

FUNCTIONAL AREAS:

Finance

The financial function





Financial function

- Introduction: Economic and financial structure
- The financial structure of the company
- The decision of investment
- Analysis of return (ROA and ROE) and financial leverage





1. Introduction: Economic and financial structure

The **finance area** of a company refer to the **collection and management** of the funds (capital) used by the company



The Finance Manager faces two important types of decisions, while managing a company:

What to invest in and when?



Investing decisions

How to obtain the money to invest?



Financing decisions





Therefore, the decisions of a company focus on:

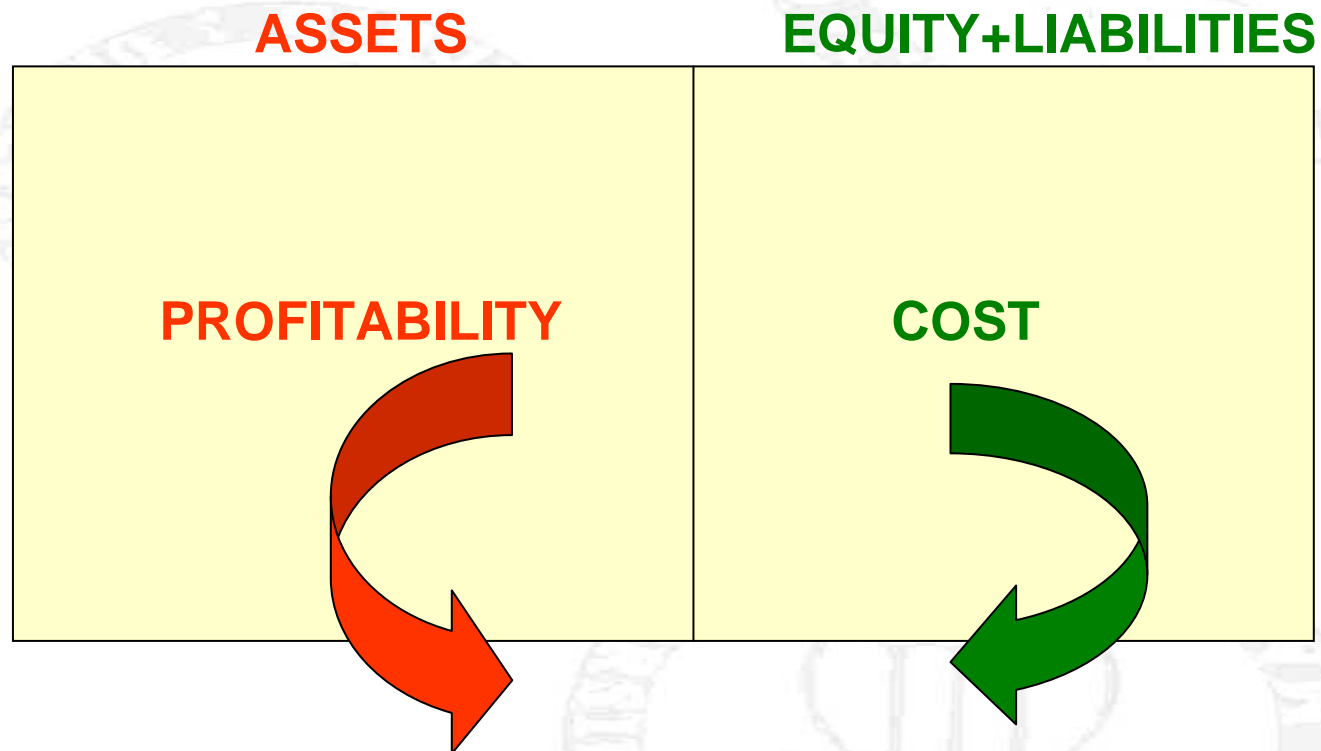
Financing decisions

- They refer to the choice of equity or debt
- The financial resources that a company may use can be internal equity (self-financing: retained earnings), external equity or debt
- Financial decisions involve:
 - Decisions about the Capital Structure
 - Decisions about the Dividends

Investing decisions

- They consist on the allocation of capital in those investment projects from which we expect future profits
- Companies will invest in those projects which will create value for them (Profits>Costs)





OBJECTIVE: MAXIMIZE VALUE

PROFITABILITY > COST





ECONOMIC STRUCTURE

- Defined by the investments carried out by the company
- It represents the use of the financial resources in terms of goods (assets) and rights
- ASSETS (what is owned)

FINANCIAL STRUCTURE

- Defined by the sources of financing of the company
- It includes all the financial resources used to carry out the investments (debt and liabilities)
- LIABILITIES (what is owed)





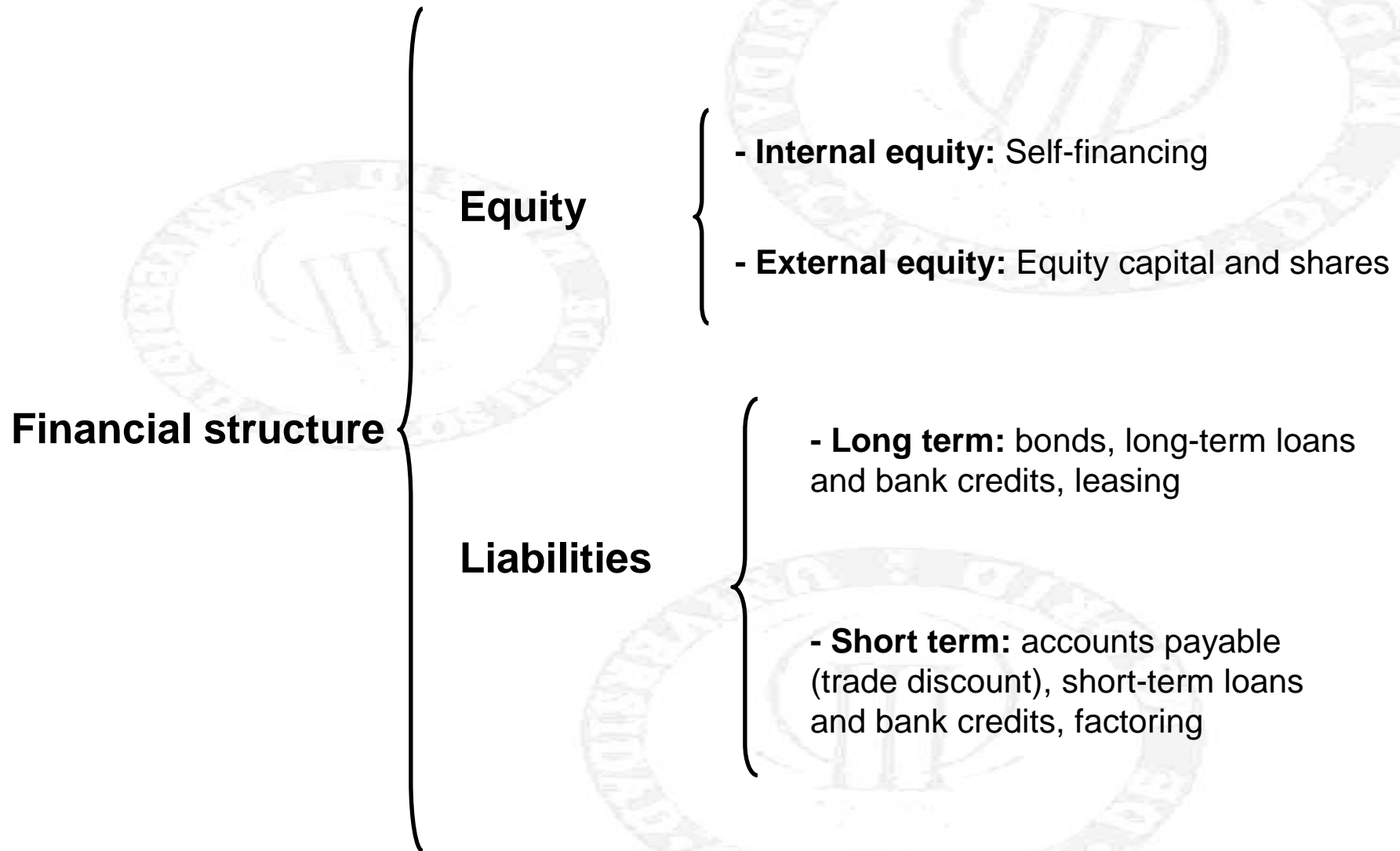
2. Financing decisions

- *Analysis of the different* financial alternatives
- **Business financing:**
 - Consists on the collection of financial resources needed to develop the company's activity
- The combination of all the possible financial sources are known as
 - CAPITAL STRUCTURE
 - OR FINANCIAL STRUCTURE



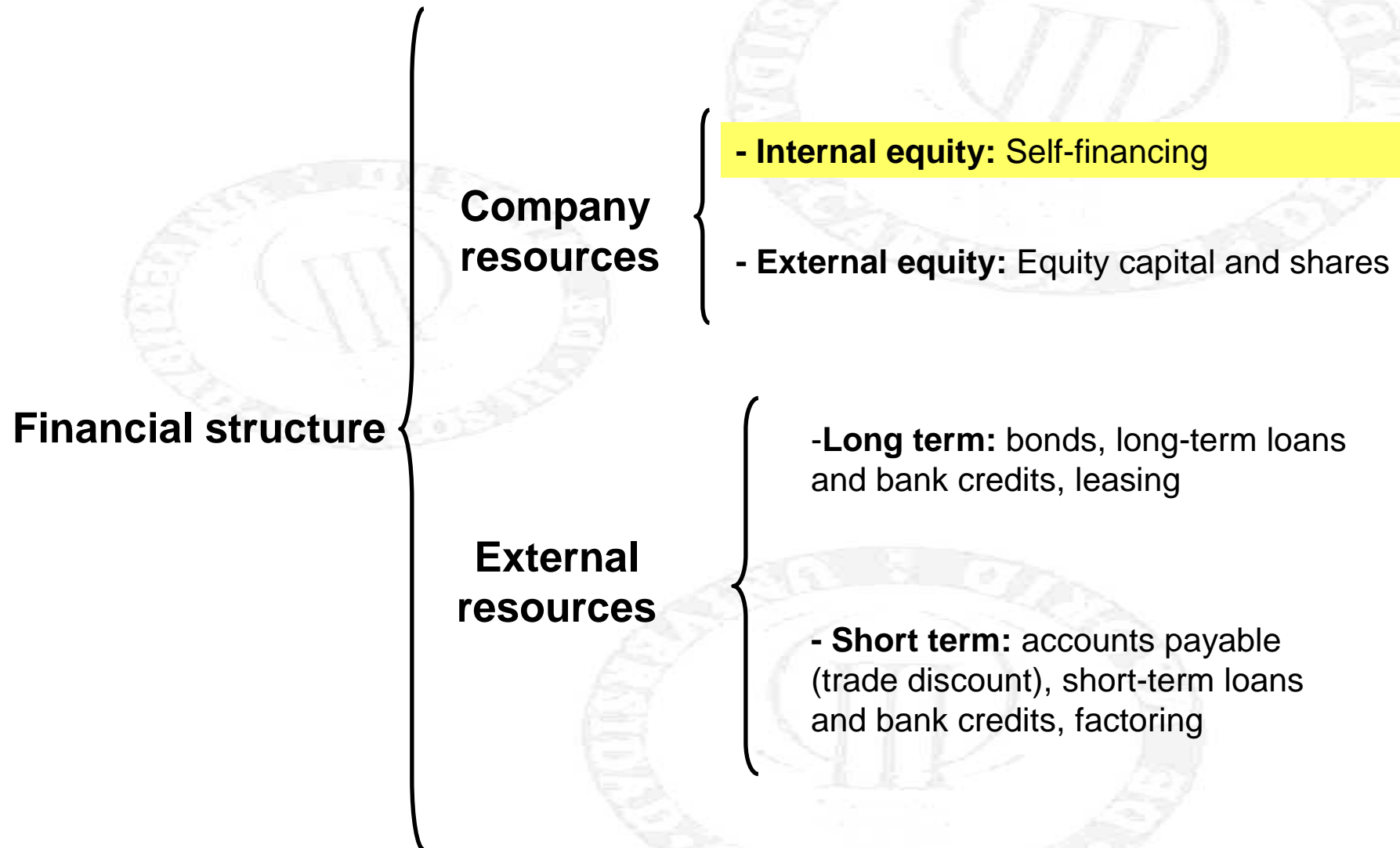


Financial structure of the company





Financial structure of the company





Self-financing

The retained profits (resources generated within the company in its normal activity) constitute the self-financing of the company. These are the resources generated by the company

PROFITS can be:

Retained in the company= SELF-FINANCING

Spread= DIVIDENDS

Pay-out: Dividends/Profits

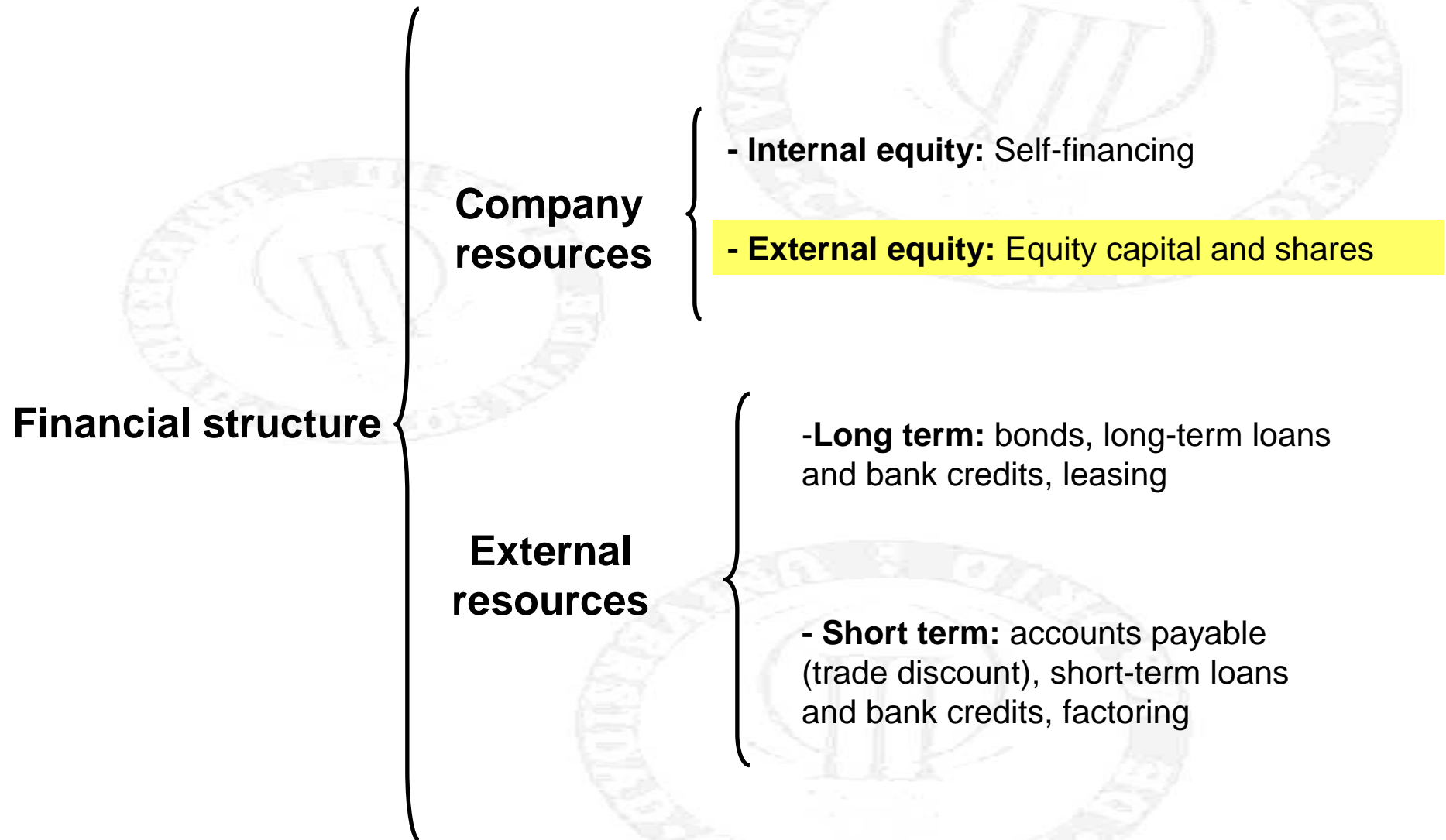
Self-financing (%): Retained profits/Profits

Example: Profits = 100.000 €

Dividends = 75.000 €

Retained profits = 25.000 €







External equity

At the start of a business, owners put some funding into the business to finance assets.

Equity capital are the funds raised from owners at the start of a business (initial capital) and further rights-issue (issuing new shares) used to finance the investments of the company.

- Not to be paid back to the investor at any expiring date
- A share of capital can only be converted into cash by sale or transmission





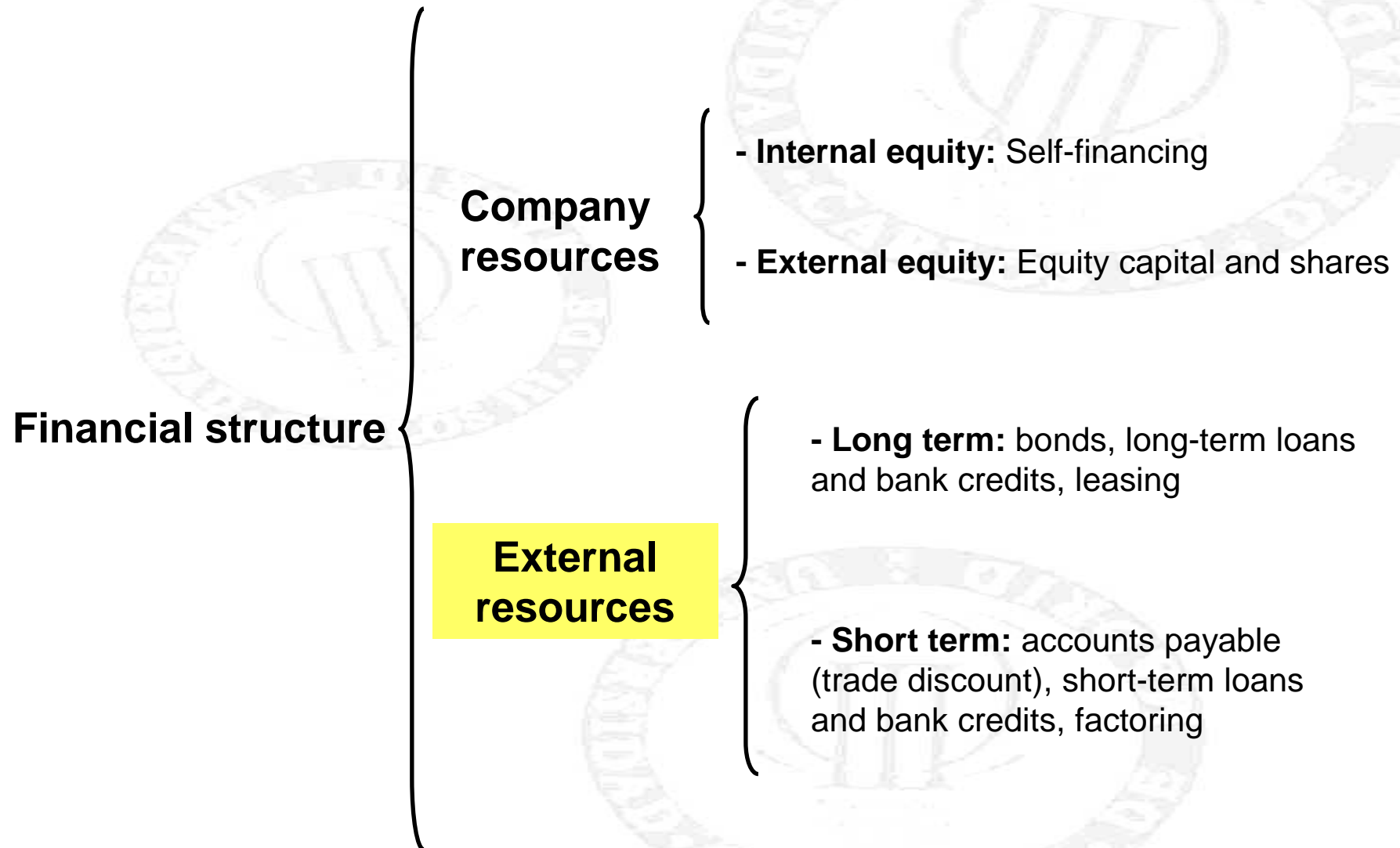
Equity securities: Shares

- A share of stock is one of a finite number of equal portions in the capital of a company, entitling the owner to a proportion of distributed, non-reinvested profits known as dividends, and to a portion of the value of the company in case of liquidation
- Equity securities
- Different share's values: nominal, accounting (book), intrinsic and market value
- Rights-issue (Capital increase)
- Payment of dividends is not compulsory



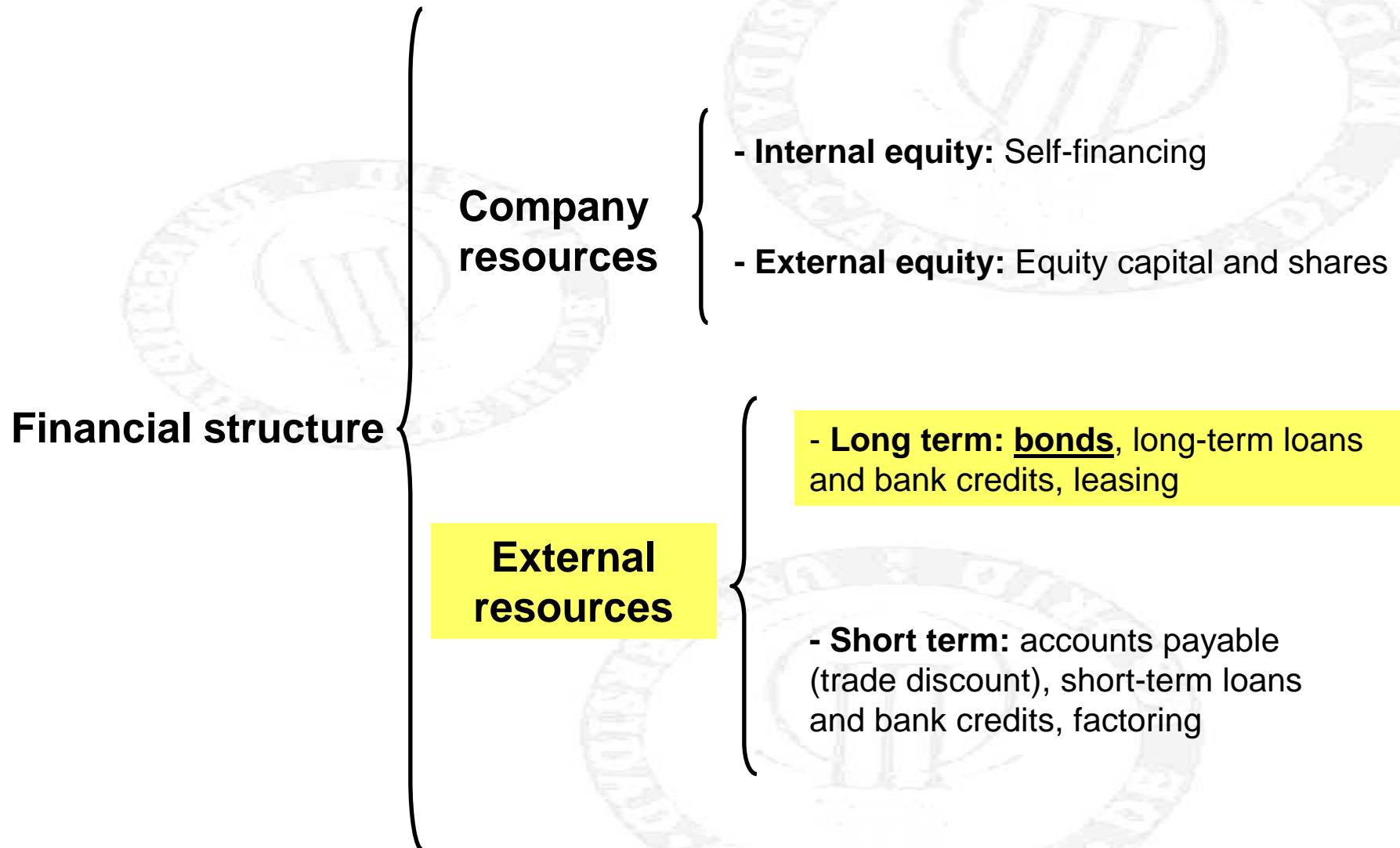


Financial structure of the company





Financial structure of the company





Long-term external resources

Debt securities: Notes and bonds issuance

A **bond** is a debt security, in which the authorized issuer owes the holders a debt and is obliged to repay the principal and interest (the coupon) at a later date, termed maturity.

It is a loan in the form of a security:

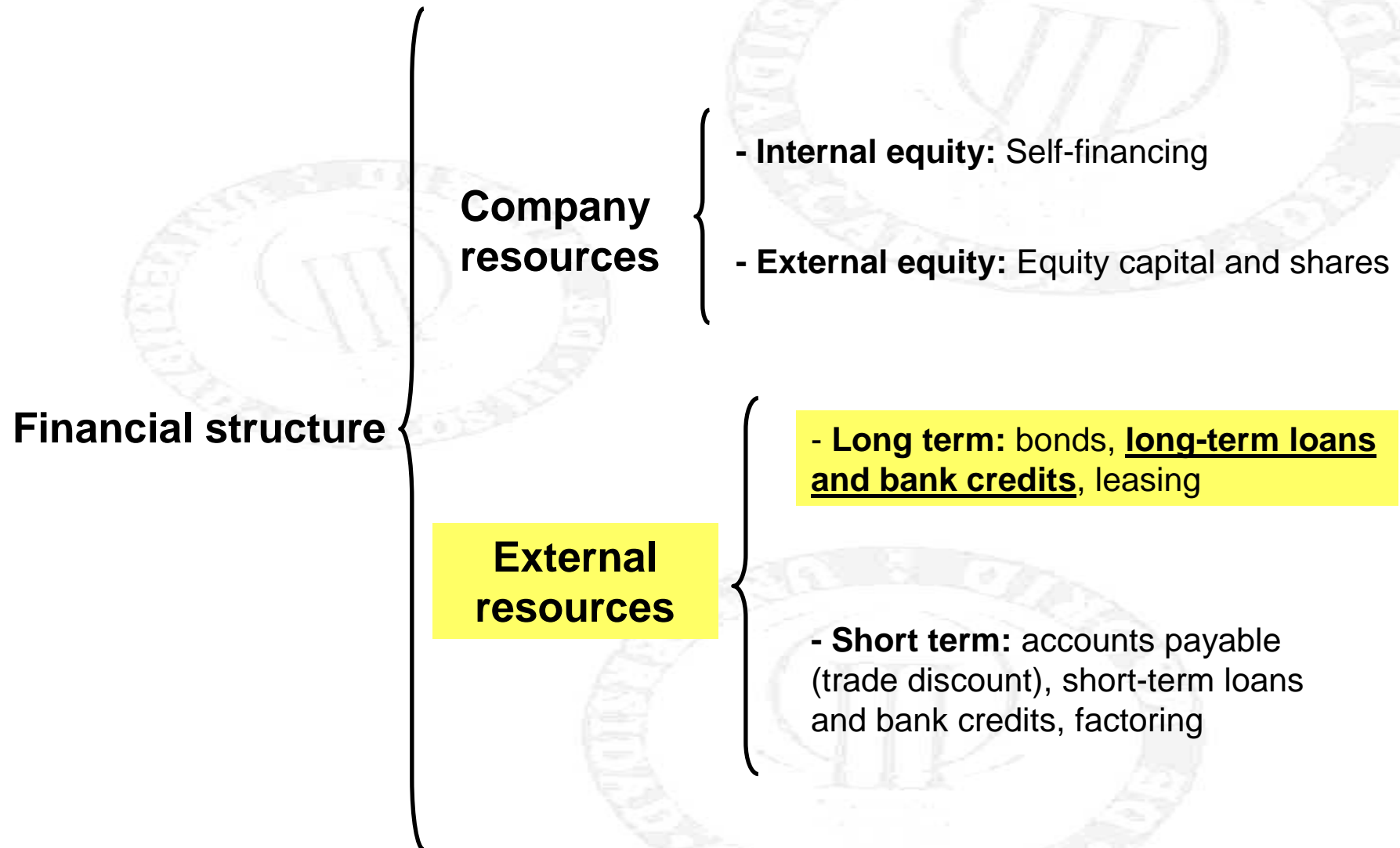
issuer = borrower, bond holder = lender, coupon = interest

Bonds enable the issuer to finance long-term investments with external funds.





Financial structure of the company





Long-term external resources

Long-term loans and bank credits

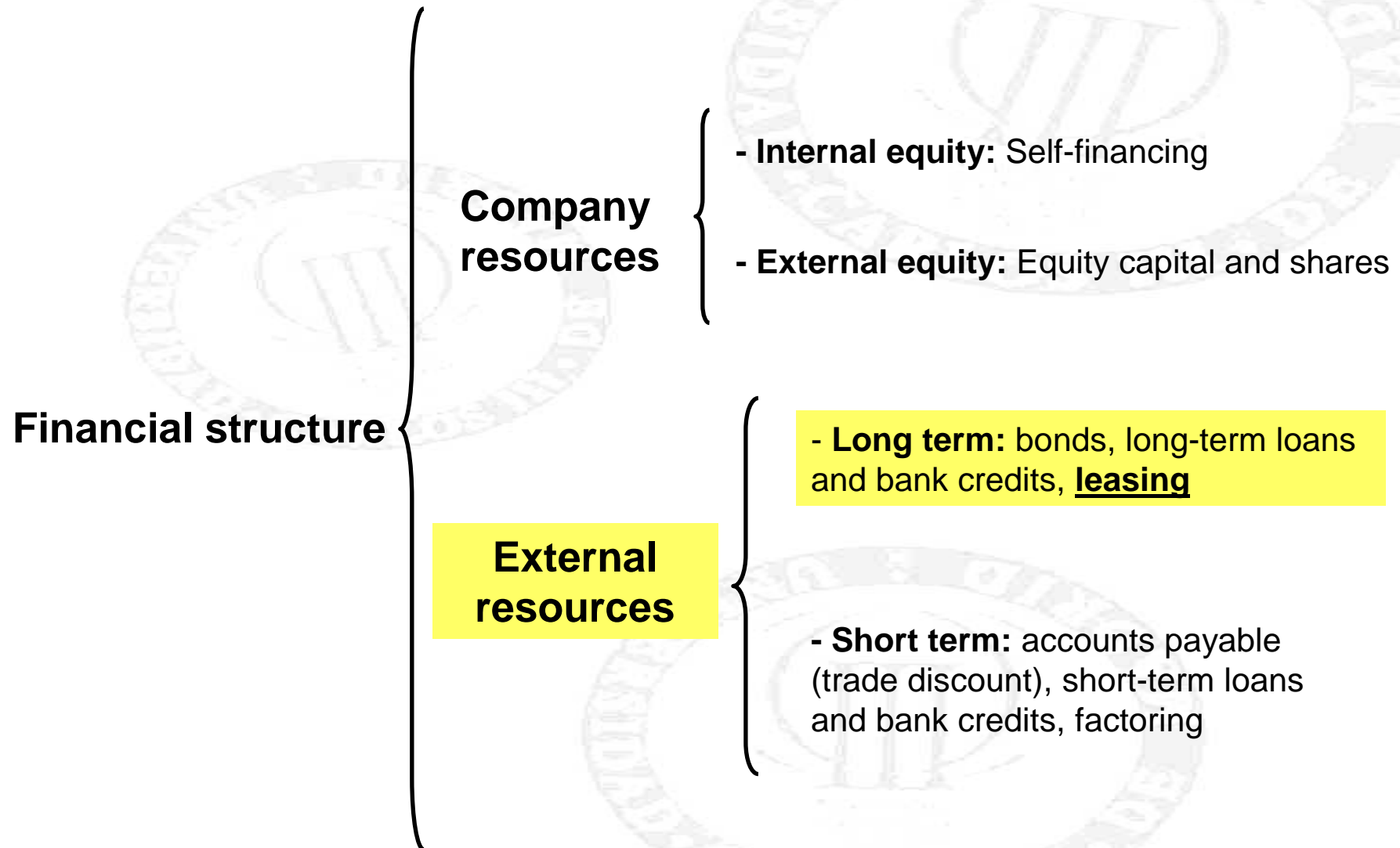
Long term loans: The company receives an amount of money, which needs to be paid back at a certain time. This service is provided at a cost: the interest of the debt.

Bank credits: the financial institution makes available a maximum amount of money to the customer. The customer will then borrow any amount of money under the limit, paying interests only for the amount borrowed (interest rates are higher)





Financial structure of the company





Long-term external resources

Leasing

Leasing is a process by which a firm can obtain the use of a certain fixed assets for which it must pay a series of contractual, periodic payments. The lessee (receiver of the services or the assets under the lease contract) has the right to buy the asset at the end of the agreed period

TYPES:

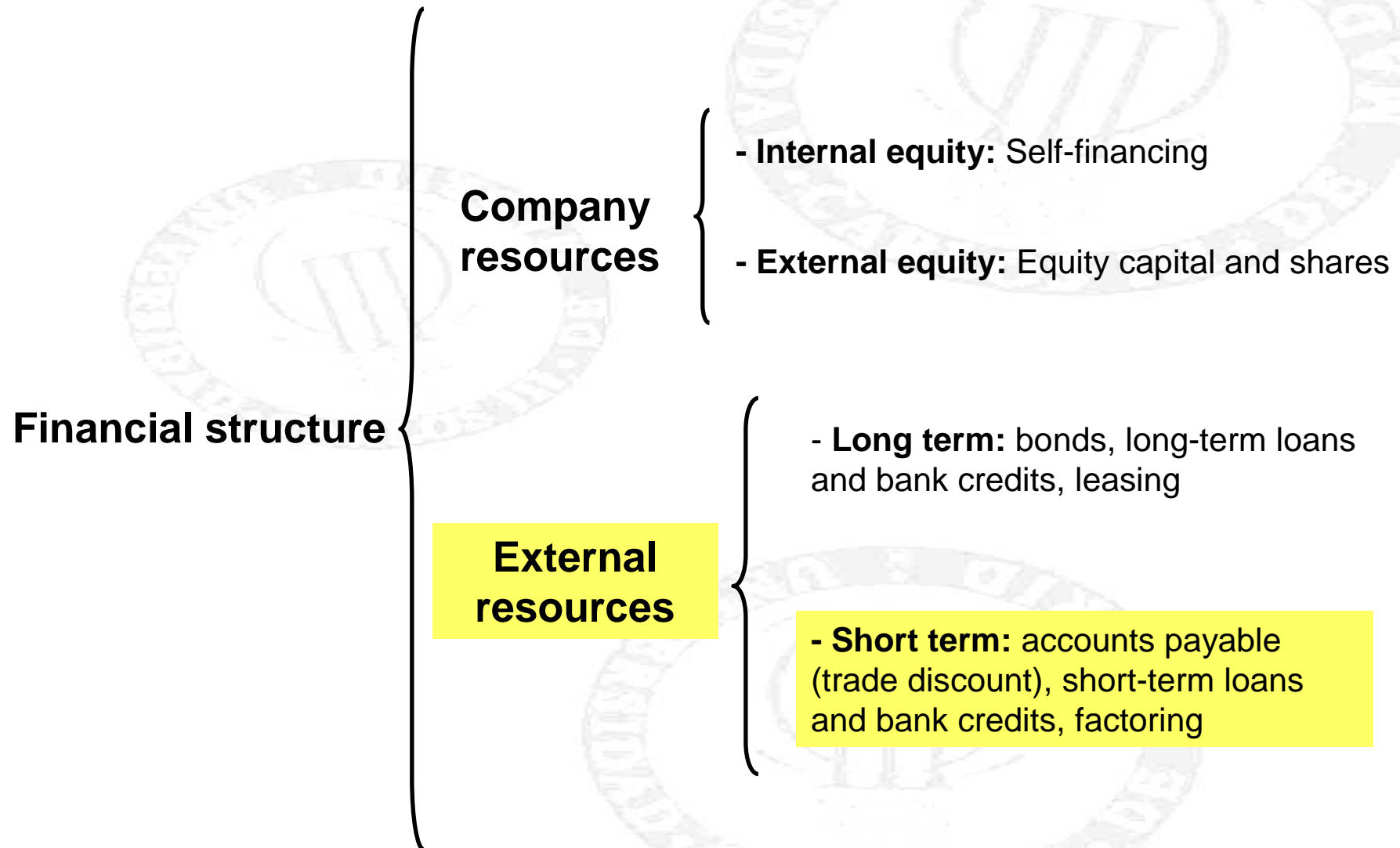
FINANCE LEASING

OPERATING LEASING





Financial structure of the company





Short-term external resources

Accounts payable:

Financing from suppliers (Trade credit) arises when payment of goods is done some time after their reception. Suppliers offer the company the possibility to defer the payment

Bank financing:

- Loans and credits (same characteristics as LT)
- Trade discounts

In the trade discount, the financial institution makes a note (bill of exchange, promissory note,...) available to the customer, before its expiring date, having previously deducted some expenses (interest rate, commission,...).

Factoring:

The company sells to a factoring company a credit from a customer, before it expires. This factoring company will be in charge of its reimbursement, assuming the risk of insolvency





Financial structure: combination of the different financial resources

% Equity: $E/(E+L)$

% Liabilities: $L/(E+L)$

Indebtness ratio: L/E

Example: Total Liabilities + equitiy = 1000 M €

Equity = 700 M €

Liabilities = 300 M €





- All the financial resources have a cost:
 - Implícit cost (opportunity cost): equity
 - Explícit cost : liabilities
- **Cost of capital** : Weighted cost associated to all the financial resources obtained by the company (K)

Cost of equity: The cost of equity refers to the financial returns investors who invest in the company expect to see.

$$K = K_{EQ} * (\% \cdot E / (E + L)) + K_L * (L / (E + L))$$





3. The decision of investment

Investment decisions: where the company can invest is money?

Economic structure and Assets

- Real or financial assets

Any investment project should generate **enough profitability** to cope, at least, with the remuneration of all the resources used by the company





a) Valuation of investment projects

:

- **Cash Flows**:= cash inflows-cash outflows
- **Time value of money**
- **Risk**





Value of money

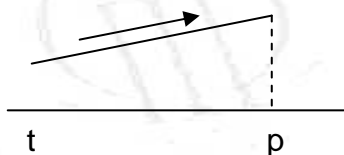
$$\begin{aligned} \text{Interest rate} \\ &= \\ &\text{Free-risk rate} \\ &+ \\ &\text{Inflation} \\ &+ \\ &\text{Risk premium} \end{aligned}$$





Notes on Financial mathematics

Capitalization

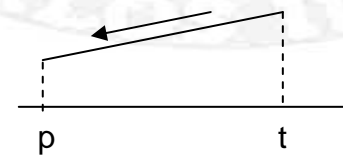


Capitalize means calculating the equivalent in the future of an amount invested now. **Future Value (FV)**

Compound factor

$$L = (1 + i)$$

Discounting



Discount (bring up to date) means calculating the present value of an amount that will be received in the future. **Present Value (PV)**

Discount factor

$$A = \frac{1}{1 + i}$$





Notes on Financial mathematics (cont.)

For n periods

Capitalization

$$C_n = C_0 (1 + i)^n$$

Compute the FV in years 1,2 y 3
years of 1000€ available today. $i=5\%$

$$C_1 = 1.000(1 + 0.05) = 1.050$$

$$C_2 = 1.000(1 + 0.05)^2 = 1.105,5$$

$$C_3 = 1.000(1 + 0.05)^3 = 1.157,62$$

Discounting

$$C_0 = C_n * \frac{1}{(1 + i)^n} = \frac{C_n}{(1 + i)^n}$$

Compute the PV of future capitals:
 $C=5000\text{€}$ available in year =4 and
 $C=10.000\text{€}$ available in year 8.
 $i=10\%$

$$C_0 = \frac{5000}{(1 + 0.1)^4} = 3.415$$

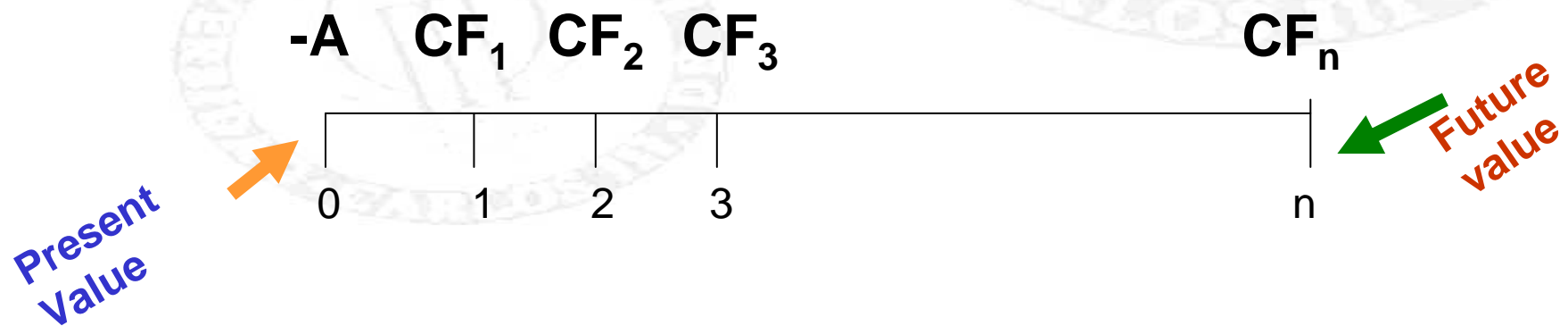
$$C_0 = \frac{10.000}{(1 + 0.1)^8} = 4.665$$





b) Criteria for investment selection

INVESTMENT PROJECT



$$CF_n = \text{Inflows} - \text{Outflows} = C_n - P_n$$





An investment project will be valued as per the following VARIABLES

Initial payment or size of the investment (A)

Cash inflows (collections) being generated during the project duration (C_t)

Cash outflows (payments) being generated during the project duration (P_t)

Duration or life of the project (n periods)

Interest rate (i): Price of the money, Inflation, Risk...





Criteria for investment selection

Not take into account the time value of money

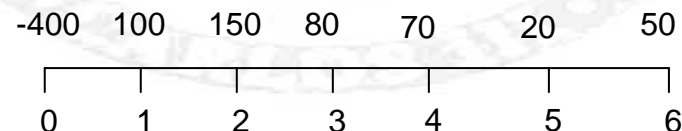
Payback period

The **payback period** is obtained from the cash-flows and the initial investment of the project. It refers to the period of time required for the return on an investment to “repay” the sum of the original investment.

It measures the time required for the cash inflows to equal the original outlay.

It does not take into account the cash-flows after payback period, nor when cash-flows are being generated ⇒ Liquidity criteria, no value creation

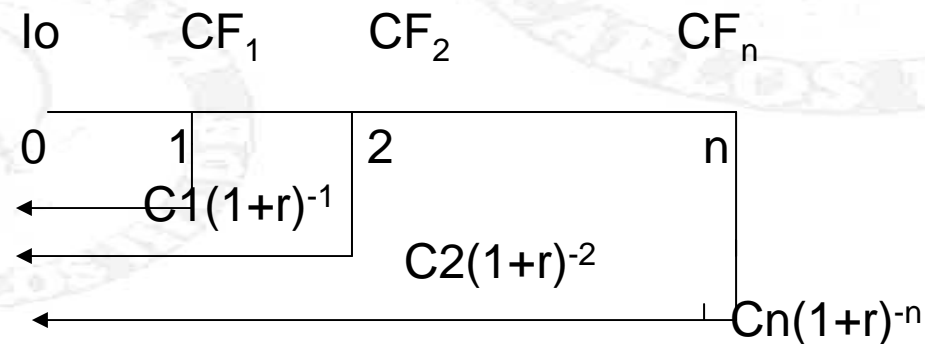
EXAMPLE





Take into account the time value of money

A) Net Present Value (NPV)



$$NPV = -I_0 + \frac{CF_1}{1+i} + \frac{CF_2}{(1+i)^2} + \dots + \frac{CF_n}{(1+i)^n} = -I_0 + \sum_{t=1}^n CF_t \frac{1}{(1+i)^t}$$

The **net present value** of an investment project is defined as the total present value of the time series of cash-flows being generated, minus the outlay (payments) necessary to carry out the project.

It is an indicator of how much value an investment or project adds to the value of the firm.





Take into account the time value of money

Net Present Value (NPV)

$$NPV = -A + \frac{CF_1}{(1+k)} + \dots + \frac{CF_n}{(1+k)^n} = -A + \sum_{t=1}^n \frac{CF_t}{(1+k)^t}$$

$NPV > 0 \Rightarrow$ The project may be accepted

$NPV < 0 \Rightarrow$ The project may be rejected

$NPV = 0 \Rightarrow$ Indifferent. The project adds no monetary value





NPV example

| Project | Initial Payment | Cash-Flows (k=10%) | | NPV |
|---------|-----------------|--------------------|-----|-------|
| | | 1 | 2 | |
| A | 60 | 60 | 0 | -5,45 |
| B | 60 | 60 | 6,6 | 0 |
| C | 60 | 33 | 51 | 12,14 |
| D | 60 | 35 | 35 | 1,43 |





Take into account the time value of money

B) Internal Rate of Return (IRR)

The **internal rate of return** for an investment is the rate of return that makes the present value of the investment's cash-flows (in and out) total to zero.

$$-A + \sum_{t=1}^n \frac{CF_t}{(1 + IRR)^t} = 0$$

$r = IRR$

$IRR > i \Rightarrow$ The project may be accepted

$IRR < i \Rightarrow$ The project may be rejected

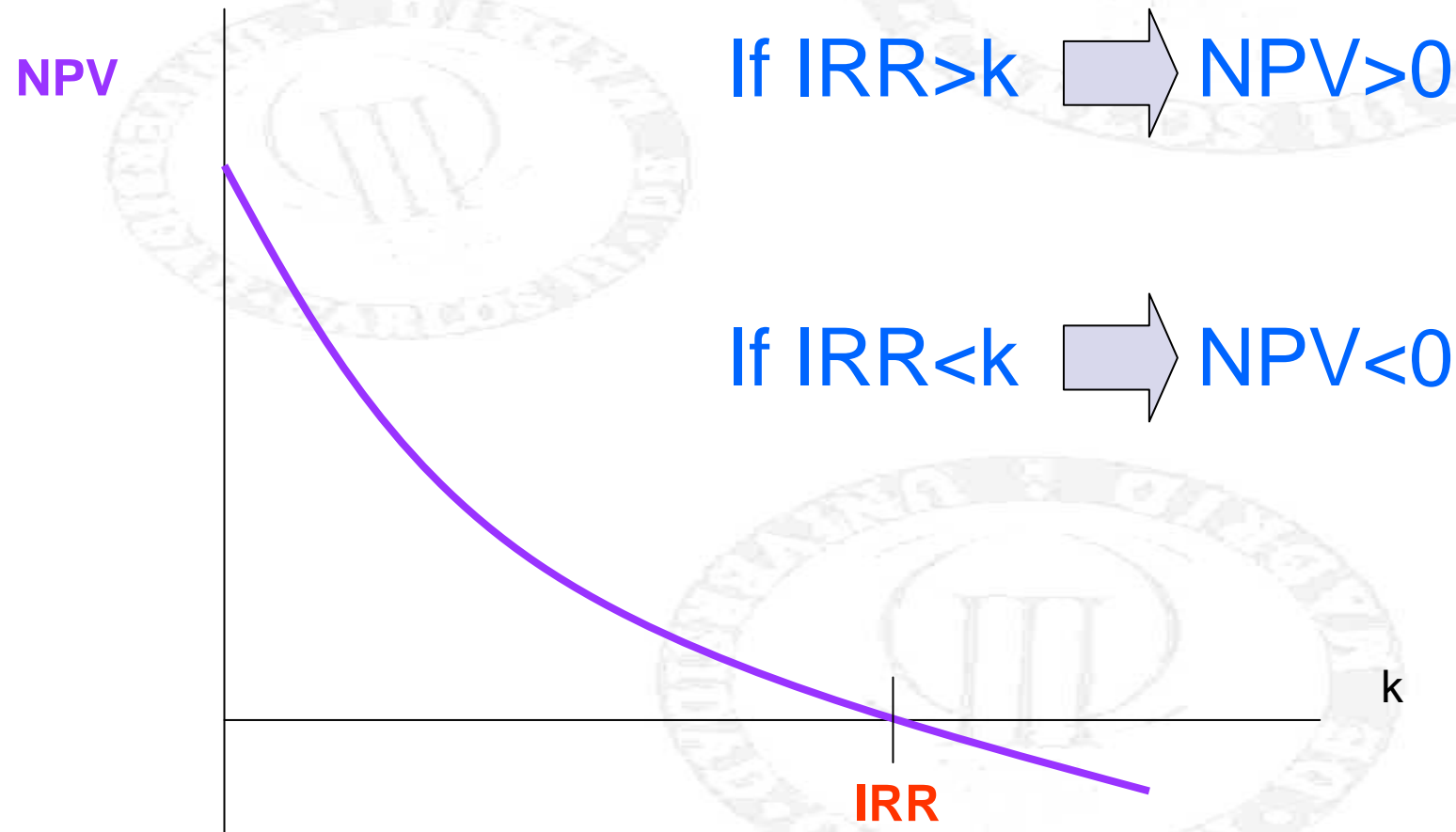
$IRR = i \Rightarrow$ Indifferent





NPV and IRR

Relationship between NPV and IRR



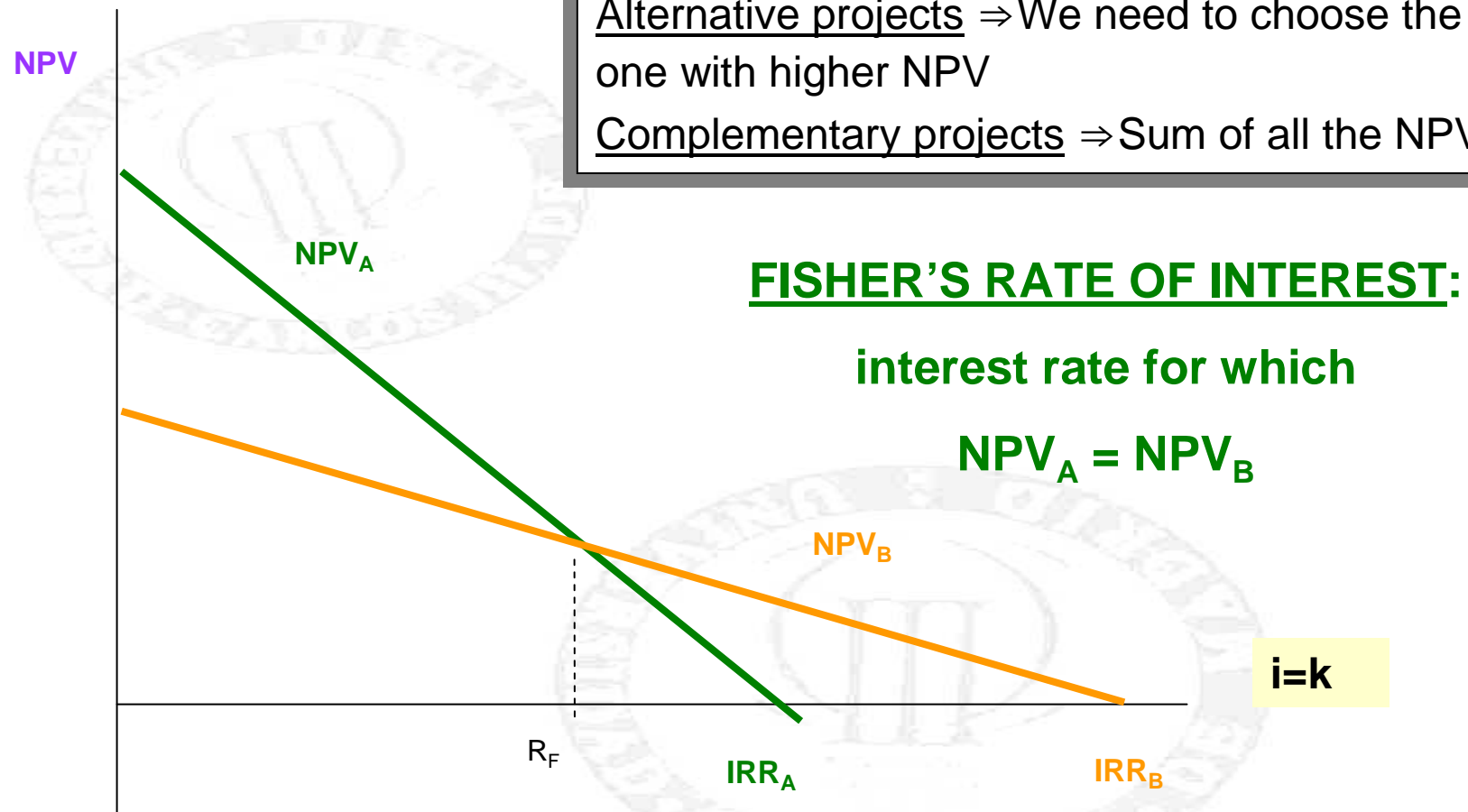


NPV and IRR

Comparison between projects

Alternative projects \Rightarrow We need to choose the one with higher NPV

Complementary projects \Rightarrow Sum of all the NPV



Comparing projects

NPV rule will tend to prefer longer life projects

Projects with higher initial investments tend to have a lower IRR compared to projects with lower initial investments

Prefer NPV as a rule when deciding between mutually exclusive projects of different duration and different initial investment or contradictory decisions between IRR and NPV

When multiple IRRs preferably to choose NPV rule

Cash flows of the same sign leads to no calculation of IRR (rare)

Comparing projects

Uncertainty about future cash flows is a drawback of the NPV rule: use sensitivity analysis

NPV ignores the scale of the project (it might be preferable based on the NPV rule to choose a project with higher initial investment which is not always optimal). Solution: profitability index = $\text{NPV} / \text{initial investment}$