

The Capital Market

Capital Market

- Demand for capital is a derived demand.
- As demand increases for cars, then demand increases for equipment and structures.

Capital Market

Demand from a firm's point of view

- The revenue generated by capital is equal to its output (MPK) times the price of the output (P).
- $MPK * P = MRP$
- The cost of capital is i .

Capital Market

Demand from a firm's point of view

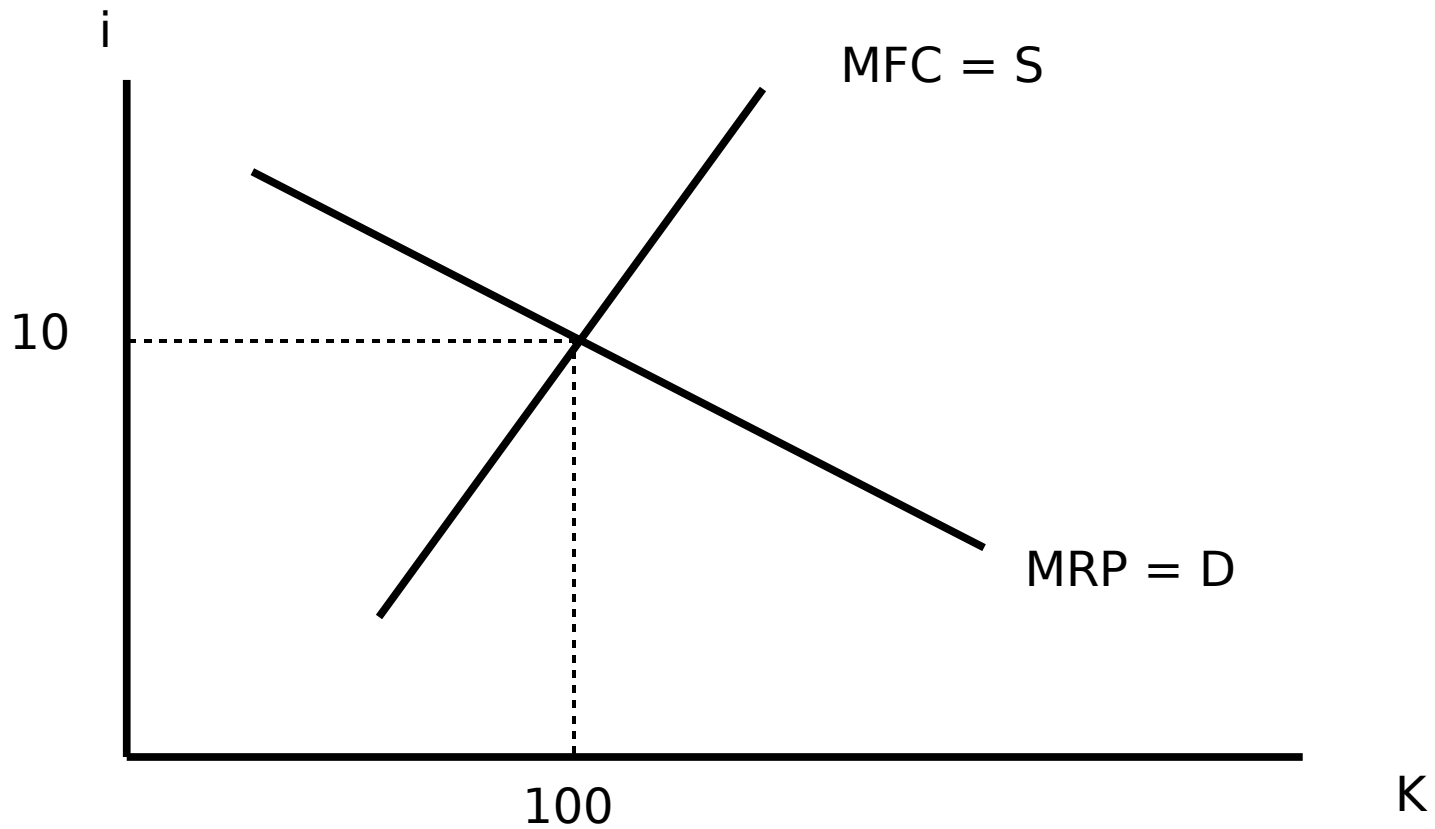
- Unlike labor, capital is long-term or multi-period.
- Therefore, firm's must consider revenue over the life of the capital asset versus the cost of the asset including interest.

Capital Market

Supply and Demand of Capital

- Capital is supplied to earn interest or profit.
- The supply of capital is determined by the nation's income and savings rates.
- Foreign savings may also be a factor.

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Capital Market

Slope of capital demand

- Demand from both the firm's and the aggregate view would probably suggest an inelastic demand for capital.
- Firms are NOT going to increase capacity merely because of cheaper interest rates as it is income that drives demand for capital assets.

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Slope of capital supply

- From a firm's point of view, supply may be very elastic. It can obtain all of the funds it needs without paying higher interest rates.
- However, in the real world, risk is an important factor.

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Slope of capital supply

- Large expansions entail more risk.
Creditors may be hesitant to lend more without compensation for taking on that risk.

Capital Market

- Determinants of Capital Productivity
 - Technology
 - Management

Capital Market

- Often capital is subdivided into debt and equity capital.
- Debt capital earns interest, equity capital earns profit.
- Both interest and profits are a return on capital.
- Return is expressed as a percentage rate.

Capital Market

- Profit rates can be expressed in various ways:
 - Return on Sales (ROS) Profit/Sales
 - Net Profit Margin (NPM) Profit/Sales
 - Return On Equity (ROE) Profit/Equity

Note: ROS and NPM are the same.

Capital Market

- Profitability or return is THE signal to firms on whether to enter or exit a market.
- For the purposes of this discussion, we shall consider profitability equivalent to return and interest rates and shall use the terms return yield and interest rate interchangeably.

Capital Market

- It is return or more specifically, projected return that determines which projects, firms, industries, technologies, etc. that are funded.

Capital Market

- Capital Budgeting is a systematic approach to allocating capital among its possible uses.
- There are several widely used techniques in capital budgeting. We will focus on two of them during which we will relate them to traditional microeconomic capital explanations.

Capital Market

- Current interest rates are called nominal interest rates. They are the rates stated on loan contracts.
- Nominal interest rates are affected by three factors:
 - Inflation
 - Risk
 - Real rate

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- A mathematical approximation for the relationship among these factors is as follows:
- $\text{Nominal} = \text{Inflation} + \text{Risk} + \text{Real}$

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- The first technique to be discussed in capital budgeting is called Net Present Value (NPV).
- Net Present Value relies on the Time Value of Money (TVM).

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- NPV simply takes the sum of the present values of all future cash flows.
- That discounted revenue minus the cost of the project (if costs extend past one period then they too are discounted) equals NPV.

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- Decision Rule for NPV
 - If $NPV > 0$ accept
- NPV is sensitive to the discount rate.
 - Increasing the discount rate decreases NPV.
 - As the discount rate increases, near term cash flows become more important. Cash flows further into the future become valueless.

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Time	0	1	2	3
				
Cash Flow	(1,000)	400	400	400
Discount Rate 10%	1.00	.91	.83	.75
DCF	(1,000)	364	332	300
NPV	(4)			

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Note: at 10%, for all practical purposes, $NPV = 10\%$. This means the project's rate of return is 10%. This is called the project's Internal Rate of Return (IRR).

Capital Market

Time	0	1	2	3
				
Cash Flow	(1,000)	400	400	400
Discount Rate 5%	1.00	.95	.91	.86
DCF	(1,000)	380	364	344
NPV	88			

Capital Market

- Problems/Assumptions
 - Interest rate reinvestment assumption (funds are reinvested at the discount rate which may not be realistic.)
 - Results favor large projects
 - Interest rates must be adjusted for riskiness
 - Must be able to forecast future cash flows.