

Investment

Investment

- “*Investment*” is the thing that really makes our economy go and grow!
- **Investment is any NEW**
 - Plant and equipment
- **Investment is any NEW**
 - Additional inventory
- **Investment is any NEW**
 - Residential housing

6-14

Inventory Investment

Includes only net change

<u>Date</u>	<u>Level of Inventory</u>
Jan. 1, 2003	\$120 million
July 1, 2003	145 million
Dec. 31, 2003	130 million

Copyright ©2002 by The McGraw-Hill Companies, Inc. All rights reserved.

6-15

Inventory Investment

Includes only net change

<u>Date</u>	<u>Level of Inventory</u>
Jan. 1, 2003	\$120 million
July 1, 2003	145 million
Dec. 31, 2003	130 million

Started the year with \$120 million
 Ended the year with 130 million
 The net change is a (+) 10 million

Copyright ©2002 by The McGraw-Hill Companies, Inc. All rights reserved.

6-16

Inventory Investment (Continued)

Includes only net change

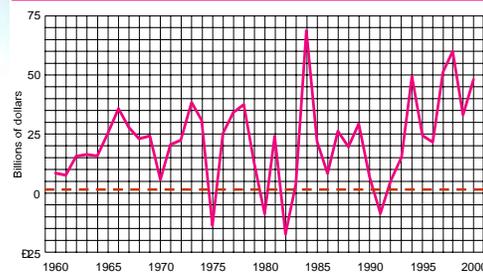
<u>Date</u>	<u>Level of Inventory</u>
Jan. 1, 2003	\$130 million
July 1, 2003	145 million
Dec. 31, 2003	120 million

Started the year with \$130 million
 Ended the year with 120 million
 The net change is a (-) 10 million

Copyright ©2002 by The McGraw-Hill Companies, Inc. All rights reserved.

6-17

Inventory Investment, 1960-2000 (in billions of 1987 dollars)



This is the most volatile sector of investment. Note that investment was actually negative during three recessions

Copyright ©2002 by The McGraw-Hill Companies, Inc. All rights reserved.

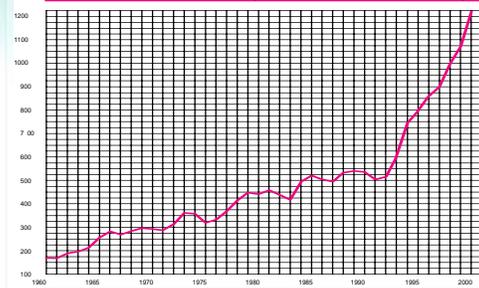
6-18

Investment in Plant and Equipment

- Investment in *plant and equipment* is more stable than inventory
 - Even in bad years companies will still invest a substantial amount in new plant and equipment
 - This is mainly because old and obsolete factories, office buildings, and machinery must be replaced
 - This is the depreciation part of investment

6-19

Investment in Plant and Equipment, 1960-2000 (in 1987 dollars)



There has been a strong upward trend in this investment sector over the last four decades. Note the periodic downturns, especially during recession years

Residential Construction

- Involves replacing old housing as well as adding to it
- Fluctuates considerably from year to year
- Has mortgage interest rates play a dominant role

6-21

Investment

- Investment is the most volatile sector in our economy
 - $GDP = C + I + G + X_n$
- Fluctuations in GDP are largely fluctuations in investment

6-22

Investment (Continued)

- Recessions are touched off by declines in investment
- Recoveries are brought about by rising investment

6-23

How Do Savings Get Invested?

- Money saved is put into stocks and bonds
- Banks loan money based on their demand deposits and reserve requirements
- Businesses take this money and buy new plant and equipment, and add to their inventory
- Corporations also use “retained earnings” and “depreciation allowances”

Gross Investment vs Net Investment

- In the equation:

$$\text{GDP} = \text{C} + \text{I} + \text{G} + \text{Xn}$$

- The "I" represent gross investment

Gross investment - depreciation = net investment

- Depreciation is taking into account for the fact that plant & equipment wear out and houses deteriorate

6-25

Gross Investment - Depreciation = Net Investment

- Depreciation is taking into account for the fact that plant & equipment wear out and houses deteriorate.
- start the year with **10 machines**
- bought **6 machines (gross investment)**
- worn out/obsolete - **4 machines (depreciation)**
- end the year with 12 machines
- actual gain of **2 machines (net investment)**

Calculate Gross Investment and Net Investment

<u>Date</u>	<u>level of inventory</u>
Jan 1	\$60 billion
July 1	55 billion
Dec 31	70 billion
Expenditures on new plant & equipment	
	\$120 billion
Expenditures on new residential housing	
	\$ 90 billion
Depreciation on plant & equipment and residential housing	
	\$30 billion

6-27

Solution

<u>Date</u>	<u>level of inventory</u>		
Jan1	\$60 billion		
July 1	55 billion		
Dec 31	70 billion	inventory investment	\$ 10
Expenditures on new plant & equipment		new P & E	120
	\$120 billion	new RH	90
Expenditures on new residential housing		gross investment	220
	\$ 90 billion	- depreciation	- 30
Depreciation on plant & equipment and Residential housing \$30 billion		net investment	\$ 190

Building Capital

- Investment involves sacrifice (on someone's part)
- To invest
 - We must work more
 - We must consume less (save)

6-29

Determinants of the Level of Investment

- Sales outlook
- Capacity utilization rate
- Interest rate
- Expected rate of profit (ERP)

6-31

The Sales Outlook

- You won't invest if the sales outlook is bad
 - If sales are expected to be strong the next few months the business is probably willing to add inventory
 - If sales outlook is good for the next few years, firms will probably purchase new plant and equipment

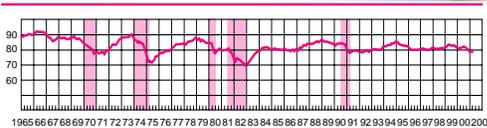
6-32

Capacity Utilization Rate

- This is the percent of plant and equipment that is actually being used at any given time
- You won't invest if you have a lot of unused capacity
 - During recessions, why build more when you are not using all of what you have
- Other factors
 - Manufacturing is a shrinking part of U.S. economy due to imports and increasing investment overseas by U.S. Companies

6-33

Capacity Utilization Rate in Manufacturing, 1965-2000



Since the mid-1980s, our capacity utilization rate has been in the low 80s. Note that it fell during each recession

6-34

The Interest Rate

- You won't invest if interest rates are too high

Interest rate = The interest paid / The amount borrowed

Assume you borrow \$1000 for one year @ 12 %, how much interest do you pay?

$$.12 = \frac{X}{\$1000}$$

$$X = \$120$$

6-35

The Interest Rate

- You won't invest if interest rates are too high

Interest rate = The interest paid / The amount borrowed

Assume you borrowed \$1000 for one year and paid \$120 interest. What was the interest rate?

$$X = \frac{\$120}{\$1000}$$

$$X = .12 = 12 \%$$

6-36

Expected Rate of Profit (ERP)

$$ERP = \frac{\text{Expected Profits}}{\text{Money Invested}}$$

How much is the ERP on a \$10,000 investment if you expect to make a profit of \$1,650?

6-37

How much is the ERP on a \$10,000 investment if you expect to make a profit of \$1,650?

$$\text{ERP} = \frac{\text{Expected Profits}}{\text{Money Invested}}$$

$$\text{ERP} = \frac{\$1,650}{\$10,000}$$

$$\text{ERP} = .165 = 16.5 \%$$

Copyright ©2002 by The McGraw-Hill Companies, Inc. All rights reserved.

6-38

You Won't Invest If Interest Rates Are Too High

- In general, the lower the interest rate, the more business firms will borrow
- To know how much they will borrow and whether they will borrow, you need to compare the interest rate with the expected rate of profit
- Even if they are investing their own money they need to make this comparison

6-39

Why Do Firms Invest?

- Firm's will only invest if the expected profit rate is "high enough"
- Firms invest when
 - Their sales outlook is good
 - Their capacity utilization rate is high
 - Their expected profit rate is high
- Even if firm's invest their own money, the interest rate is still a consideration

6-40

What Accounts for our Low Rate of Investment?

- The short time horizon of corporate America
- The quality of management in America
- The quality of labor in America
- The low savings rate in America
 - The less we save, the less we can invest
 - The less we invest, the slower our rate of economic growth