



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

MBA

Corporate Finance

Week 6

Weighted Average Cost of Capital (WACC)

Trawsnewid Addysg; Trawsnewid Bywydau
Transforming Education; Transforming Lives



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Sources of financing

- Debt
 - Bank Loans
 - Bonds
- Equity
 - IPOs
 - Right Issues
 - an invitation to existing shareholders to purchase additional shares in the company (Pre-emption rights)
- Preference shares
- Convertible and Warrants

Some fundamental features of debt finance

- Debt is something that has to be repaid
- Debt finance is less expensive than equity
 - The costs of raising the funds
 - The annual return required to attract investors is less
 - Tax deductibility of interest
- Lenders do not, generally, share in the value created by and extraordinarily successful business

Some fundamental features of debt finance

- Absence of voting power
- When a company pays interest the tax authorities regard this as a cost of doing business and it can be used to reduce the taxable profit
- Creditors are able to claim some or all of the assets of the firm in the event of non-compliance with the terms of the loan

Some fundamental features of equity finance

- Ordinary shares represent the equity share capital of the firm
- Share in the rising prosperity of a company
- Owners of the firm
- The right to exercise control over the company
- Vote at shareholder meetings

Some fundamental features of equity finance

- A right to receive a share of dividends distributed
- Each shareholder entitled to a copy of the annual report
- No agreement between ordinary shareholders and the company that the investor will receive back the original capital invested
- What ordinary shareholders receive depends on how well the company is managed

Debt and Equity finance

- Debt
 - Usually the lenders to the firm have no official control
 - Usually requires regular cash outlays in the form of interest and the repayment of the capital sum (firm will be obliged to maintain the repayment schedule through good years and bad)
- Disadvantage of ordinary shares for investors
 - Last in the queue to have their claims met

Advantages & disadvantages of share issues

- Advantages
 - Usually there is no obligation to pay dividends
 - The capital does not have to be repaid
- Disadvantages
 - High cost
 - Direct costs of issue
 - The return required to satisfy shareholders
 - Loss of control
 - Dividends cannot be used to reduce taxable profit

Factors to consider in the financing decision

- Issuing costs, cost of capital and borrowing capacity
- Tax implication of debt instruments
- Liquidity and ability to repay
- Clientele (shareholders and creditors)

Factors to consider in the financing decision

- Signaling
- Financial slack, financial gearing and financial distress
- Control
- Term of borrowing



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20 MINUTE BREAK

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Cost of capital

- Rate of return a company must offer investors to induce them to invest
- This rate is determined by multiple factors
 - Risk free rate
 - Returns offered on alternative securities with the same risk
 - Overall market conditions

Cost of capital

- BUT BE CAREFUL !!
 - Any final number based on an subjective assessment
 - Good decision making comes from knowing the limitations of the input variables to the decision
 - Knowing subjective judgement has been employed is needed
 - Precision is less important than knowledge of what is a reasonable range

The required rate of return

- The capital provided to large firms comes in many forms
- Risk free rate is the foundation, and given the symbol r_f
- The cost of debt capital for a corporation k_D , is:

$$\underline{k_D = r_f + \text{RP (risk premium)}}$$

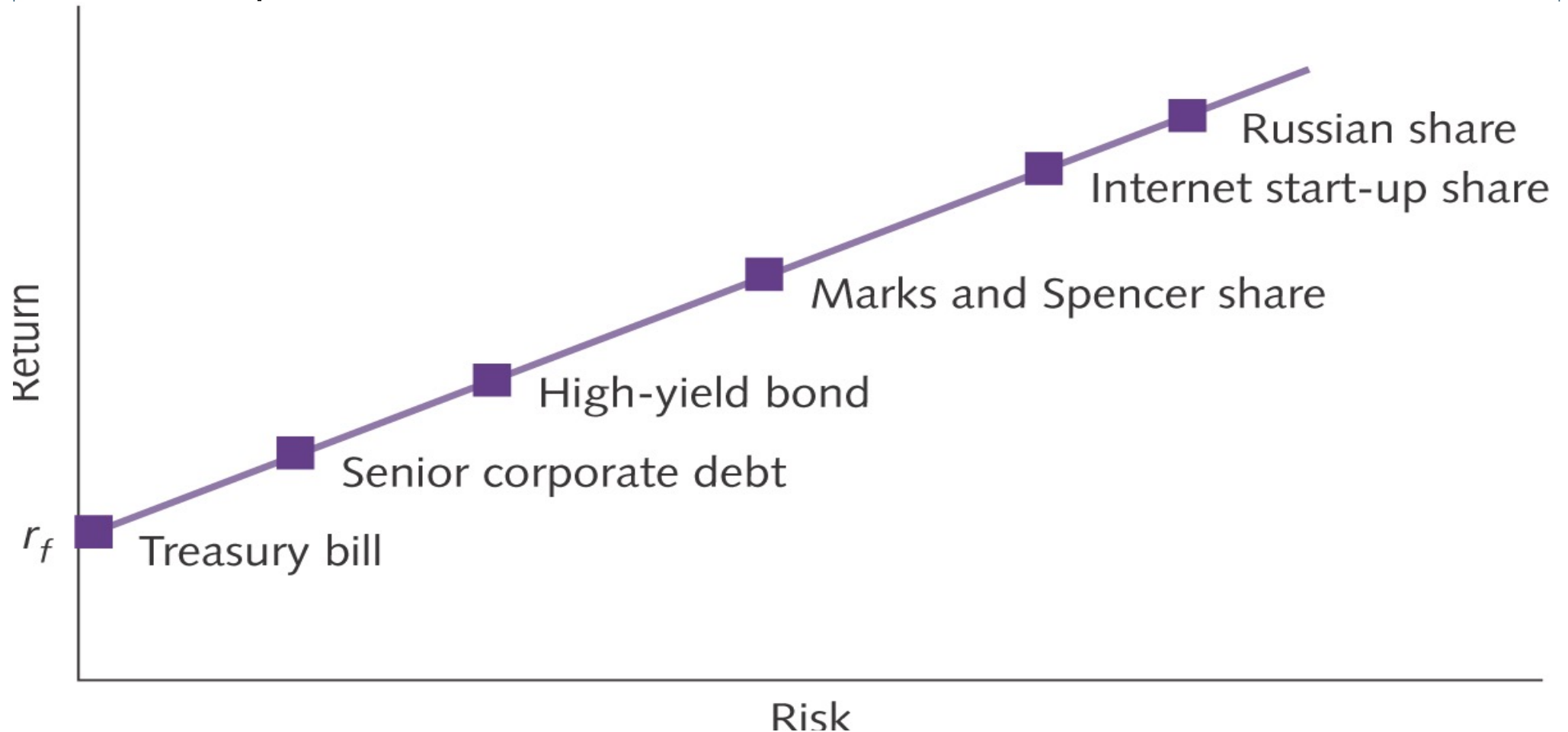
The required rate of return

- If current risk free rate is 6%,
 - then $k_D = 7\%$
 - for a company paying 100 basis point over the Treasury rate
- IF the firm already has a high level of debt
 - it may need to offer, a premium
 - So if premium is estimated at 300 basis points above the risk-free rate

$$k_D = r_f + \text{RP} = 6 + 3 = 9\%$$

Range of risk and returns

- If the form of finance provided is equity capital then the investor is accepting a fairly high probability of receiving no return
- On the other hand, if the firm performs well very high returns can be expected.



Weighted Average Cost of Capital

- Companies funded in varying proportions of equity & debt
- Therefore overall cost of capital (k_o) needed to appraise projects
- Note weighting used for k_o calculation is
 - ex-div/int. market values of shares & loan stock
 - Consider both common and preferred stock

NOTES On Weighted Average Cost of Capital

- *New finance raised* may change capital structure (financial risk)
- Only use *for projects having same risk class as the existing set of projects*
- Difficult to incorporate effect of *floating rate debt*
- *Private companies* - no market quotations
- Public sector

WACC (K_o)

K_o	=	$K_e * \left(\frac{E}{E + D} \right)$	+	$K_d * \left(\frac{D}{E + D} \right)$
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- WITH
- K_e , K_d cost of equity and debt respectively
- E , D is value of equity and debt respectively

WACC (K_o)

K_o	=	$K_e * \left(\frac{E}{E + D} \right)$	+	$K_d * (1-T) * \left(\frac{D}{E + D} \right)$
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- WITH
- T is the corporate tax rate
- K_e , K_d cost of equity and debt respectively
- E, D is value of equity and debt respectively

Weighted Average Cost of Capital

- Example: PQR plc has:
- 8 million £1 ord. Shares currently priced at £1.25 ex-div with k_e calculated at 14%
- 2 million £1 each 7.2% pref. Shares with ex-div market value given as 90p and k_p calculated already @8%
- £10 million 7.75% irredeemable deb. Stock where market value given is £90 ex-int and the after-tax k_d already calculated is 6%.
- Let's Calculate WACC (k_o)

Weighted Average Cost of Capital

	mv(ex div/int)		Comp. Cost	T Cost
	£000s		%	£000s
Ord. Shares 8M @ £1.25	10000		14.0%	1400
Pref. Shares 2M £1 each @£0.9	1800		8.0%	144
Debs. Stk £10M @ £90	9000		6.0%	540
	20800			2084
WACC			10.02%	

WACC (K_o)

$$K_o = \frac{K_e * (E)}{(E + D)} + \frac{K_d * (D)}{(E + D)}$$

E = Total equity MC (ex-div) and

D = Total debt MV (ex int./div.)

K_o = Wacc

Assumptions of Wacc:

- Gearing at optimal level & company does not deviate
- Recommended since difficult to establish how shareholders will react to a change in gearing

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