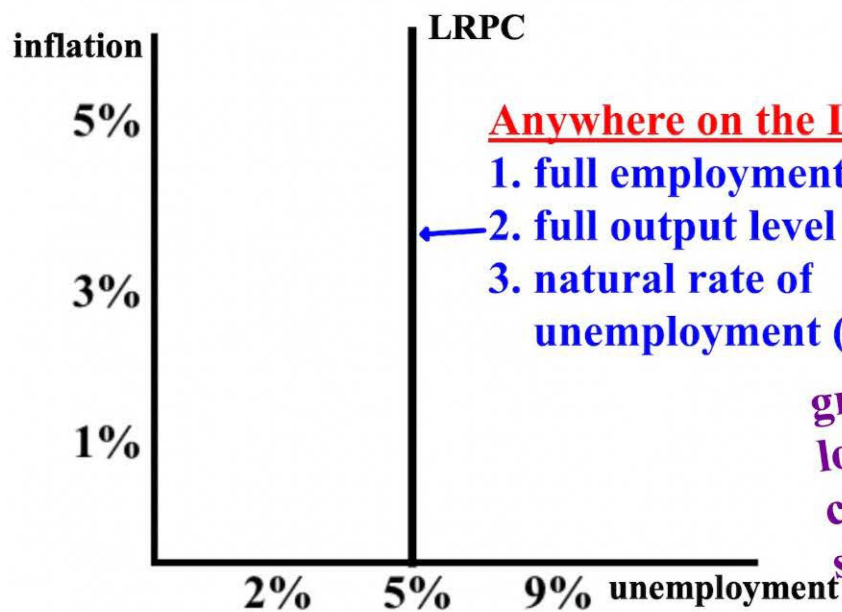
### Short-run Phillips Curve



## Inflation and Unemployment- The Long-run Phillips Curve

1. the **long-run Phillips curve (LRPC)** shows that there is no tradeoff between inflation and unemployment in the long-run
2. notice that even when the inflation rate increases, unemployment remains the same

### Long-run Phillips Curve



Anywhere on the LRPC

1. full employment level

← 2. full output level

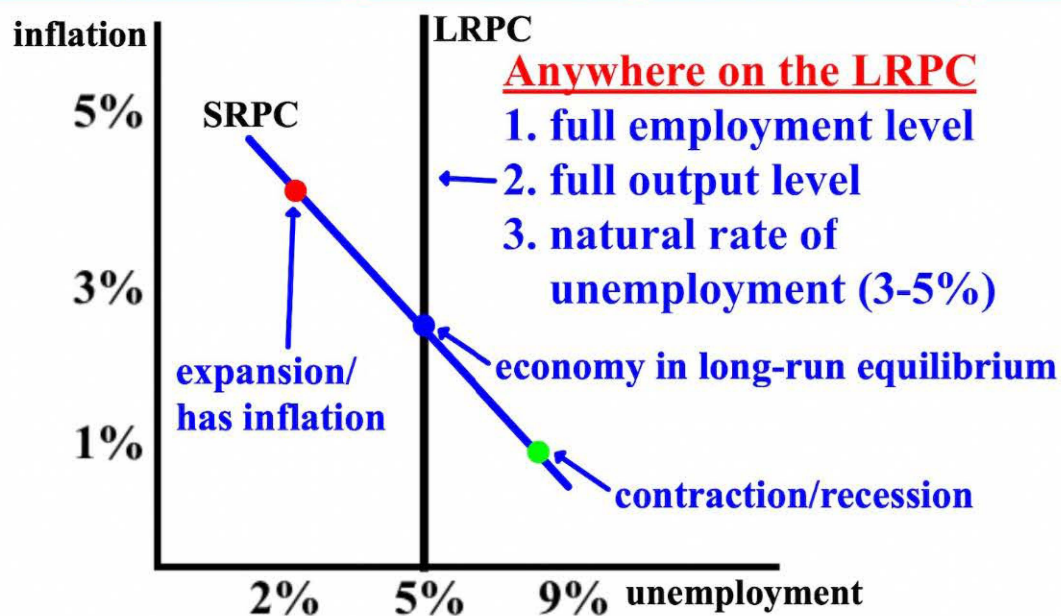
3. natural rate of unemployment (3-5%)

graph the short and long-run Phillips curve together showing a recession

## Inflation and Unemployment- The Short and Long-run Phillips Curve Together

1. the short and long-run (SR) Phillips curves can also be combined to show the status of an economy

### Short and Long-run Phillips Curves Together





## The Banks

1. to understand how a bank functions, it is necessary to look at its **balance sheet** or **T-account**, which shows a bank's assets and liabilities
2. an **asset** is something of value owned by a person or firm
3. a **liability** is something of value that a person or firm owes to someone else
4. the only difference between the graph on the right compared to the left is that the right breaks down exactly what the reserves consist of (required and excess)

**Bank Balance Sheet/T-account**

Assets		Liabilities	
Loans	\$15,000	Demand Deposits	\$20,000
Reserves	\$5,000	Owner's Equity	\$10,000
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>\$30,000</b>	<b>Total Liabilities</b>	<b>\$30,000</b>

*OR*

**Bank Balance Sheet/T-account**

Assets		Liabilities	
Loans	⑤ \$15,000	Demand Deposits	① \$20,000
Reserves (required)	③ \$2,000	Owner's Equity	\$10,000
Excess Reserves	④ \$3,000		
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>⑥ \$30,000</b>	<b>Total Liabilities</b>	<b>② \$30,000</b>

**It is "balanced" because the total assets and liabilities equal each other**

## The Banks (cont.)

1. **loans** are the money that the bank has and makes money from by loaning it
2. **reserves** or the **reserve requirement** or **reserve ratio** (usually about 10%) are the percent of deposits that banks must hold in reserve at the FED and cannot loan out
3. **demand deposits** are funds that are deposited into a bank account from which money can be withdrawn "on demand;" (liquidity)

**Bank Balance Sheet/T-account**

Assets		Liabilities	
Loans	\$15,000	Demand Deposits	\$20,000
Reserves	\$5,000	Owner's Equity	\$10,000
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>\$30,000</b>	<b>Total Liabilities</b>	<b>\$30,000</b>

*OR*

**Bank Balance Sheet/T-account**

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Excess Reserves	④ \$3,000		
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>⑥ \$30,000</b>	<b>Total Liabilities</b>	<b>② \$30,000</b>

**It is "balanced" because the total assets and liabilities equal each other**

## The Banks (cont.)

- notice that loans and reserves are green, just like demand deposits are
  - this is because the amount of loans a bank can give out and the reserves it must hold are directly related to the demand deposits it has
- of the \$20,000 in demand deposits in the bank below, \$5,000 is being kept in reserve while the other \$15,000 can be loaned out
- as you can see on the right T-account, the bank's required reserve/reserve ratio is 1 or 10% (\$2,000 of \$20,000 is 10%)
- the extra \$3,000 that the bank is keeping in reserves is extra and is called

### Bank Balance Sheet/T-account *OR* Bank Balance Sheet/T-account

Assets		Liabilities	
Loans	\$15,000	Demand Deposits	\$20,000
Reserves	\$5,000	Owner's Equity	\$10,000
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>\$30,000</b>	<b>Total Liabilities</b>	<b>\$30,000</b>

Assets		Liabilities	
Loans	⑤ \$15,000	Demand Deposits	① \$20,000
Reserves (required)	③ \$2,000	Owner's Equity	\$10,000
Excess Reserves	④ \$3,000		
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>⑥ \$30,000</b>	<b>Total Liabilities</b>	<b>② \$30,000</b>

It is "balanced" because the total assets and liabilities equal each other

## The Banks (cont.)

1. when money is deposited in a bank, the money is added directly to demand deposits
2. if \$10,000 is deposited into the bank, demand deposits would become \$30,000 and total liabilities would become \$40,000
  - A. the required reserve would be recalculated at 10%, and the new required reserve would be \$3,000
    - i. because required reserves only equal \$2,000, more must be added
      - a. if there are excess reserves, money would be taken first from there and excess reserves would become \$2,000
3. the \$10,000 deposit would be added to the available loans
  - A. loans would now equal \$25,000 and total assets \$40,000

**Bank Balance Sheet/T-account**

Assets		Liabilities	
Loans	\$15,000	Demand Deposits	\$20,000
Reserves	\$5,000	Owner's Equity	\$10,000
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>\$30,000</b>	<b>Total Liabilities</b>	<b>\$30,000</b>

*OR*

**Bank Balance Sheet/T-account**

Assets		Liabilities	
Loans	\$15,000	Demand Deposits	\$20,000
Reserves (required)	\$2,000	Owner's Equity	\$10,000
Excess Reserves	\$3,000		
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>\$30,000</b>	<b>Total Liabilities</b>	<b>\$30,000</b>

\$30,00  
\$40,00  
\$3,000  
\$2,000  
\$25,00  
\$40,00

**It is "balanced" because the total assets and liabilities equal each other**

## The Banks (cont.)

1. if there are no excess reserves, the loans would originally equal \$18,000 (\$15,000 + \$3,000) and the money would be taken from that amount
  - A. the amount of loans available would decrease, in this case from \$18,000 to \$17,000 because \$1,000 would have to be transferred from loans to required reserves
3. the \$10,000 deposit would be added to the available loans
  - A. loans would now equal \$27,000 and total assets \$40,000

**Bank Balance Sheet/T-account**

*OR*

**Bank Balance Sheet/T-account**

Assets		Liabilities	
Loans	\$15,000	Demand Deposits	\$20,000
Reserves	\$5,000	Owner's Equity	\$10,000
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>\$30,000</b>	<b>Total Liabilities</b>	<b>\$30,000</b>

Assets		Liabilities	
Loans	⑤ \$15,000	Demand Deposits	① \$20,000
Reserves (required)	③ \$2,000	Owner's Equity	\$10,000
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Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>⑥ \$30,000</b>	<b>Total Liabilities</b>	<b>② \$30,000</b>

It is "balanced" because the total assets and liabilities equal each other

\$30,000  
\$40,000  
\$3,000  
\$18,000  
\$17,000  
\$27,000  
\$40,000

## The Banks (cont.)

1. if \$5,000 is withdrawn from this bank, the \$5,000 would be withdrawn from demand deposits and demand deposits would become \$15,000 and total liabilities \$25,000

A. the required reserve would be recalculated at 10% and would become \$1,500

B. the extra \$500 in required reserves would be added to the excess reserves and become \$3,500

C. but, the \$3,500 in excess reserves would become \$0 as assets are withdrawn and the remaining \$1,500 needed would be deducted from the available loans and become \$13,500

D. total assets now equal \$25,000

**Bank Balance Sheet/T-account**

Assets		Liabilities	
Loans	\$15,000	Demand Deposits	\$20,000
Reserves	\$5,000	Owner's Equity	\$10,000
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>\$30,000</b>	<b>Total Liabilities</b>	<b>\$30,000</b>

*or*

**Bank Balance Sheet/T-account**

Assets		Liabilities	
Loans	Ⓢ \$13,500	Demand Deposits	Ⓢ \$15,000
Reserves (required)	Ⓢ \$1,500	Owner's Equity	\$10,000
Treasury Bonds	\$10,000		
<b>Total Assets</b>	<b>Ⓢ \$25,000</b>	<b>Total Liabilities</b>	<b>Ⓢ \$25,000</b>

**It is "balanced" because the total assets and liabilities equal each other**

## **Bonds and Stocks**

1. bonds are secured loans, like an IOU
2. interest rates and bond prices are inversely related, so as interest rates increase, the value of a bond decreases
3. as interest rates decrease, the value of a bond increases