MUNI ECON

Financial Investments

Lecturer: Axel A. Araneda, Ph.D.

About the course

- Time table:
  - Lectures: Wednesday 12:00-13:50 (S309)
  - Seminars: Wednesday 14:00-15:50 (VT105)

- Course Rules:
  - Attendance to the lectures is highly recommended but not compulsory.
  - The final grade of the course is established as:
    - Tasks on seminars (10%). The best 8 grades become the tasks grade.
    - Two progress test (40%): 1.11 and 20.12
    - Final Term or Exam (50%): To be scheduled.

MUNI ECON

About the course

- Contact
  - Anytime by email: axelaraneda@mail.muni.cz

- Consultation (office) hours:
  - Wednesday (11:00-12:00 hrs) and Friday (13:00-14:00 hrs).
  - Preferable communication by email in advance.
  - Office: 408.
  - Other consultation hours (physically or virtually) per agreement by email.

MUNI ECON

About the lecturer

- Axel A. Araneda, Ph.D.
  - Native of Chile.
  - B.Sc. Physics and B.Eng. Engineering Physics.
  - Ph.D. in Complex Systems Engineering.
  - Former postdoc at FIAS and MUNI.
  - Current position: Assistant Professor, Department of Finance, MUNI.
  - Research line:
    - Quantitative Finance
    - Econophysics
    - Econometrics
    - Economic Modelling
    - Applied Mathematics

Outline of the course

1. Market organization and structure
2. Security market indices
3. Market efficiency
4. Technical analysis
5. Fixed-income securities
6. Fixed-income valuation
7. Portfolio management
8. Derivatives

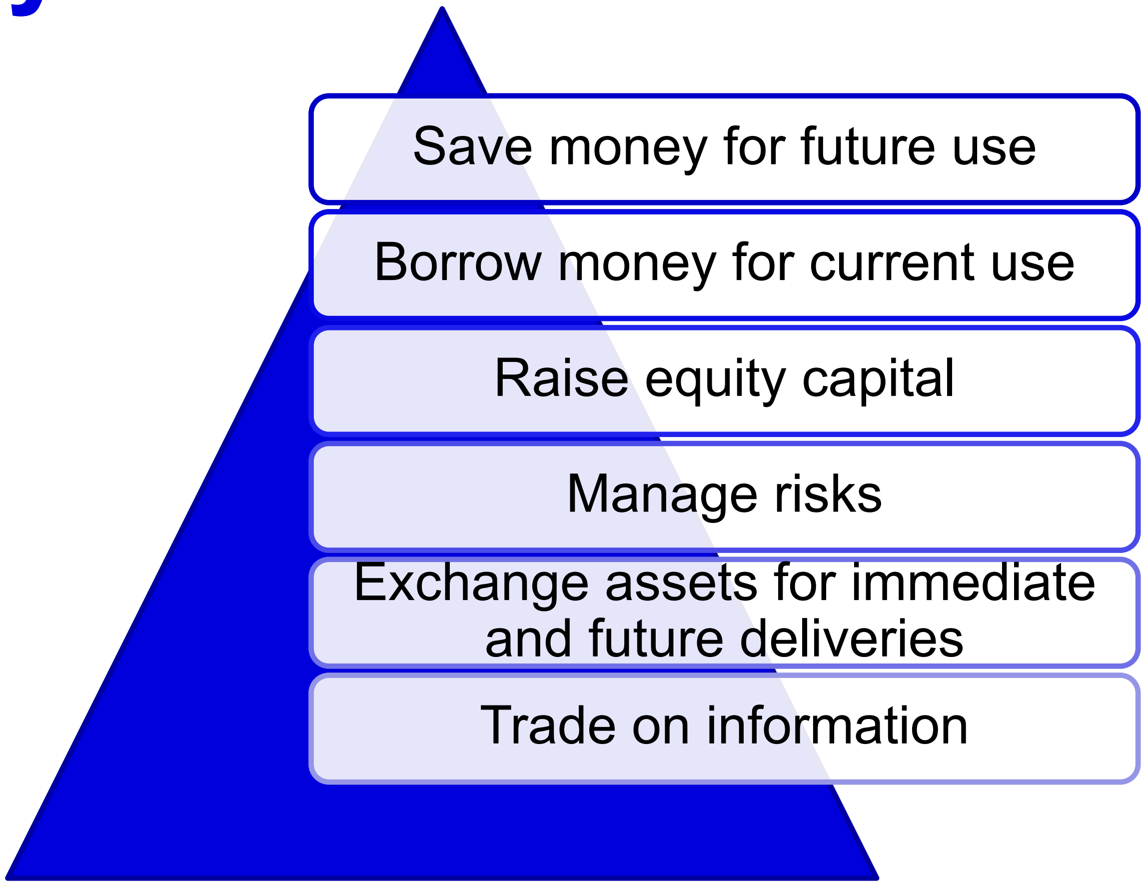
Let’s do the job!

Lecture 1

Market Organization and Structure

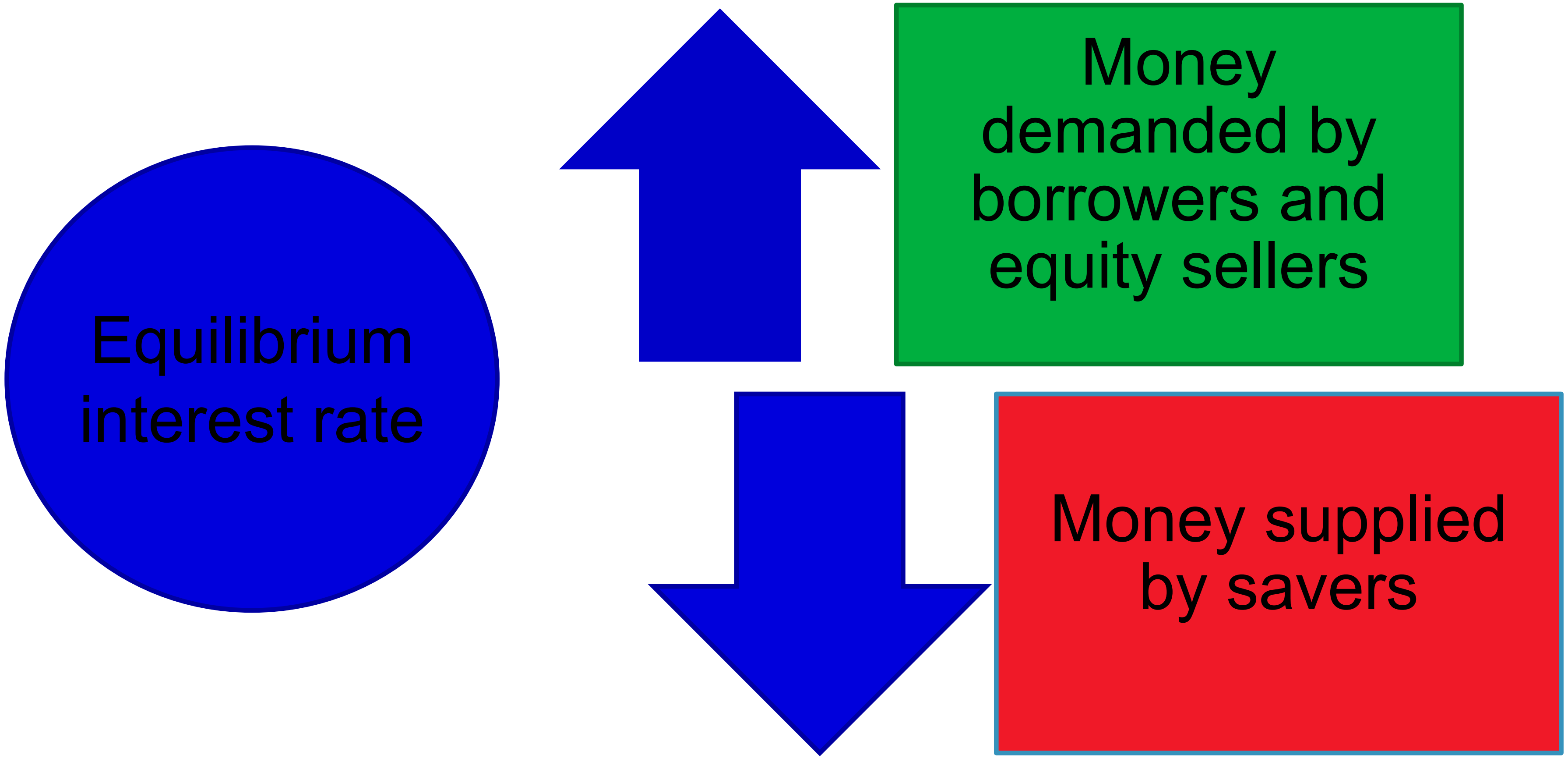
- Introduction to financial markets, general overview, and financial literacy.
- Key concept: Leverage.

What Are the Main Functions of the Financial System?



MUNI ECON

How Are Rates of Return Determined?



How Are Markets Classified?

Category 1
- Spot markets
- Forward and futures markets
- Options markets

Category 2
- Primary markets
- Secondary markets

Category 3
- Money markets
- Capital markets

Category 4
- Traditional investment markets
- Alternative investment markets

MUNI ECON

Primary and Secondary Market

Primary market

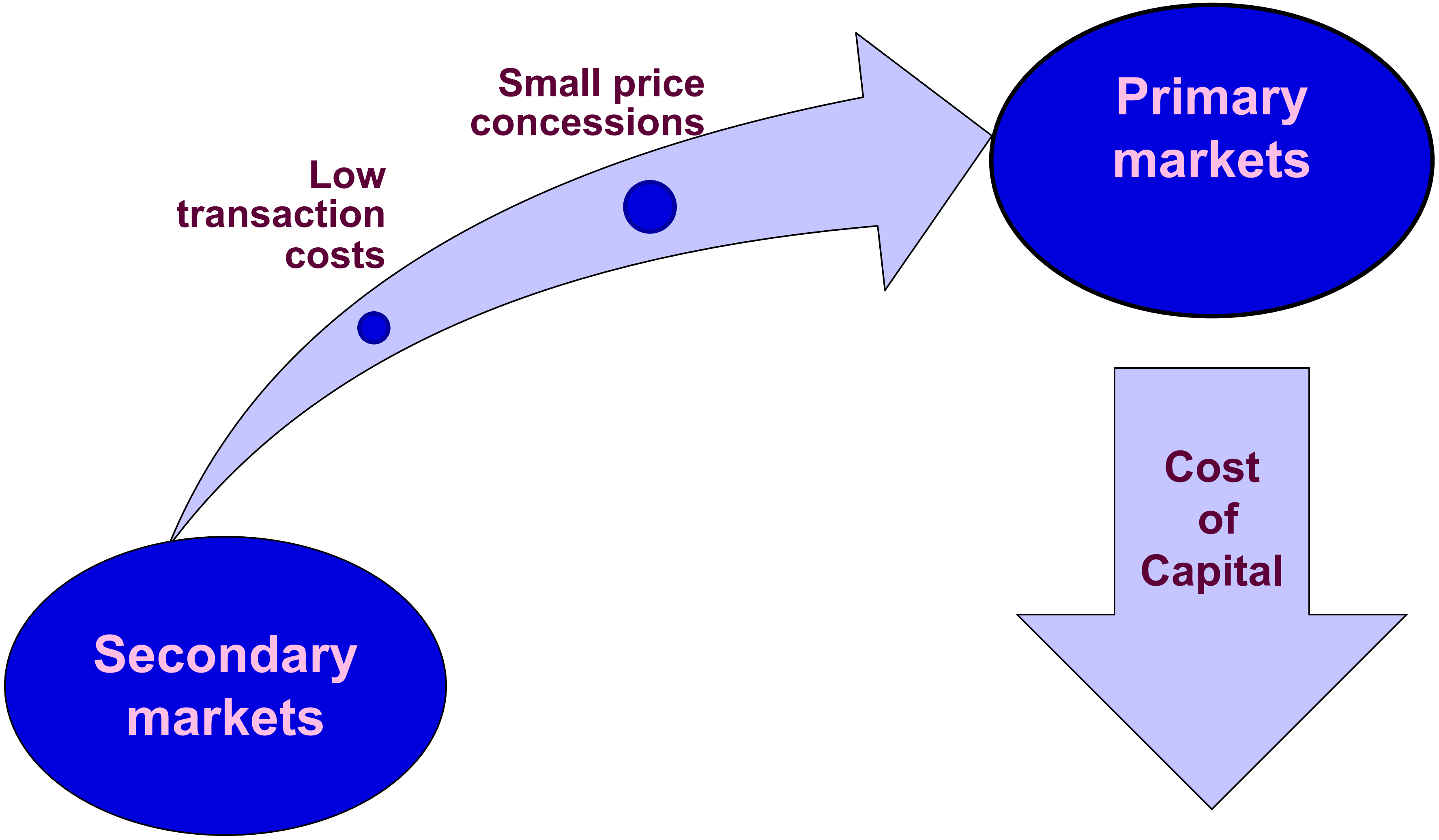
- Public offering: Initial public offering (IPO)
- Public offering: Seasoned offering
- Private placement
- Shelf registration
- DRPS or DRIPS
- Rights offering

Secondary market

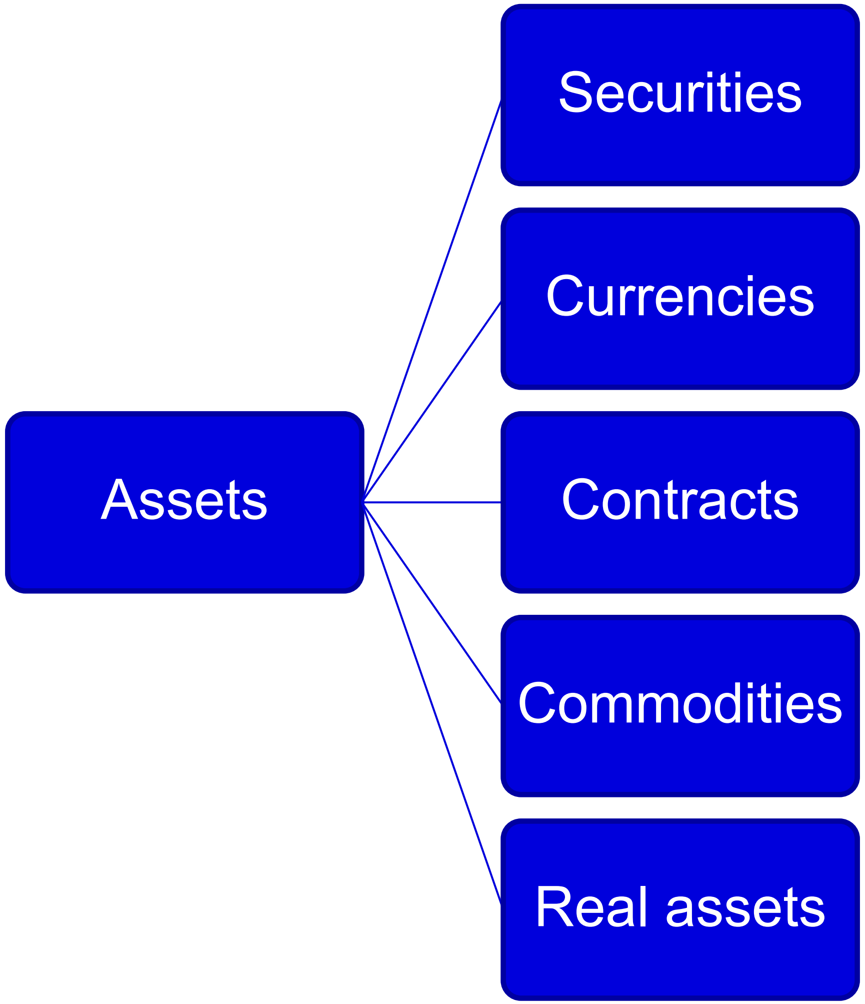
- Call markets
- Continuous markets

MUNI ECON

How Do Secondary Markets Support Primary Markets?



How Are Assets Classified?



MUNI
ECON

How Are Securities Classified?

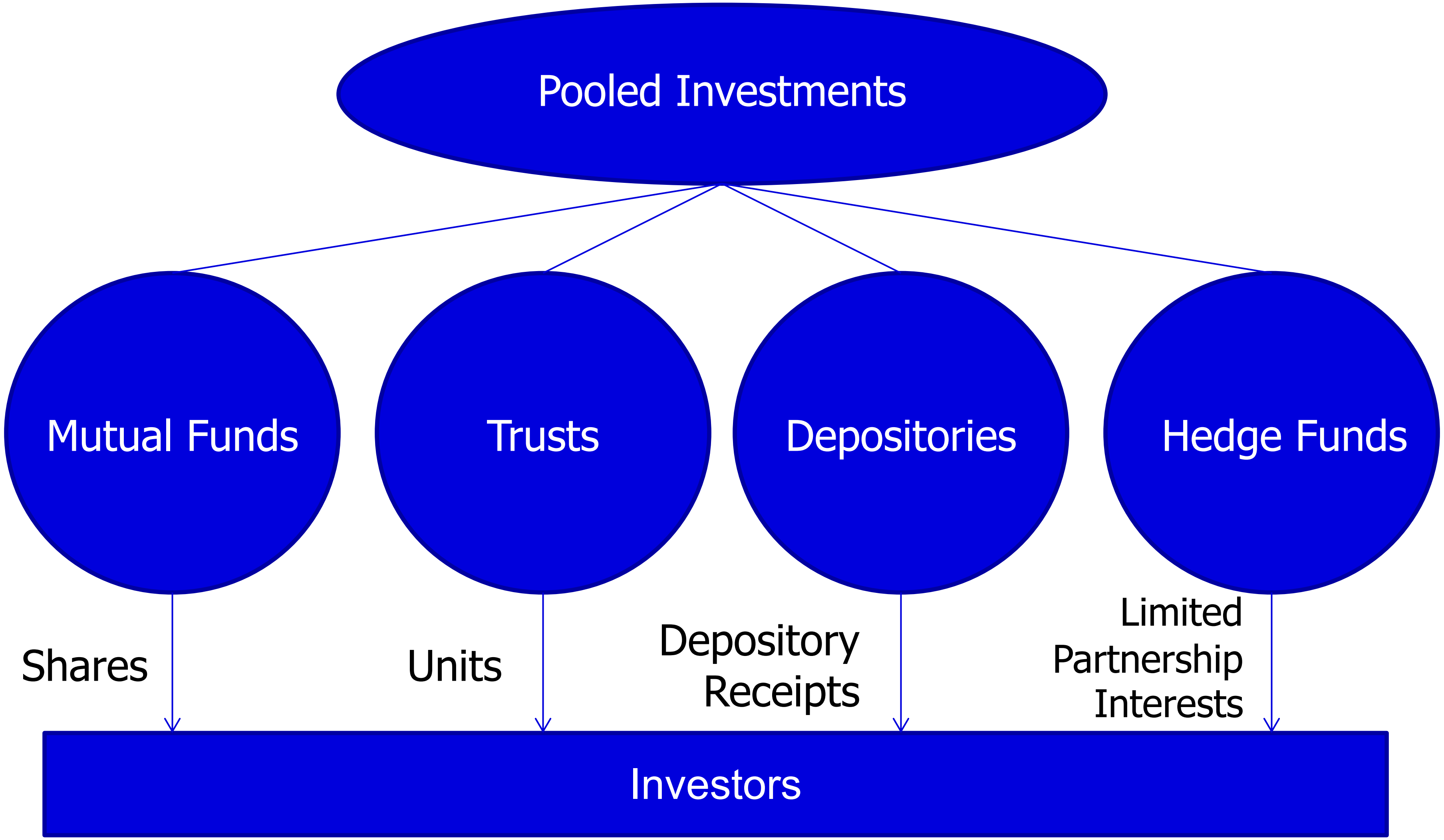
Securities

- Fixed income
- Equities
- Pooled investments
- Public
- Private

How Are Contracts Classified?

MUNI
ECON

Pooled Investments



MUNI ECON

Futures versus Forward Contracts

Futures contracts	**Forward contracts**
Standardized	Customized
Clearinghouse guarantees performance	Counterparty risk
Strong secondary markets	Typically held to maturity

MUNI ECON

Hedging with Forward Contracts

Farmer needs to sell wheat to the miller at a future date.

Miller needs to buy wheat from the farmer at a future date to sell to bakers.

Risk: the price of wheat decreases.
The farmer is currently long wheat in the spot market (needs to sell it in the future).
The farmer hedges the spot market position by selling wheat forward.

- Risk: the price of wheat increases.
- The miller is currently short wheat in the spot market (needs to buy it in the future).
- The miller hedges the spot market position by buying wheat forward.

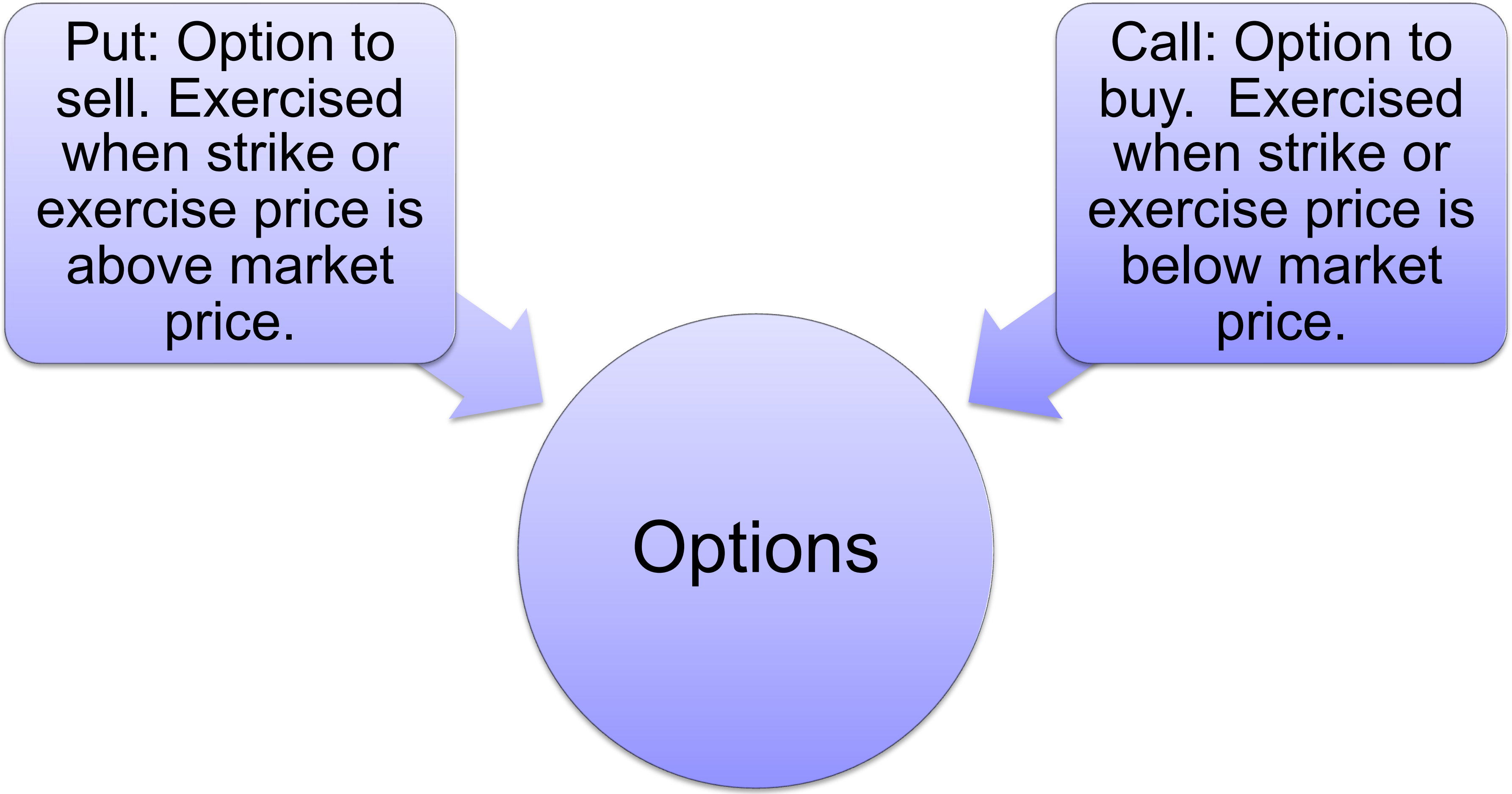
MUNI
ECON

Swaps Contracts

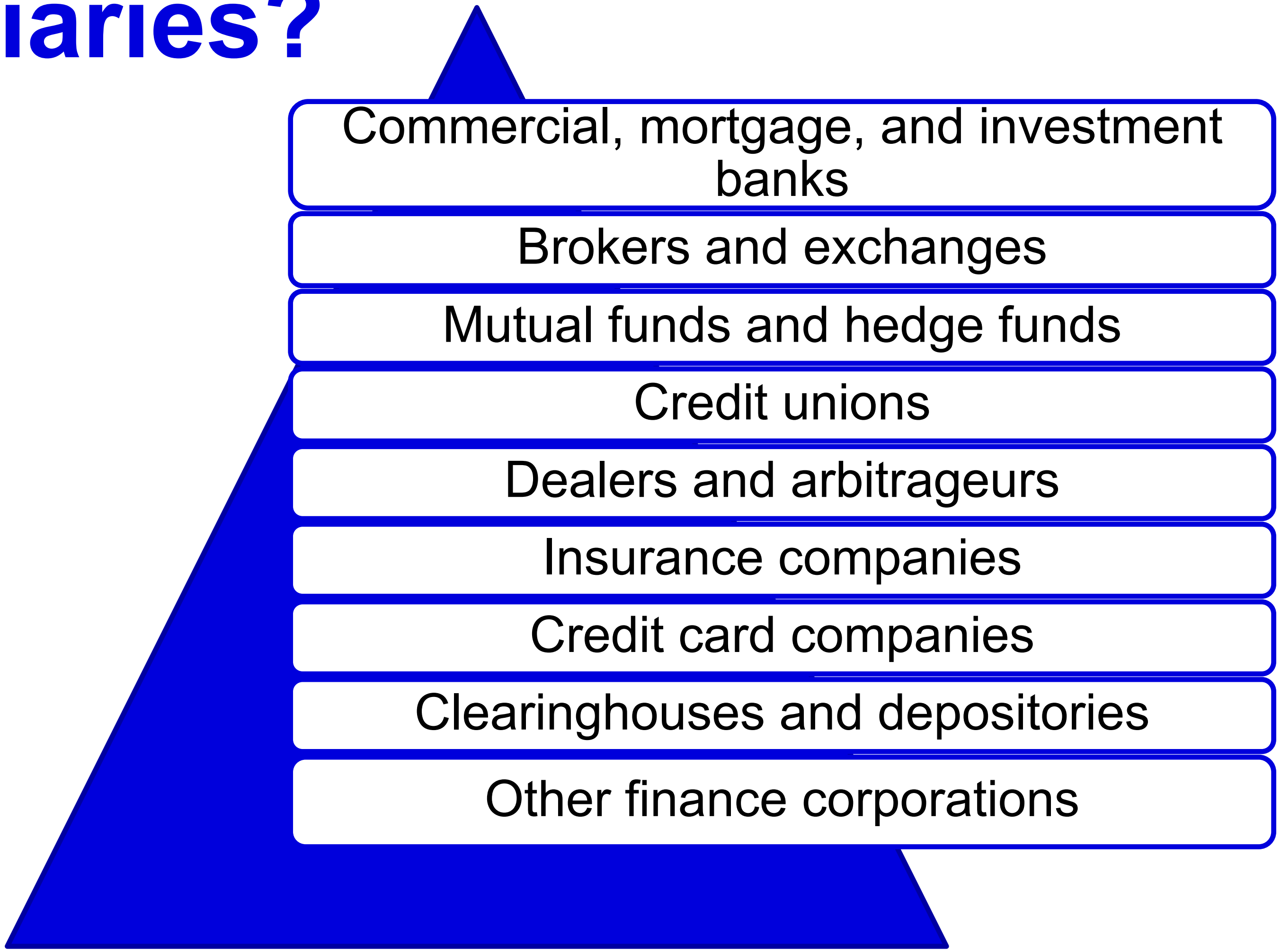
Swap contracts

- Interest rate
- Commodity
- Currency
- Equity

Options


Put: Option to sell. Exercised when strike or exercise price is above market price.
Call: Option to buy. Exercised when strike or exercise price is below market price.
Options

What Are the Major Types of Financial Intermediaries?

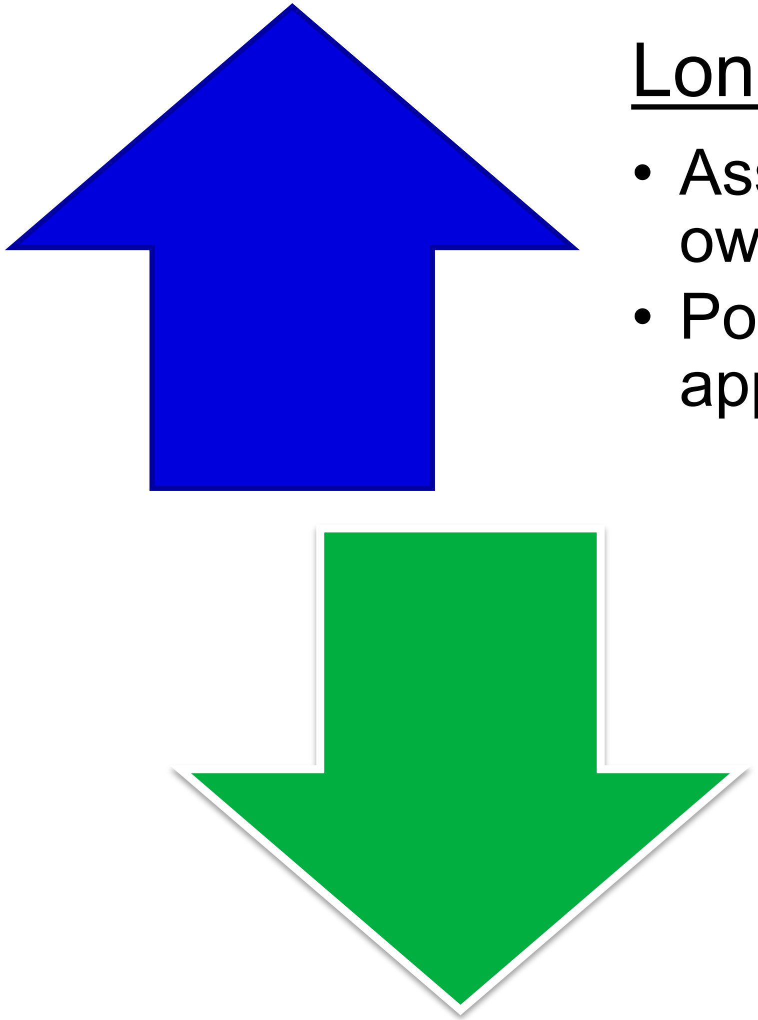


Exchange vs Alternate Trading Systems

Exchanges	ATS
• Marketplace (physical location) for trading. • Increasingly arrange trades submitted via electronic order matching systems. • Regulatory authority derived from governments or through voluntary agreements. • E.g.: NYSE-Euronext, Eurex, Deutsche Bourse, Chicago Mercantile Exchange, Tokyo Stock Exchange and Singapore Exchange.	• Also called electronic communication networks (ECNs) or multi-lateral trading facilities (MTFs). • Some offer services similar to exchanges, others offer innovative systems that suggest trades to clients. • Do not exercise regulatory authority except with respect to trading. • *Dark pools*—do not display orders. • E. g. PureTrading (Canada) the Order • Machine (Netherlands), Chi-X Europe, BATS (U.S.), POSIT (U.S.), Liquidner (U.S.), Baxter-FX (Ireland) and Turquoise (Europe).

MUNI
ECON

What Positions Can I Take in an Asset?



Long positions

- Assets or contracts are owned
- Position benefits from price appreciation

Short positions

- Assets not owned are sold or contracts are sold
- Position benefits from a decrease in price

Option Positions and Their Underlying Risk Exposures

Strategy	Option position	Exposure to underlying risk
Buy call	Long	Long
Sell call	Short	Short
Buy put	Long	Short
Sell put	Short	Long

Terminology for Levered Positions

- Buying on margin
- Margin loan
- Call money rate
- Initial margin requirement
- Maintenance margin requirement
- Margin call
- Leverage ratio

MUNI ECON

EXAMPLE 1 : Computing Total Return to a Leveraged Stock Purchase

A buyer buys stock on margin and holds the position for exactly one year, during which time the stock pays a dividend. For simplicity, assume that the interest on the loan and the dividend are both paid at the end of the year.

Purchase price $20/share

Shares purchased 1,000

Call money rate 5%

Commission $0.01/share

Sale price $15/share

Leverage ratio 2.5

Dividend $0.10/share

1. What is the total return on this investment?
2. Why is the loss greater than the 25 percent decrease in the market price?

MUNI ECON

Initial investment	$8,010
Purchase commission	–10
Trading gains/losses	–5,000
Margin interest paid	–600
Dividends received	100
Sales commission paid	–10
Remaining equity	$2,490

Proceeds on sale	$15,000
Payoff loan	–12,000
Margin interest paid	–600
Dividends received	100
Sales commission paid	–10
Remaining equity	$2,490

MUNI
ECON

EXAMPLE 2 Margin Call Price

A trader buys stock on margin posting 40 percent of the initial stock price of $20 as equity. The maintenance margin requirement for the position is 25 percent. Below what price will a margin call occur?