

# Introduction to Finance

## Lecture Slides 1

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# The Course's Philosophy

- Every interested student can understand finance: easy concepts and mathematics.
- The -easy- theory and the -extremely complex- real world.
- This course: theory as a shortcut towards deep and practical understanding:
  - ▶ Build solid foundations on the main -theoretical- concepts.
  - ▶ Transition from an ideal to the real world.

# Learning by doing: the course's 3+ Main Components

Theory, exercises and online trading

- From theory to practice: textbook + lectures → Clarify a few **crucial main concepts**.
- DIY: homeworks and quizzes.
- Why? For what? Motivation and application? Online trading.
- + Relevant readings and news.

# The textbook for this course

Ivo Welch, Corporate Finance: 3rd Edition, 2014

- The philosophy of the course: both a cause and an effect of choosing this book.
- Simple scenarios (pm, lop, tf) → More realistic and complex ones (ipm, bf).
  - ▶ Chapters build on concepts learned earlier ⇒
    - ★ Initial chapters less fun but crucial: **PAY ATTENTION FROM DAY 0!!!**
    - ★ Easier to understand each new concept and idea.
- One chapter per lecture: read + print lecture slides before class! (+ read preface today)

# Homework and Quizzes

- Mainly mathematical:
  - ▶ Easy Maths.
  - ▶ Do not memorize formulas: **understand them!** *Example Pitagoras' Theorem.*
- One homework for each lecture:
  - ▶ Do it yourself: Think! Discussion encouraged.
  - ▶ Hand-in at the beginning of next lecture.
  - ▶ Corrected in weeks 2, 3, 6, 10, 13.
- One practice quiz in week 5.

# Online trading I

## The platform

- Trading simulator: <https://www.trading212.com/en/login>
- A useful video: <https://www.youtube.com/watch?v=rRx0NhS7zIo>
- Experiment with it yourself!
  - ▶ Presentations are assigned next week, start in week 4.
  - ▶ By next week: do you think you need a short review session for the simulator in week 3?

# Online Trading II

## Tasks and objectives

- Experience real-world finance, without the risk.
- Motivation and application of course theory.
- Combination of lectures, exercises and online trading  $\Rightarrow$  introduce you into finance with the right foundations.
- **WARNING!!!** Do not extrapolate your result after 3 months to an expectation of what you would get investing with real money.

# What finance is all about

What is the point of an introductory course in finance?

- Finance as a crucial part of modern life: why?
- Similarity between the financial problems of: Google, a family, a small business?
- Finance and this course: deciding among different investment alternatives.

# The Goal of Finance: Relative Valuation

Converting your reasoned, informed, and intuitive assessment into good decisions

- Make smart investment decisions  $\iff$  assess value:
  - ▶ **Objective:** buy objects whose values are above their costs.
    - ★ Real world: bubbles, going short.
- Easy maths, difficult valuation:
  - ▶ High School formulas: add, subtract, multiply, divide and exponentiate.
  - ▶ Real-world difficulties:
    - ★ How to judge the future?
    - ★ How will the economy evolve?
    - ★ How will interest rates or the stock market move?
- Formulas help: what and how to forecast. You: Make these forecasts.

# The Law of One Price

Two identical items, same venue  $\Rightarrow$  same price

- **PPP** and **Arbitrage**.
- Value in finance is defined in *relative* terms!
  - ▶ Comparing cars. Selling yours?
  - ▶ Mistakes are costly! **Opportunity cost**.
- The LOP often applies: imperfectly/ approximately.

# Questions 1.1.a

## Valuing comparable and non-comparable objects

Q 1.1.a) How easy is it to put a value on:

- ① An envelope containing 10,000 British pounds.
  - ② A painting by Picasso.
  - ③ The Duomo.
  - ④ Manhattan.
  - ⑤ The Empire State Building.
  - ⑥ Love.
  - ⑦ Yourself.
  - ⑧ The species gorilla.
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- Extrinsic and intrinsic motivations: A Fine is a Price.
  - In financial markets: non-cash-based/emotional benefits?
  - In life: do not confound intrinsic value with economic value.

# Projects and Investments

- The most basic object in finance, the **project**:
  - ▶ Up-front cash outflow (investment or expense or cost).
  - ▶ Inflows (payoffs or revenues or returns).
- Crucial: all costs and benefits must be included as cash values.
  - ▶ **Anecdote 1.1.a**: the joy of cooking: positive prestige flows and restaurant failures.
- Projects need not be physical: customer relations... student career?  
***Studying as a cost or a benefit?***

# The Firm I

## Definition and composition

- Firm as a collection of projects: its value as the value of all of its projects' net cash flows... **and nothing else?**
- Operations of the firm: manufacturing, inventory, sales, marketing, working capital... even if you care only about cash flows, you must understand them!
- **Bonds** or debt and **stocks** or equity: financial **claims** that firms sells to investors:
  - ▶ Buying a stock  $\leftrightarrow$  becoming an owner.
  - ▶ Buying a bond  $\leftrightarrow$  lending money.
  - ▶ Differences: Limited upside? Riskier?

# The Firm II

## Stocks and Liabilities

- Entire firm = All Outstanding Stocks + All Outstanding Liabilities
- Entire firm = All (Current and Future) Net Earnings.
- Net earnings = All (Current and Future Cash) Inflows - Outflows.
- This course: discussing claims, debt and equity forms of financing.  
For now:
  - ▶ You put money in, they pay money out.

# Questions 1.1.b

## Computing the cost of important life/economic decisions

- 1 Computing the cost of your degree: loss of salary while going to school? Non-monetary benefits that you reap as a student: attaching monetary value to them?
- 2 What are your inflows and outflows if you purchase a house and live in it? Do you care about the evolution of house prices after you have purchased yours?

# Firms vs. Individuals

- Corporate projects and personal finance: same principles!
- Taking your money to the bank, purchasing a house, investing it in the stock market, starting your own business...

# The perfect market

- In the first part of the course: the world is *perfect*  $\iff$  projects have a unique value: clear decisions for the firm.
- Owners are frequently not the managers: owners expect managers to maximize the value of the firm.
  - ▶ Perfect world: managers always know how.
  - ▶ Real world: some owners dislike investing in warships, others believe the firm should pay as high dividends as possible... what will managers do?

# Ethical dilemmas

- Ethical dilemmas: government, firms, morality and the tragedy of the commons: someone else will do it!
- Governments responsible for regulating harmful or immoral businesses?
- Economic power of corporations ↔ regulation.

# Key Concepts I

- The law of one price: two identical items in the same venue must sell by the same price.
- Purchasing Power Parity (PPP): the amount of adjustment on the exchange rate between countries in order for the exchange to be equivalent to each currency's purchasing power.  
<http://www.investopedia.com/terms/p/ppp.asp>
- Arbitrage: Simultaneous purchase and sale of an asset in order to profit from a difference in the price  $\implies$  prices do not deviate from *fair value* for long periods of time.
- Fair value: Rational and unbiased estimate of the potential market price of a good, service or asset.

## Key Concepts II

- Opportunity cost: The benefits you could have received by taking an alternative action.  
<http://www.investopedia.com/terms/o/opportunitycost.asp>
- Project: A set of flows of money (cash flows).
- Firm (finance): A collection of projects.
- Claim: A formal right or request for a certain asset, service or obligation.
- Bond: An instrument of indebtedness of the bond issuer to the holders. A debt **security**.
- Security: A tradable financial asset.
- Stock: A type of security that signifies ownership in a corporation and represents a claim on part of the corporation's assets and earnings.
- Liability: A company's legal debts or obligations that arise during the course of business operations.

## Assignments for next lecture

- Open an account in the online trading simulator and explore it.
- Read chapter 1, chapter 2 and the mathematical appendix from the textbook.
- Print the lecture slides for next week and bring them to the class.