
Finance (Basics)

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Structure of lectures

- 1.Introduction to finance - ok
 - 2.Financial markets - ok
 - 3.Banks and bank systems - ok
 - 4.Other financial institutions - ok
 - 5.Present value of money - now
 - 6.Private finance;
 - 7.Investments;
 - 8.Corporate finance;
 - 9.International finance;
 - 10.International financial system;
 - 11.Macroekonomic and financial indicators and informations;
 - 12.History of financial science;
 - 13.Latest trends on financial markets.
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Money – Meaning of Money

- To understand the effects of money on the economy, we must understand exactly what money is.
 - „Money“ is used in everyday conversation, it can mean many things, but to economists, it has a very specific meaning.
 - Economists define money as anything that is generally accepted in payment for goods or services or in the repayment of debts.
 - Currency, consisting of bills and coins, fits this definition and is one type of money.
 - When most people talk about money, they're talking about currency (paper money and coins)
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Money – Meaning of Money

Very difficult to define money

- For example checks are also accepted as payment for purchases; checking account deposits are considered money as well.
 - Word „money“ is used synonymously with wealth.
 - Economists make a distinction between money in the form of currency, demand deposits, and other items that are used to make purchases and wealth, the total collection of pieces of property that serve to store value.
 - Wealth includes not only money but also other assets such as bonds, common stock, art, land, furniture, cars and houses.
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Meaning of money

- Some people also use the word „money“ to describe what economists call „income“.
 - Income is a flow of earnings per unit of time.
 - Money, by contrast, is a stock: it is a certain amount at a given point in time.
 - For you: Money refers to anything that is generally accepted in payment for goods and services or in the repayment of debts and is distinct from income and wealth.
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Functions of money

- Medium of exchange
 - Unit of account
 - Store of value
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Medium of Exchange

- In almost all market transactions in our economy, money in the form of currency or checks is a medium of exchange.
 - ... it is used to pay for goods and services.
 - This function promotes economic efficiency by minimizing the time spent in exchanging goods and services
 - ... to see why, let's look at a barter economy, in which goods and services are exchanged directly for other goods and services. (example 45)
 - ...the time spent trying to exchange goods or services is called a transaction cost. (example in a barter economy)
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Unit of Account

- It is used to measure value in the economy.
 - We measure the value of goods and services in terms of money, just as we measure weight in terms of kilograms or distance in terms of kilometers.
 - If there were only three goods in the economy, this would not be a great advantage over the barter system, because we would still need three prices to conduct transactions.
 - We can see that using money as a unit of account reduces transactions costs in an economy by reducing the number of prices that need to be considered
 - Example (barter 46)
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Store of Value

- Money also functions as a store of value; it is repository of purchasing power over time.
 - A store of value is used to save purchasing power from the time income is received until the time it is spent.
 - Money is not unique as a store of value; any asset-whether money, stocks, bonds, land-can be used of store of value....but...
 - ...it relates to the important economic concept of liquidity, the relative ease and speed with which an asset can be converted into a medium of exchange.
 - Money is the most liquid asset.
 - How good a store of value money is depends on the price level, because its value is fixed in terms of the price level.
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Understanding Interest Rates

- Interest rates are among the most closely watched variables in the economy.
 - They affect personal decisions such as whether to consume or save, whether to buy a house, and whether to purchase bonds or put funds into a savings account.
 - Interest rate definition
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The Concept of present value

- The concept of present value (or present discounted value) is based on the commonsense notion that a dollar paid to you one year from now is less valuable to you than a dollar paid to you today.
 - Example
 - Loan – in the loan the lender provides the borrower with an amount of funds (called the principal) that must be repaid to the lender at the maturity date, along with an additional payment for the interest.
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Example – present value

- If you made your friend a simple loan of 10000 CZK for one year, you would require him to repay the principal of 10000 CZK in one year's time along with an additional payment for interest: say, 1000 CZK.
 - The interest payment divided by the amount of the loan is natural and sensible way to measure the interest rate
 - $i = 1\ 000\ \text{CZK} / 10\ 000\ \text{CZK} = 0,1 = 10\%$
 - If you make this loan, at the end of the year you would have 10 000 CZK, which can be rewritten as :
 $10\ 000\ \text{CZK} \times (1 + i) = 10\ 000\ \text{CZK} \times 1,1 = 11\ 000\ \text{CZK}$
 - If you make this loan, at the end of second year you would have:
 $11\ 000\ \text{CZK} \times (1 + i) = 11\ 000\ \text{CZK} \times 1,1 = 12\ 100\ \text{CZK}$
 $10\ 000\ \text{CZK} \times (1 + i)^n = 10\ 000\ \text{CZK} \times (1 + 0,1)^2 = 12\ 100\ \text{CZK}$

Present value

- Discounting the future
- We can generalize this process by writing today's present value
- $PV = FV / (1 + i)^n$

Present value

- In terms of the timing of their payments, there are four basic types of credit market instruments:
 - A simple loan
 - A fixed-payment loan (fully amortized loan) in which the lender provides the borrower with an amount of funds, which must be repaid by making the same payment every period (such as a month), consisting of part of the principal and interest for a set number of years. (example 63)
 - A coupon bond pays the owner of the bond a fixed interest payment every year until the maturity date, when a specified final amount is repaid.
 - A discount bond (zero coupon bond) is bought at a price below its face value (at a discount), and the face value is repaid at the maturity date.
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Simple loan, fixed payment loan

- Present value
 - Fixed payment loan
 - $LV = FP/(1+i) + FP/(1+i)^2 + FP/(1+i)^3 + FP/(1+i)^4 + \dots + FP/(1+i)^n$
where LV = loan value
 FP = fixed yearly payment
 n = number of years until maturity
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Coupon Bond

$$\square P = C/(1+i) + C/(1+i)^2 + C/(1+i)^3 + C/(1+i)^4 + \dots + C/(1+i)^n + F/(1+i)^n$$

where P = price of coupon bond

C = yearly coupon bond

F = face value of the bond

n = years to maturity date

Discount bond

- $i = (F - P) / P$

Where F = face value of the discount bond

P = current price of the discount bond

The Distinction Between Real and Nominal Interest Rates

- Interest rates – don't ignore the effects of inflation on the cost of borrowing
 - Nominal interest rates must be distinguished from real interest rates; the interest rate that is adjusted by subtracting expected changes in the price level (inflation) so that it more accurately reflects the true costs of borrowing
 - $i = i_r + \pi^e$ (The Fischer equation)
where i_r = real interest rate
 π^e = expected inflation
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Interest rates – IBOR vs IBID

- The Prague Interbank Offered Rate, or PRIBOR, is the average interest rate at which term deposits are offered between prime banks in the Czech wholesale money market or interbank market.
 - The **London Interbank Bid Rate (LIBID)** is a bid rate; the rate bid by banks on Eurocurrency deposits (i.e., the rate at which a bank is willing to borrow from other banks). It is "the opposite" of the LIBOR (an offered, hence "ask" rate, the rate at which a bank will lend). Whilst the British Bankers' Association set LIBOR rates, there is no correspondent official LIBID fixing.
 - Conventional wisdom used to assert that a LIBID rate could be calculated by subtracting a fixed amount (often given as $\frac{1}{8}$ th of 1%) from the prevailing BBA LIBOR rate, however this is no longer the case as bid/offer spreads have tightened in recent years. Additionally, it cannot be the case that the LIBOR / LIBID spread is always $\frac{1}{8}$ th of 1% for all maturities and all currencies all the time.
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- **Euribor** is short for Euro Interbank Offered Rate. The Euribor rates are based on the average interest rates at which a panel of more than 50 European banks borrow funds from one another. There are different maturities, ranging from one week to one year.
 - The Euribor rates are considered to be the most important reference rates in the European money market. The interest rates do provide the basis for the price and interest rates of all kinds of financial products like interest rate swaps, interest rate futures, saving accounts and mortgages. That's the exact reason why many professionals as well as individuals do monitor the development of the Euribor rates intensively.
 - In total, there are 15 different Euribor rates. See current Euribor rates for an overview of all 15 rates. Next to that there is also a 1-day European interbank interest rate called Eonia.
 - On this site you will find lots of information about Euribor and the different Euribor rates. We do offer background information, the current Euribor rates as well as historical data.
 - Furthermore, we do offer information about the ECB interest rate, also called main refinancing rate or minimum bid rate, as well.
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ECB

- The Eurosystem offers credit institutions two standing facilities:
 - **Marginal lending facility** in order to obtain overnight liquidity from the central bank, against the presentation of sufficient eligible assets;
 - **Deposit facility** in order to make overnight deposits with the central bank.
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Effective interest rate

$$i_{\text{effec}} = (1 + i/m)^m - 1$$

- The **effective interest rate, effective annual interest rate, annual equivalent rate (AER)** or simply **effective rate** is the interest rate on a loan or financial product restated from the nominal interest rate as an interest rate with annual compound interest payable in arrears. It is used to compare the annual interest between loans with different compounding terms (daily, monthly, annually, or other).
- The effective interest rate differs in two important respects from the annual percentage rate
 - the effective interest rate generally does not incorporate one-time charges such as front-end fees;
 - the effective interest rate is (generally) not defined by legal or regulatory authorities.
- Effective annual interest or yield may be calculated or applied differently depending on the circumstances, and the definition should be studied carefully. For example, a bank may refer to the yield on a loan portfolio after expected losses as its effective yield and include income from other fees, meaning that the interest paid by each borrower may differ substantially from the bank's effective yield.
 - where m is number of compounding periods per year

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- Thank you for your attention
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