Business & Investment

Investment

Importance and Role

- The business sector is about 12% of GDP.
- Investment spending is a component of aggregate demand.
- Consequently, changes in investment spending trigger changes in production, and employment.

Investment

Importance and Role

- Changes in consumer spending drive changes in investment spending.
- Demand for investment is a derived demand.

Investment

Importance and Role (Long Run)

- Assets are needed to generate income.
- Investment determines economic growth by increasing aggregate supply.
- Savings finance investment.

Investment

Importance and Role

- Firms acquire capital goods to obtain income.
- Firms use their retained earnings to purchase capital assets.

Investment

Gross Investment Expenditures are divided into three categories:

- Structures
- Equipment
- Inventory changes

Investment

Structures

- Includes buildings, and plant
- Usually very sensitive to the business cycle.

Investment

Equipment & Software

- Includes furniture, computers, appliances, and software.

Investment

Inventory Changes

- Increases (decreases) in inventories are considered increases (decreases) in investment.

Investment

Gross Private Domestic Investment, 2006		2,209.2
Structures		
Residential	764.8	
Nonresidential	405.1	
Equipment & Software	992.6	
Change in Inventory	46.7	
Consumption of Fixed Capital		1,347.5
Net Private Domestic Investment		861.7

Source: BEA, Table 5.2.5. Gross and Net Domestic Investment by Major Type

Investment

Gross Investment v Net Investment

- Gross Investment – Consumption of Fixed Capital = Net Investment
- Gross investment is total new investment expenditures. Includes replacement expenditures.
- Net investment is net growth in investment expenditure, excludes replacement expenditures.

Investment

Consumption of Fixed Capital

- Basically the economist's version of depreciation.
- Based on economic life not service life, which is much shorter.
- Based on replacement value not cost, which is much higher.

Investment

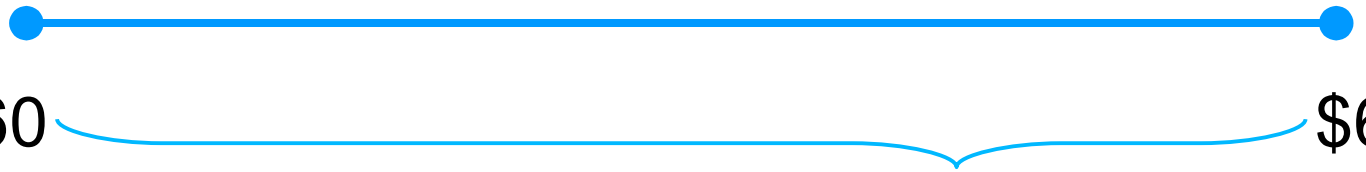
Flow v Stock

- Investment can be both a stock or flow variable.
- Flow means the amount of investment added over a period of time.
- Stock means the amount of investment at a specific point in time.

Investment

Beginning Capital Stock

Ending Capital Stock



$60 $62

Gross Investment	6
Consumption of Fixed Capital	4
Net Investment	2

Investment

The Investment Function

- Income
- Capital Stock
- Interest rates

Investment Function

Relationship between income and investment

- As income increases, investment increases.
- Companies invest to earn profits. Consequently, to increase sales they increase investment.
- From another point of view, companies finance 80% of their capital needs from retained earnings (in economic terms, business savings). Consequently, they can only invest when they have income to pay for it.

Investment Function

Relationship between income and investment

- The Marginal Propensity to Invest (MPI) represents the percentage of each additional dollar of income that is investment expenditure.
- $MPI = \Delta I / \Delta Y$

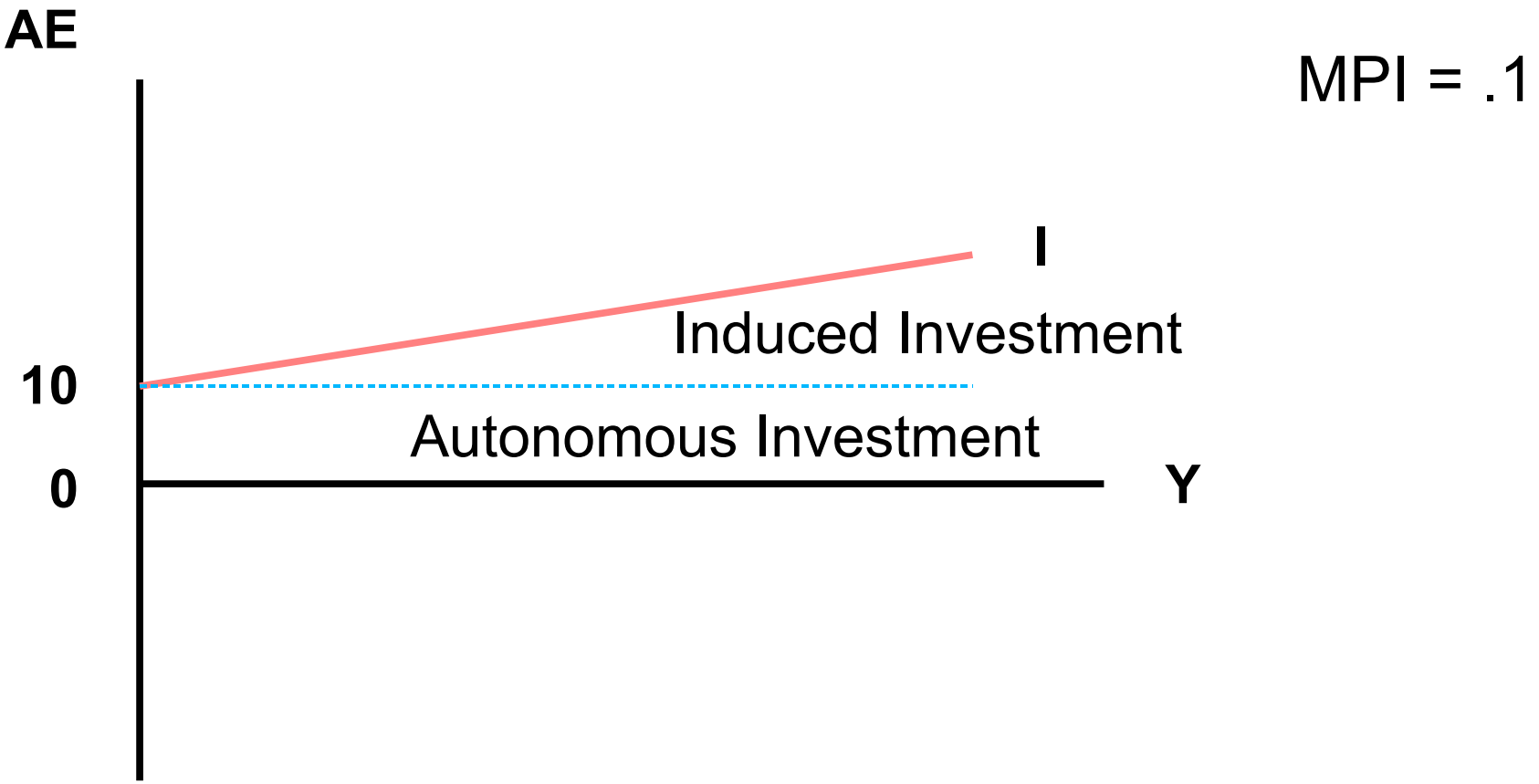
Investment Function

Relationship between income and investment

- The investment that varies directly with income is called induced investment.
- The investment that does not vary directly with income is called autonomous investment.

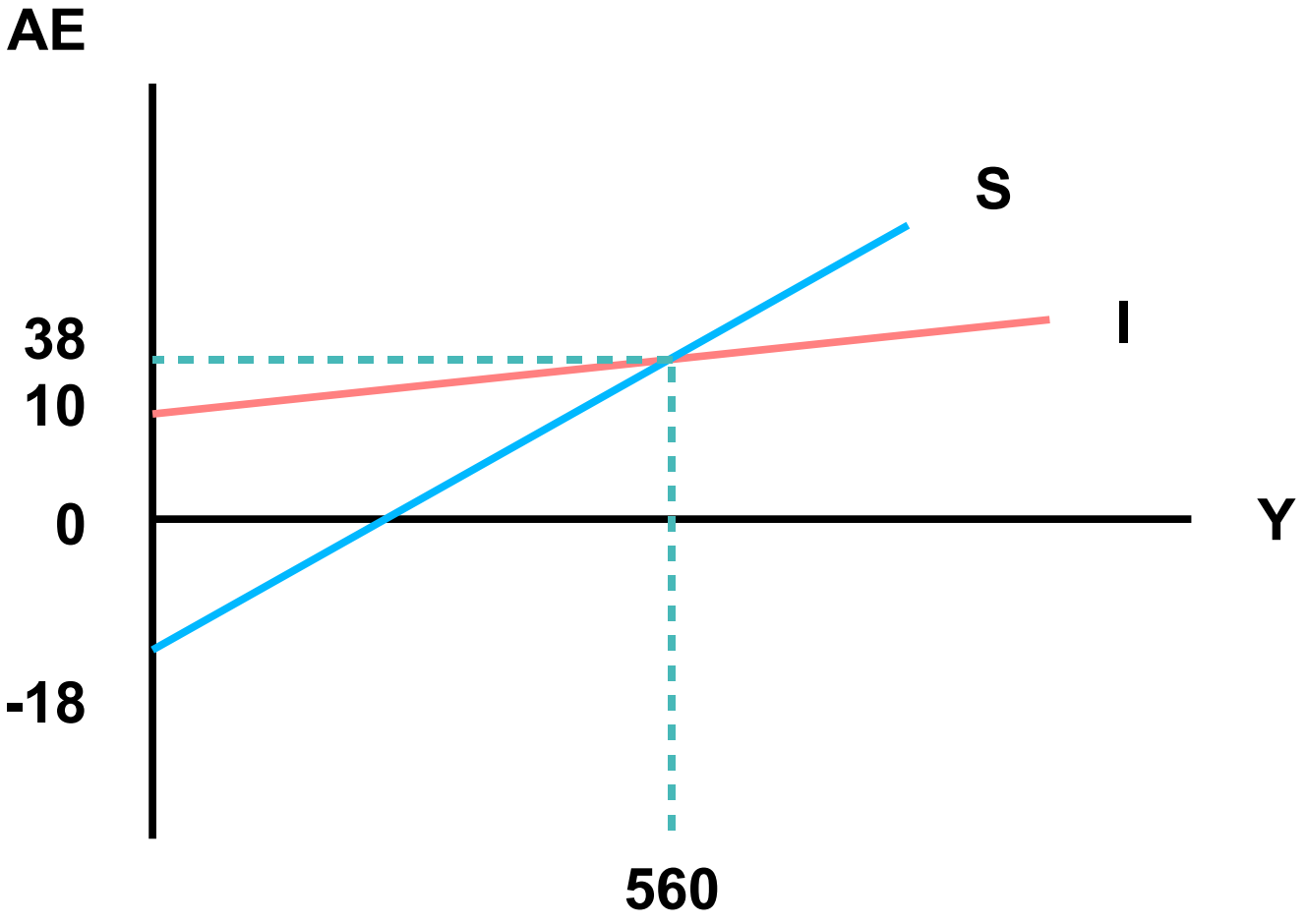
Investment Function

Graph of the Investment Function



Investment

Graph of Investment Equilibrium



MPI = .05
MPS = .1

Investment Function

Relationship between capital stock and investment

- The issue of capacity utilization
  - if a firm is operating at 50% capacity, there is little need to expand or invest in new facilities.
  - At 85%, the firm must prepare for future needs and invest.

Investment Function

Relationship between capital stock and investment

- Age and condition of capital stock
  - Older capital stock needs more maintence which becomes expensive.
  - All capital stock have a limited life.
  - Also excessive use causing accelerated wear and tear on equipment contributes to a higher replacement rate of capital.

Investment Function

Relationship between capital stock and investment

- Effect of Technology
  - Technology from a production point of view.
  - If a new technology arrives, capital will be replaced to take advantage of it, otherwise the competition will adopt the technology and gain a strategic advantage.

Investment Function

Relationship between interest rates and investment

- The biggest cost of acquiring capital assets is the cost of interest.
- Example: The sum of the payments on a 30 year mortgage will easily equal 2 to 3 times the cost of the house or asset.
- An important component of capital budgeting.

Investment Supply & Demand

Relationship of investment to capital markets

- There is a demand for investment and a supply of investment.
- Typically, we speak of investment supply as funds and the investment demand as the assets that are purchased with the funds.

Investment Supply & Demand

Relationship of investment to capital markets/Investment Demand

- Investment demand is a function of firm profitability.
- Firms compare the income generated by asset against its costs.
- Income is directly related to the demand for the product that asset is produced, hence, the reason it is a derived demand.

Investment Supply & Demand

Relationship of investment to capital markets/Investment Demand

- Firm's subtract the cost of the asset (including interest) from the expected lifetime income generated by the asset to determine if they acquire the asset.
- This is called Capital Budgeting.

Investment Supply & Demand

Relationship of investment to capital markets/Investment Supply

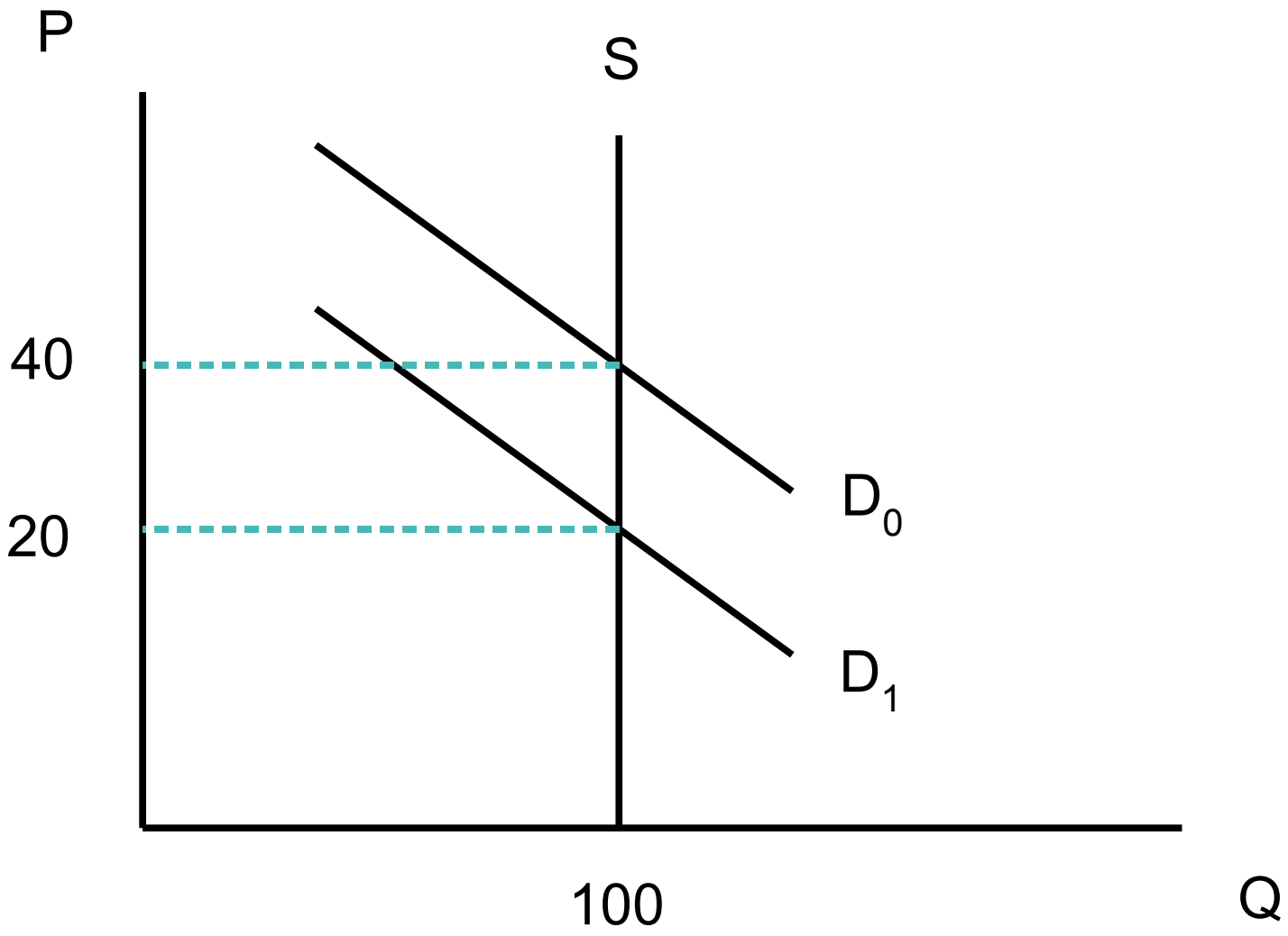
- Investment supply is a function of and is determined by income. As income increases, savings increases which becomes the source of investment funds.
- Business savings, that is, retained earnings supplies over 80% of firm's capital needs.

Investment Supply & Demand

Investment Supply & Demand Example

- Let's consider the market for office buildings to illustrate investment supply and demand.
- The nature of investment supply is that it is fixed in the short run. Therefore, it is drawn as a straight vertical line.
- Unlike consumer products, supply is not consumed. An office building remains in place for 40 to 100 years.

Investment Supply & Demand

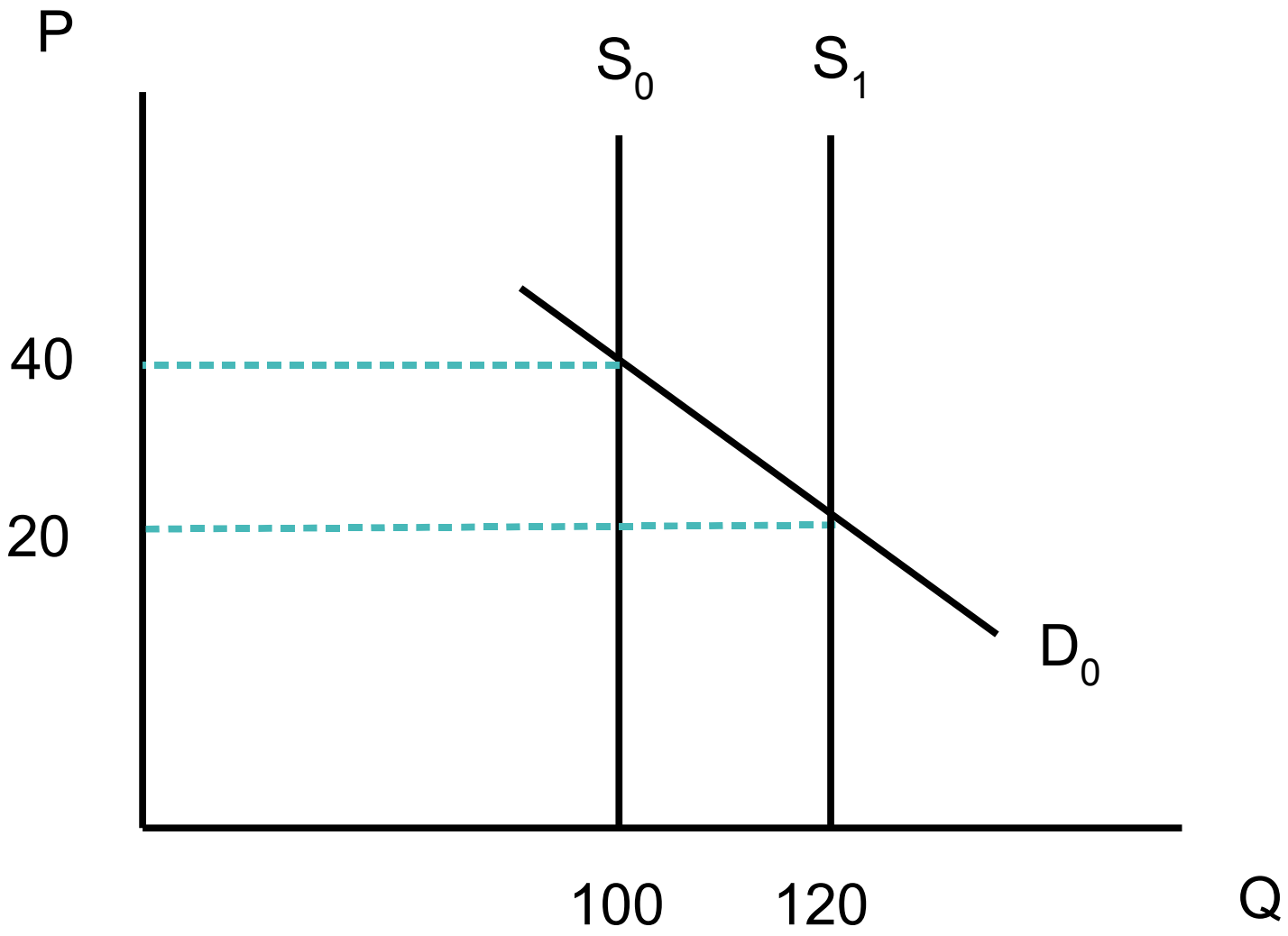


Investment Supply & Demand

Investment Supply & Demand Example

- Consequently, it is demand that determines price changes in the short run.
- Investment demand is a function of income, the profit that the asset can generate.

Investment Supply & Demand



Investment Supply & Demand

Investment Supply & Demand Example

- Suppose supply increases.
- Given the same demand, price decreases from $40 to $20. Let's say this is rent per square foot per year.
- That may mean that some landlord's cannot make their mortgage service.

Investment Supply & Demand

Investment Supply & Demand Example

- If the aggregate vacancy rate is 40% and the local economy expands at a rate of 5% per year (sometimes known as the absorption rate), then it will take 8 years to clear the market.
- During this time, there may be substantial losses in the local real estate market.

Investment Supply & Demand

Simple Capital Budgeting Example

- To understand how firms determine investment demand let's consider a simple example.

Investment Supply & Demand

Simple Capital Budgeting Example

- Suppose Moca Java is considering buying a new expresso grinder/brewer that will last one year. It costs $3,000.
- It will generate revenue of $4,000.
- Investing $3,000 at 8% will yield $240.
- Should Moca Java buy the machine?

Investment Supply & Demand

Simple Capital Budgeting Example

- The answer is yes.
- $4,000 - $3,000 - $240 = $760
- The machine earns more than all of its costs; the cost of the machine and cost of financing.

The End
(Of Investment)