



Fakultas
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Creating the great business leaders

Capital Structure Cost Of Capital Leverage

The Financing decision



Assets

Current Assets

Fixed Assets

Liabilities & Equity

Current Liabilities

Long-term Debt

Preferred Stock

Common Equity

Investment decision



Assets

Current Assets

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Where we're going...

Corporate Finance: (The *Financing* Decision)

- Cost of capital
- Leverage
- Capital Structure

Assets

Current assets

Liabilities & Equity

Current Liabilities

Capital Structure

Long-term Debt

Preferred Stock

Common Equity

The Financing decision

Cost of Capital

- For Investors, the rate of return on a security is a *benefit* of investing.
- For Financial Managers, that same rate of return is a *cost* of raising funds that are needed to operate the firm.
- In other words, the cost of raising funds is the firm's *cost of capital*.

How can the firm raise capital?

- Bonds
- Preferred Stock
- Common Stock
- Each of these offers a rate of return to investors.
- This return is a cost to the firm.
- “Cost of capital” actually refers to the **weighted cost of capital** - a weighted average cost of financing sources.

Cost of Debt

For the issuing firm, the cost of debt is:

- the **rate of return** required by investors,
- adjusted for **flotation costs** (any costs associated with issuing new bonds),
and
- adjusted for **taxes**.

Cost of Debt (k_d) before Tax

$$NP_d = \sum_{t=1}^n \frac{\$I_t}{(1 + k_d)^t} + \frac{\$M}{(1 + k_d)^n}$$

Notation :

- NP_d = Net proceed of debt = Bond price – Flotation cost
- k_d = before tax cost of debt
- M = Nominal Value of Bond (at maturity date)
- n = Periods
- I_t = Coupon payment in \$ (% CR * M)

Next Using Interpolation

Cost of Debt (k_d) after Tax

$$k_d \text{ after tax} = k_d \text{ before tax} (1 - T)$$

Cost of Debt (k_d) before Tax

$$k_d \text{ before tax} = \frac{\$It + \frac{\$M - NPd}{n}}{\frac{NPd + \$M}{2}}$$

$$\mathbf{Kd \text{ after Tax} = Kd \text{ before Tax} (1- \text{Tax})}$$

Notation :

- NP_d = Net proceed of debt = Bond price – Flotation cost
- k_d = before tax cost of debt
- M = Nominal Value of Bond (at maturity date)
- n = Periods (Time to maturity)
- It = Coupon payment in \$ (% CR * M)

Soal 1

- Perusahaan Carter menerbitkan obligasi senilai \$1.000 (M), coupon rate 8% (CR), jatuh tempo 20 tahun (n), dan harga netto (Npd) \$ 940. Tarif pajak adalah 40%.
- Berapakah Cost of Debt before tax dari obligasi tersebut?

Soal 2

PT. Damai menjual obligasi senilai Rp. 10.000.000 dengan jangka waktu 10 tahun, tingkat bunga kupon 9%, dengan nilai nominal per lembar Rp. 10.000. karena obligasi lain yang serupa memberikan bunga lebih besar dari 9% maka perusahaan harus menjual obligasi sebesar Rp. 9.800 sebagai kompensasi atas rendahnya bunga kupon.

Biaya penerbitan sekuritas sebesar 2% dari nilai nominal. Dengan asumsi pajak sebesar 30%, berapakah biaya hutang setelah pajak ?

$$k_p = \frac{D}{NP_0} = \frac{\textit{Dividend}}{\textit{Net Price}}$$

$NP_0 = \text{PS price} - \text{flotation costs}$

Soal 3a

- Misalkan Perusahaan Carter menerbitkan saham preferen yang membayar dividen \$ 13 per tahun dan terjual seharga \$ 100 per saham di pasar modal.
- Biaya flotasi (atau penjaminan emisi) adalah 3 persen.
- Berapakah biaya modal saham preferen?

$$k_p = \frac{D}{NP_0} = \frac{\textit{Dividend}}{\textit{Net Price}}$$

$$k_p = \frac{8.00}{74.00} = 10,81\%$$

Soal 3b

Ford Motor Company menerbitkan saham preferen dengan harga penutupan sebesar \$23.45 dengan dividen tahunan sebesar \$2.25 per lembar. Jika flotation cost sebesar 2%, berapakah biaya modal saham preferen?

Cost of Common Equity

There are two sources of Common Equity:

- 1) **Internal common equity** (retained earnings).
- 2) **External common equity** (new common stock issue).

Do these two sources have the same cost?

Cost of Internal Equity

Retained Earnings:

$$k_{cs} = \frac{D_1}{P_0} + g$$

$$D_1 = D_0(1 + g)$$

Soal 4a

Pada bulan Juli 2020, saham biasa PT. XYZ ditutup pada \$54.40 per lembar.

Pada tahun 2021 PT. XYZ membayar dividen sebesar \$0.28.

Jika dividen diharapkan akan tumbuh sebesar 14,6% per tahun di masa yang akan datang,

Berapakah tingkat pengembalian yang dikehendaki investor jika tambahan modal diperoleh dari *retained earnings*?

Capital Asset Pricing Model (CAPM)

$$k_j = k_{rf} + \beta_j (k_m - k_{rf})$$

Notation :

- k_j = cost of internal common equity
- k_{rf} = risk free rate
- k_m = expected market return
- β = systematic risk of common stock (beta)

Soal 4b

Sebuah perusahaan melakukan investasi pada saham AMCO dengan mengharapkan tingkat keuntungan sebesar 15% dan tingkat keuntungan bebas risiko sebesar 10%. Dari data selama 10 tahun diketahui bahwa nilai beta adalah 1,25. Hitunglah return saham AMCO yang juga merupakan biaya modal ekuitas (modal sendiri) perusahaan tersebut !

Cost of External Equity

New Common Stock

$$k_{ncs} = \frac{D_1}{NP_0} + g$$

NP_0 = Net proceeds to the firm after flotation costs!

Cost of External Equity

Soal 5

Jika PT. XYZ memutuskan untuk menerbitkan saham biasa baru, dengan biaya penerbitan sebesar 6% dari harga saham per lembar, berapakah biaya modal dari saham biasa?

Weighted Average Cost of Capital

- The weighted cost of capital is just the weighted average cost of all of the financing sources.

$$k_{wacc} = (w_d \times k_d) + (w_p \times k_p) + (w_{cs} \times k_{cs}) + (w_{ncs} \times k_{ncs})$$

Notation :

- w = weight / total market value = target capital structure
- k_d = cost of debt after tax
- k_{ps} = cost of preferred stock
- k_{cs} = cost of retained earnings
- k_{ncs} = cost of new common stock offering

Soal 6

Target struktur modal QM industries adalah 40% saham biasa, 10% saham preferen dan 50% hutang. Jika biaya modal ekuitas sebesar 18%, biaya modal saham preferen 10%, biaya modal hutang sebelum pajak sebesar 8%, dan tingkat pajak perusahaan sebesar 35%. Berapakah rata-rata tertimbang biaya modal QM Industries?

Weighted Cost of Capital

Source	after tax Cost	Capital Structure
debt	6%	20%
preferred	10%	10%
common	16%	70%

Weighted Cost of Capital

(20% debt, 10% preferred, 70% common)

Weighted cost of capital =

$$.20 (6\%) + .10 (10\%) + .70 (16\%)$$

$$= 13.4\%$$

Soal 7 WACC

Dengan asumsi struktur modal dari Carter Company adalah sbb:

- Mortgage bonds (\$1,000 par) \$20,000,000
- Preferred stock (\$100 par) 5,000,000
- Common stock (\$40 par) 20,000,000
- Retained earnings \$5,000,000

Dengan biaya modal setelah pajak adalah:

- Biaya modal hutang 5,14%
- Biaya modal saham preferen 13,40%
- Biaya modal saham biasa 17,11%
- Dan biaya modal retained earnings adalah 16,00%

Berapakah WACC dari Carter Company?

LEVERAGE

Leverage

- Pengungkit
- Penggunaan biaya keuangan dan biaya tetap dalam usaha untuk meningkatkan (*lever up*) profitabilitas.

Leverage

1. Operating Leverage

Penggunaan biaya operasional tetap oleh perusahaan mempengaruhi resiko bisnis (variabilitas EBIT).

2. Financial Leverage

Penggunaan biaya keuangan tetap oleh perusahaan mempengaruhi resiko keuangan (variabilitas EPS).

3. Total/ Combined Leverage

Analytical Income Statement

Operating leverage	Sales revenue	} Total leverage
	<u>Less: Cost of goods sold</u>	
	Gross profits	
	<u>Less: Operating expenses</u>	
Financial leverage	Earnings before interest and taxes (EBIT)	
	<u>Less: Interest</u>	
	Net profits before taxes	
	<u>Less: Taxes</u>	
	Net profits after taxes	
	<u>Less: Preferred stock dividends</u>	
	Earnings available for common stockholders	
Earnings per share (EPS)		

Operating Leverage: Measuring the Degree of Operating Leverage

- Operational leverage results from the presence of **fixed operational costs** in the firm's income stream.
- The **degree of operating leverage (DOL)** measures the sensitivity of changes in Sales to changes in EBIT.

Degree of Operating Leverage

1. By its definition DOL can be formulated as :

$$DOL = \frac{\% \text{ change in EBIT}}{\% \text{ change in Sales}}$$

2. By its application DOL can be formulated as :

$$DOL = \frac{\text{Revenue before fixed cost}}{EBIT} = \frac{Q(P - V)}{Q(P - V) - F}$$

Contoh :

Lisa Miller wants to determine the **degree of operating leverage** at **sales levels of 6,000 unit**. As we did earlier, we will assume that:

- Fixed costs are \$100,000
- Baskets are sold for \$43.75 each
- Variable costs are \$18.75 per basket

Interpretasi

- If $DOL = 3x$, then a 1% increase in sales will result in a 3% increase in operating income (EBIT).

Degree of Financial Leverage

- Financial leverage results from the presence of **fixed financial costs** in the firm's income stream.
- The **degree of financial leverage (DFL)** measures the sensitivity of changes in EBIT to changes in EPS.

Degree of Financial Leverage

1. By its definition DFL can be formulated as :

$$DFL = \frac{\% \text{ change in } EPS}{\% \text{ change in } EBIT}$$

2. By its application DFL can be formulated as :

$$DFL_{EBIT} = \frac{EBIT}{EBIT - I - \left[\frac{PD}{1 - T} \right]}$$

Degree of Financial Leverage

- If we have the data, we can use this formula:

$$DFL = \frac{EBIT}{EBIT - I}$$

Contoh :

Chen Foods, a small Oriental food company, expects EBIT of \$10,000 in the current year. It has a \$20,000 bond with a 10% annual coupon rate and an issue of 600 shares of \$4 annual dividend preferred stock. It also has 1,000 share of common stock outstanding and company tax rate 40%.

The annual interest on the bond issue is \$2,000 (10% x \$20,000). The annual dividends on the preferred stock are \$2,400 (\$4/share x 600 shares).

Interpretasi

- If $DFL = 2.5x$, then a **1%** increase in **operating income (EBIT)** will result in a **2.5%** increase in **earnings per share (EPS)**.

Degree of Combined Leverage (DCL)

- **Combined leverage:** by using *operating leverage* and *financial leverage*, a small change in sales is magnified into a larger change in earnings per share.

Degree of Combined Leverage

$$DCL = \frac{\text{Sales} - \text{Total Variable Costs}}{EBIT - I}$$

$$DCL = \frac{Q(P - V)}{Q(P - V) - F - I}$$

- Q = Unit produced and sold
P = Price / unit
V = Variable cost / unit
F = Fixed cost

Degree of Combined Leverage

$$\text{DCL} = \text{DOL} \times \text{DFL}$$

$$= \frac{\% \text{ change in EPS}}{\% \text{ change in Sales}}$$

Contoh :

Club Corp. memiliki penjualan sebesar \$300,000 dengan harga per unit \$10. fixed cost untuk seluruh operasional \$100,000 dan variable cost \$6 per unit. Interest yang harus dibayar adalah \$4000. berapakah DCL?

Sales = Unit yang dijual x harga jual produk

Interpretasi

- If $DCL = 7.5x$, then a 1% increase in sales will result in a 7.5% increase in earnings per share.

Penjualan (100,000 units)	\$ 1,400,000
Biaya Variabel (VC)	\$ 800,000
Biaya Tetap (F)	\$ 250,000
Bunga (I)	\$ 125,000
Pajak (Tax)	34%
Saham yang dikeluarkan perusahaan (lembar)	100,000

Berdasarkan data *levered* company, Jawablah pertanyaan di bawah ini:

- 1) Jika Penjualan naik sebesar 10%, Berapakah pendapatan operasional? DOL
- 2) Jika Pendapatan Operasional naik sebesar 10%, Berapa EPS yang akan didapatkan? DFL
- 3) Jika Penjualan naik sebesar 10%, Bagaimana EPS yang akan didapatkan? DCL

Terima kasih