DCF Method

2007

Introduction to DCF method

- **The 4 steps** of the DCF method

Estimate discount rate ④

Value

discounting

Calculate terminal value ③

② Calculate free cash flows

Build a business plan ①

Business plan horizon

time
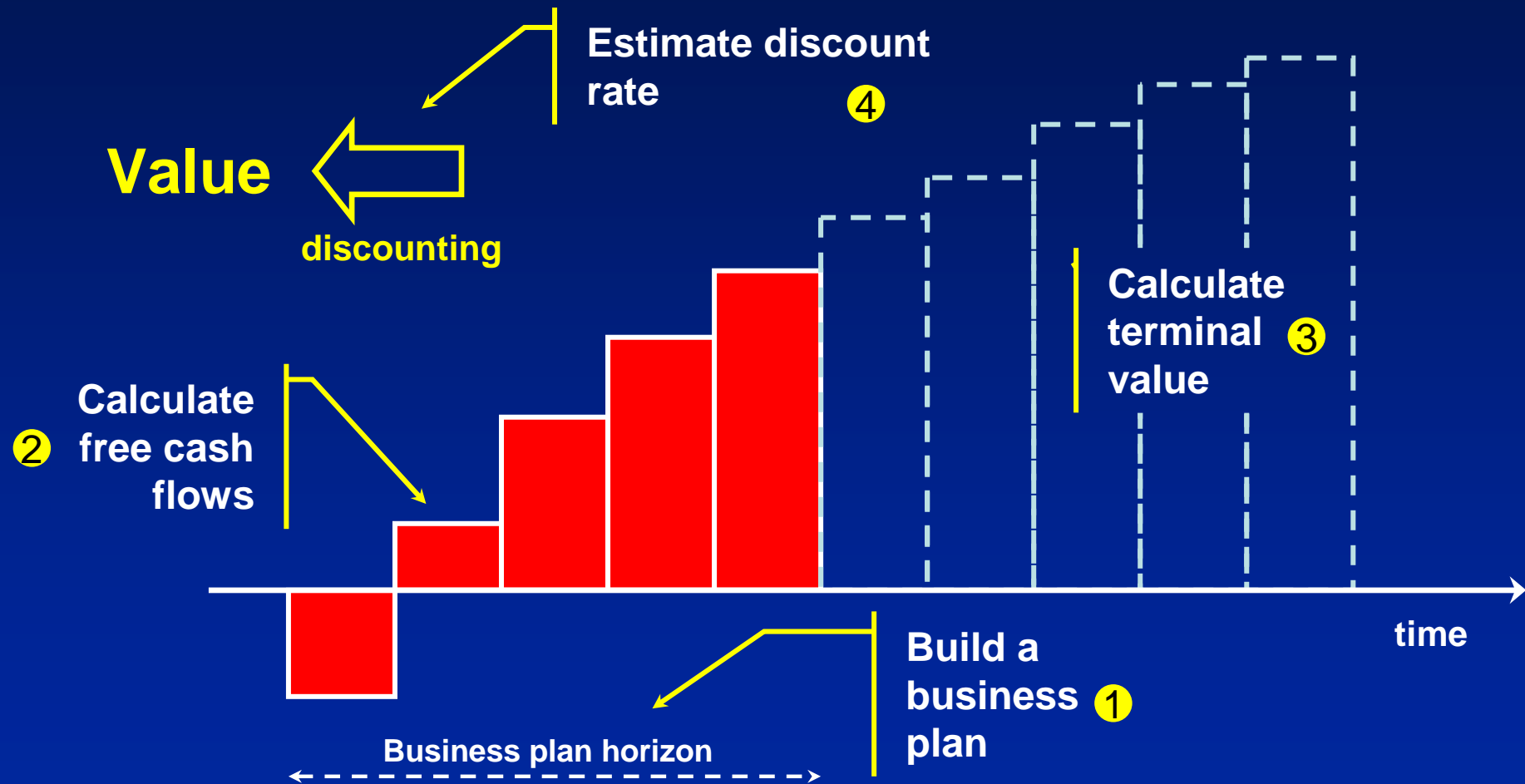
1. Building a Business Plan

- Introduction: **who** made the business plan and **why** ?

- The length of the business plan has to fit the actual **visibility** on the company's business

- Business plan has to respect **relevance rules**

- Make **several scenarios** : best, base & worst case

2. Calculate the free cash flows (1/3)

- Different types of cash flows and their beneficiaries

FCFF

(Free Cash Flow to Firm)

Enterprise Value	Value of equity
	Debt value

FCFE

(Free Cash Flow to Equity)
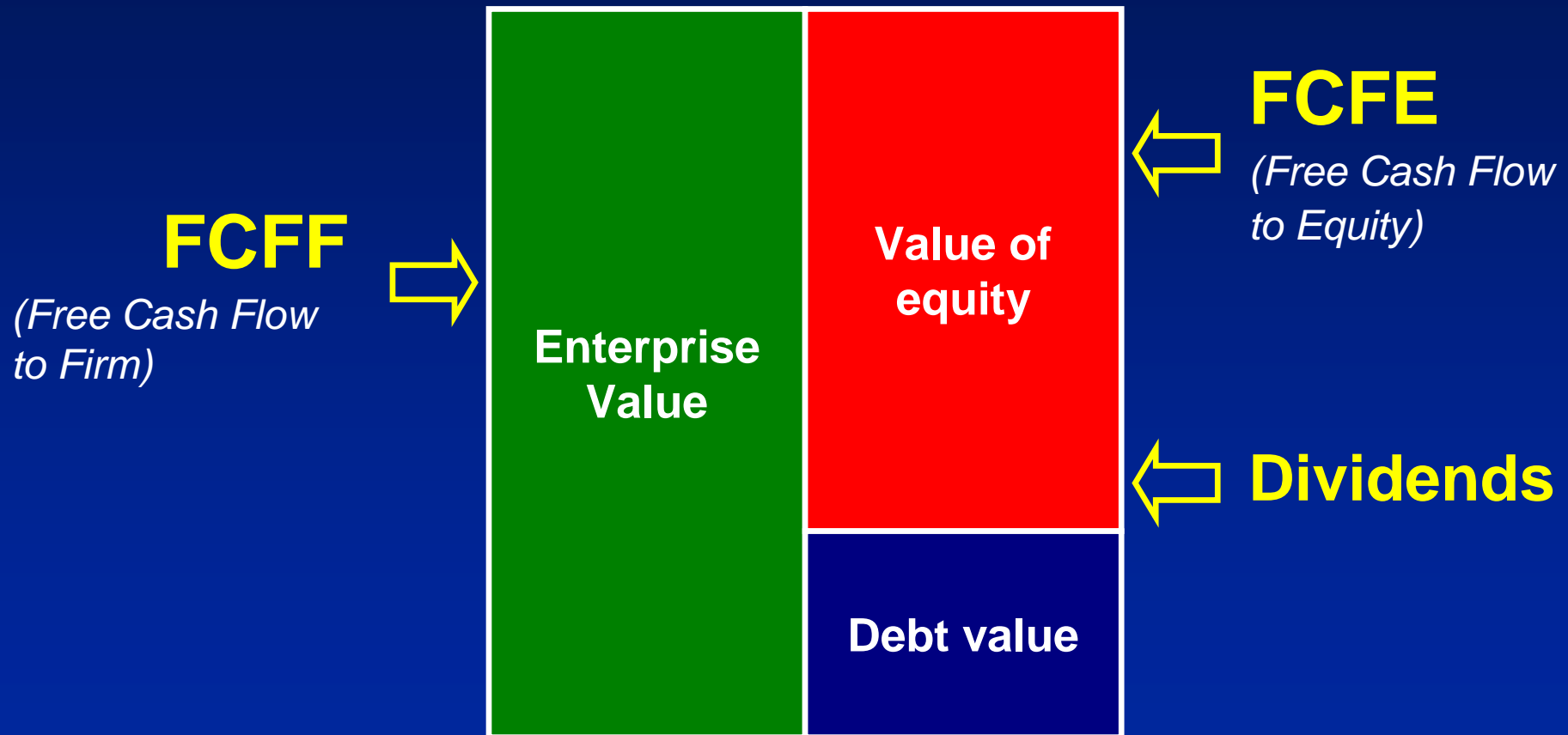
Dividends

2. Calculate the free cash flows (2/3)

- Relevance between cash flows and discount rates: **discount rates** depend on **the beneficiaries of cash flows**

Cash Flows	FCFF	FCFE	Dividends
Pay	Shareholders and debt holders	Shareholders	
Rate	Wacc	Ke	
To value	EV	Ve	

2. Calculate the free cash flows (3/3)

- Calculation of Free Cash Flows to Firm (FCFF)

EBIT
- Normative taxes
+ D&A
- Investments
- Change in working capital
= **FCFF**

3. Calculate terminal value (1/2)

- Terminal value is the **value of the company at the end of the business plan horizon**

- Terminal value assumptions are a **major valuation issue (and negotiation)**

- Two approaches of terminal value
  - Estimate of an **explicit exit value**
  - Calculation of an **implicit terminal value**

3. Calculate terminal value (2/2)

- The **terminal value approach** is based on the definition of **a normative free cash flow**, that will be **projected for perpetuity**

- The normative free cash flow can be computed with or without growth

- The **normative free cash flow with growth** has to **take into account:**
  - ↗ **Growth perspectives**
  - ↘ **Investment policy**…
  - ↘ **Change in working capital**

4. Estimating the Wacc (1/4)

- Calculating the weighted average cost of capital (Wacc)

$$Wacc = Ke \cdot \frac{Ve}{Ve + Vd} + Kd \cdot (1\text{-}tax) \cdot \frac{Vd}{Ve + Vd}$$

- The cost of debt is always **after tax**

4. Estimating the Wacc (2/4)

- The cost of **equity** is the rate of return expected by **shareholders**

- Cost of equity can be estimated by applying the Capital Asset Pricing Model (**CAPM**)

$$Ke = Rf + \beta e \times (Rm - Rf)$$

- Risk premium (Rm – Rf) is computed **ex ante**

- β measures the sensitivity to **systemic risk,** that cannot be diversified, and depends on the **capital structure**

4. Estimating the Wacc (3/4)

- The cost of debt (Kd) is the rate of return expected by **debt holders**

- Kd refers to **the market cost** of debt (and not the book cost)

- Kd depends on **rating**

4. Estimating the Wacc (4/4)

- The weight Vd / Ve
  - The weight is in **book value**
  - Process is **iterative**
  - The capital structure of a company always **changes** over time

- Two fundamentals:
  - The choice of weight has to be **consistent** with free cash flow forecasts
  - The enterprise value is **generally independent from capital structure**

4. Determining the EV

- FCF discounting determine the **enterprise value**

$$EV = \sum_{i=1}^{n} \frac{FCF_{(i)}}{(1 + Wacc)^{i}} + \frac{TV_{(n)}}{(1 + Wacc)^{n}}$$

- The **value of equity** follows the EV through adjustments

- You have to implement **sensitivity analyses** to obtain a **valuation range**