Ch9 :~

Assets = Liabilites + O.E

Assets ⇓ investment → **capital Budgeting**

(Financil Manager) → Assets

O.E ↳ financing → **capital structure**

evaluation and seleeting longterm investment to increase the value of the firm (shareholder wealth)

type of financing:
- R.E
- Debt
- common stock
- Preferred stock

⇓

مجموعة من الاستثمارات التي اعتمدت عليها الشركة في استثماراتها
Mixed of financing

α ??

Project A

cost = 100 000
life = 20 years
Expected Return = 7%
cost of debt = 6%

Project B

cost = 100.000
life = 20 years
Expected Return = 12%
cost of equity = 14%

① 7% > 6% for Project a accept ✓

r > debt

② 12% < 14 for Project b reject X

③ Assume mix of financing 50-50 mix
cost 100 000 life 20 years

Mixed → 50% debt 50% equity.

عشان Mixed بنحسب ال WACC

WACC = ,5 X 6% + ,5 X 14% = 10%

Project B ← 10% < 12% ✓ accept

10% > 7% X reject → Project A

Debt

{ Corporate Bonds
{ Borrowing

Net Proceeds = total Proceeds − Flotation cost

↳ underwriting cost [لازم أدفع للبنك مصروف لما يعملي تغطية

↓ Administrative cost { مصاريف ادارية

Selling Price = $980

Flotation cost = 2% of Par

↓

$2\% \times 1000 = 20\$$

↳ بدنا نشيلهم من $980

Net Proceeds = 980 − 20 = 960 $

$$\text{Cost of debt } (rd) = \frac{I + \frac{1000 - Nd}{n}}{\frac{1000 + Nd}{2}}$$

After tax cost of debt $= rd \times (1 - T)$ → Tax rate

Maturity = 20 years

9% coupon → $9\% \times 1000 = 90\$$

Par = 1000 $

Tax rate = 40%

① Cost of debt ② After tax cost of debt.

$$rd = \frac{I + \frac{1000 - Nd}{n}}{\frac{1000 + Nd}{2}} = \frac{90 + \frac{1000 - 960}{20}}{\frac{1000 + 960}{2}}$$

$$rd = 9,4\%$$

after tax cost of debt = 9,4% (1 - 0,4)

= 5,64%

#

Preferred Stock

$$P_0 = \frac{D}{r}$$

$$r = \frac{D}{P_0} \Rightarrow \boxed{r = \frac{D}{Nd}}$$

Po بدال Nd

Nd بدي اطلع

Common Stock

$$P_0 = \frac{D_1}{r - g}$$

$$r = \frac{D_1}{Nd \leftarrow P_0} + g$$

$$\Downarrow$$

$$\boxed{r = \frac{D_1}{Nd} + g}$$

$$r_d = \frac{I + \frac{1000 - N_d}{n}}{\frac{1000 + N_d}{2}}$$

After Tax cost = $r(1-T)$

Cost Preferred Stock

$P_o = \frac{D}{r}$ $\quad r = \frac{D}{N_d}$

Cost of common stock equity

(new issuance) ↙ ↘ (existing R.E)

دائماً بستخدم أولاً الـ existing بعدين اذا ما كفّا بصدر أسهم جديدة

new issuance

$r = \frac{D_1}{N_d} + g$

$P_o = \frac{D_1}{r-g}$

existing R.E

$r = \frac{D_1}{P_o} + g$

غیر هایی $r = \frac{D_1}{P_0} + g$ ⇐ Existing خیار

$r = r_f + B(r_m - r_f)$ ⇐ CAPM Model بقدر استخدم از

∴ حسب العطیات

$WACC = r_1 \times weight_1 + r_2\ weight_2 + r_3 \times weight_3$

After tax = 5,6 %

- 10% Preferred stock, sell for 87 $ per share

- cost of selling and issuings = $5

* Cost of P.S = ??
  D = 10% x 87 = 8,7 $
  Nd = 87 - 5 = 82

* $r = \frac{D}{Nd}$
  $= \frac{8,7}{82} = 10,16\%$

Existing R.F

$P_0 = \$50$

$D_1 = \$4$

$g = ????$

ص ٤١٨ ⇒ أرقام السنوات

r = cost of capital

$D_{2015} = D_{2010}(1+g)^5$

$3,8 = 2,97(1+g)^5$

$1,27 = (1+g)^5$

$1,27 = (1+g)^5$

$\sqrt[5]{1,27} = \sqrt[5]{(1+g)^5} \Rightarrow \boxed{g = 5\%}$

① $r = \frac{4}{50} + 5\% = 13\%$

② $Rf = 7\%$ $B = 1,5$ $rm = 11\%$

$r = 7\% + 1,5(11\% - 7\%) = 13\%$

② أو ① بستخدم أ

Common stock (new Issuance)

P_0 = 50$ will be sold for 47$

flotation cos = 2,5$

g = 5%

D_1 = 4$

* $r = \frac{D_1}{Nd} + g$

47 - 2,50 = 44,50

$= \frac{4}{44,50} + 5\% = 14\%$

WACC =

	①	②	
debt	40%	5,6%	①×②
P.S	10%	10,6%	①×②
C.S	50%	13%	①×②

RE

WACC = 5,6% X 40%

+ 10,6% X 10%

+ 13% X 50%

9,8%

الأسئلة :~

Q4 :~

(A)

life 20

* Nd = 1000 - 20 - 25
= 955

* underwriting fee 25$
* Discount : $ - 20

Coupon intrest Rate 9% ⇒ 9% X 1000 = 90$

① $$rd = \frac{I + \frac{1000 - Nd}{n}}{\frac{1000 + Nd}{2}}$$

② after tax cost of debt = rd X (1 - T)

$$rd = \frac{90 + \frac{1000 - 955}{20}}{\frac{1000 + 955}{2}} = 9,44\%$$

After tax cost = 9,44% X (1 - 0,4)
= 5,66 %

(B)

life = 16
under writing fee = 40
Premium = +10
Coupon Rate = 10% ⇒ 10% X 1000 = 100

$Nd = 1000 + 10 - 40 = 970$

$$rd = \frac{100 + \frac{1000 - 970}{16}}{\frac{1000 + 970}{2}} = 6.2\%$$

Q7:-

Annual Dividends = 6% ⇒ 6 $

Par value = 100 $
was sold at 98.5 Per Share

flotation cost = 3 Per Share

* متطلبات مختلفة

ⓐ cost of P.S

$r = \frac{D}{Nd} = \frac{6\$}{95,5} = 6,28\%$

$95,5 \leftarrow 98,5 - 3 = 95,5$

ⓑ Annual dividends = $10\% \times 100 = 10\$$

$Nd = 93\$$ * $r = \frac{D}{Nd} = \frac{10\$}{93} = 10,75\%$

cost = ??

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Q 9:~

$B = 1,8$ $rm = 16\%$ $Rf = 5\%$

ⓐ Risk Premium on common stock

ⓑ r

ⓒ cost of common Stock equity.

Ⓐ (CAPM model) $\Rightarrow r = rf + B(rm - rf)$

Risk Premium ←

$= B(rm - rf)$

$= 1,8(16\% - 5\%)$

$= 19,8\%$

(B) $r = ??$ $r = R_f + \underbrace{B(r_m - R_f)}_{19,8\%}$

لـ طالعناها

$r = 5\% + 19,8\%$
$= 24,8\%$

(C) cost of c.s equity $= r = 24,8\%$

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Q10:-

Selling Price $= 57,50\$$, $N_d = 52$

$D_{2016}^{(D_1)} = \$3,4$

a. growth Rate $= ??$

آخر مرة دفعنا فيها ← 2015	3,10
⋮	
2011	2,12

→ باضا أول مرة وآخر مرة دفعنا فيها.

$FV = PV(1+g)^n$

$$\frac{3,10}{2,12} = \frac{2,12(1+g)^4}{2,12}$$

$$\sqrt[4]{1,46} = \sqrt[4]{(1+g)^4}$$

$$= 1+g \Rightarrow \boxed{g = 9,97\%}$$

b. $Nd = ??$ ⇒ 52 !

c. cost of R.E → P_0 بستخدم قانون الميزنية

$$r = \frac{D_1}{P_0} + g \Rightarrow \frac{3,4}{57,50} + 9,97\% = 15,88\%$$

d. cost of new issuance of common stock

← صدام new بستخدم القانون الليقيه Nd

$$r = \frac{3,4}{52} + 9,97\% = 16,51\%$$

WACC using Book value

⇒

	Cost	Book value
long term debt	6%	4000 000
P.S	13%	40 000
C.S equity	17%	1060 000

B.V مجموع ال ← 5100000

Wights

$\frac{4000000}{5100000}$ → 0,784 X 6% =

0,008 X 13% = ← $\frac{40000}{5100000}$

0,208 X 17% = ← $\frac{1060000}{5100000}$

← الأجوبة بجمعها

WACC = 8,344%

WACC using Market Value

Market	Cost	Wights
3840000	6%	0,557
60000	13%	0,009
3000000	17%	0,435
6900000		

$\frac{3840000}{6900000}$ ← $\frac{60000}{6900000}$ ← $\frac{3000000}{6900000}$

WACC = 10,854 %

Q 16 :-

E.A.C.S = 4

# of common shares outstanding = 1000000

D = 1,26

40% debt

taxed rate = 40%.

10% Preferred Stock
50% common stock (R.E)

C.S (R.E) لأنو

a. $r = \frac{D_1}{P_0} + g \Rightarrow \frac{1,26}{40} + 0,06$

new issuance ما في عنا هون
لـ يعني ما في flotation

$= 0,0315 + 0,06$
$= 0,093$

b. ~~underwriting~~ underpricing and flotation cost = 7$
cost of common stock financing

$r = \frac{D_1}{Nd} + g$

هون في flotation
يعني عندي new issuance

$= \frac{1,26(1+0,06)}{40-7} + 0,06$

$= 10,06\%$

C. 2$ dividends

Market Price = 25$ Per Share
Flotation cost = 3 Per share

$r = \frac{D}{Nd} = \frac{2}{25-3} = 9,09\%$

d. 1000 Par value
10% coupon rate → 10% X 1000 = 100
5 years
selling price = 1200
flotation cost = 25

before tax

$$r = \frac{100 + \frac{1000 - (1175) \rightarrow Nd = 1200 - 25}{5}}{\frac{1000 + 1175}{2}}$$

After tax = 5,98% X (1 - 40%)

= 3,59%

WACC = 0,4 X 3,59%

+ 0,1 X 9,09%

+ ,5 X 9,35% = 7,02%

Q17 :-

Selling Price = 980

10 years
1000 Par value
Coupon Rate = 10% = 100
flotation cost = 3% of Par ⇒ 3% × 1000 = 30
in addition to 20$ discount Per Bond

$$r = \frac{100 + \frac{1000 - 950}{10}}{\frac{1000 + 950}{2}} = 10,77\%$$

(950 → 980 − 30)

↳ نضرب هاد بـ 2

↓

عشان يطلع annual ★ الجواب تاع r بيطلع semi annual

After tax = 10,77% × (1 − 0,4)
= 6,46%

P.S

Par value = 100 $
sold for = 65 $
flotation cost = .2

$$r = \frac{D}{Nd} \Rightarrow \frac{8}{65-2} = 12,7\%$$

C.S

Selling Price = 50 $ Per share
$D_1 = 4\$$

year	D
2015	3,75
2014	3,50
2013	3,30
2012	3,15
2011	2,85

$FV(2015) = P(2011) \times (1+g)^4$

$3,75 = 2,85(1+g)^4$

$g = 7,1\%$

expected dividends

$$r = \frac{D_1}{Nd} + g$$

$$= \frac{4}{50-5-3} + 7,1\% = 16,62$$

$$WACC = 0{,}4 \times 6{,}46\%$$
$$+ 0{,}1 \times 12{,}7\%$$
$$+ 0{,}5 \times 16{,}62\%$$
$$= 12{,}16\%$$

لهون مادة السكند