COMPANY

- FINANCIAL DEP.
- MARKETING DEP.
- SALES DEP.
- PRODUCTION DEP.
- ACCOUNTING DEP.
- HUMAN RESOURCES DEP.

WHO'S IN CHARGE?

↳ [CFO] → HE USES A TOOL CALLED **FINANCIAL STATEMENT**

1. **RESPONSABILITIES**
   - CAPITAL BUDGETING = INVESTMENTS
2. **ROLE**
3. **FUNCTIONS**

CAPITALIZATION = NUMBER OF SHARES × PRICE

DIVIDENDS

↓ % OF THE PROFITS

PAY-OUT = 30%

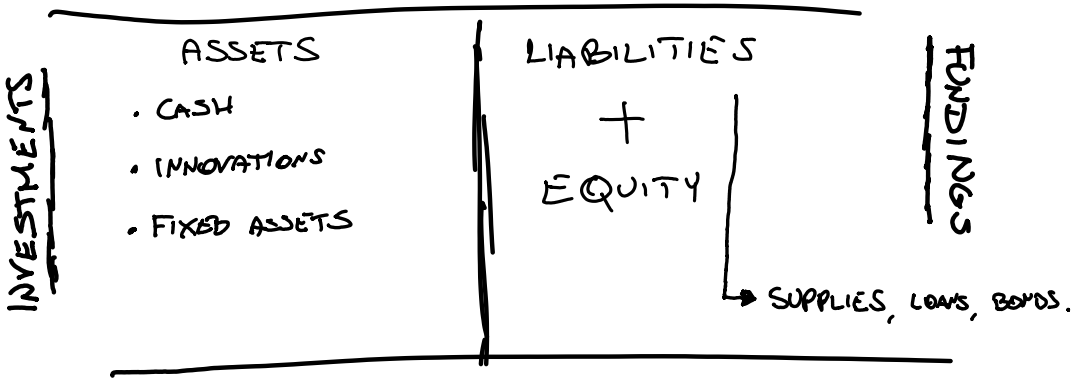
1 $ OF PROFIT

0,30 $ DISTRIBUTED.

HE DOESN'T DECIDE IT. IT'S THE **BOARD OF DIRECTORS**

FINANCIAL STATEMENTS

BALANCE SHEET



* FINANCIAL RESOURSES

COME FROM 2 DIFFERENT STREAMS:

DEBT

EQUITY

LOOK AT THEIR COST IN ORDER TO CHOOSE

- TOTAL ASSETS = TOTAL LIABILITIES + EQUITY

IF

- ACTIVE < PASSIVE (LEADS TO BANKRUPTCY)

IF

- ACTIVE > PASSIVE (THE COMPANY IS HEALTHY)

CASH-FLOW STATEMENT

INFLOWS - OUTFLOWS = CASH-FLOW

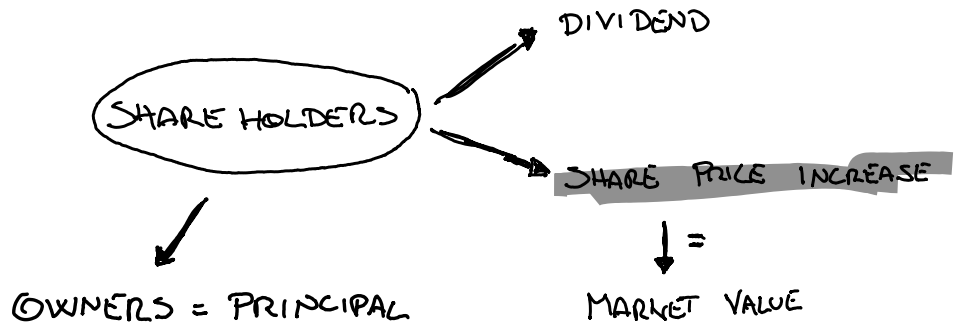
INCOME STATEMENT

REV. > EXPENSES = PROFIT

REV. < EXPENSES = LOSS

WHAT IS THE FINANCIAL GOAL OF A CORPORATION?

ALTHOUGH, MAXIMIZE PROFIT IS THE FIRST THING THAT COMES IN MIND, IT IS NOT A WELL-DEFINED OBJECTIVE.



MANAGER INTEREST ≠ OWNER INTEREST

* THIS BRINGS TO:
  1. AGENCY PROBLEM
  2. CONFLICT OF INTERESTS

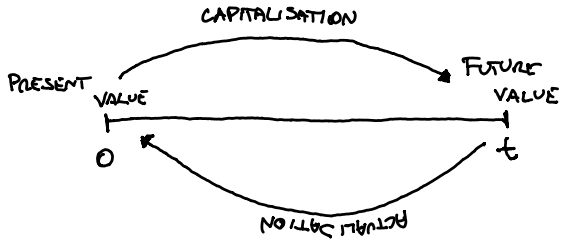
VALUE

- TIME VALUE OF MONEY

  ↳ INTEREST RATE ⟷ INFLATION RATE

  (i)

- TRADEOFF (RISK - RETURN)



COMPOUND INTEREST → $PV = \frac{FV}{(1+i)^t}$

↘ $FV = PV \cdot (1+i)^t$

* TO ANALYSE AN INVESTMENT, CONFRONT THE RETURN WITH THE **CAPITAL COST**.

↖ ALWAYS

NPV = NET PRESENT VALUE

$$\sum \frac{c'}{(1+i)^t} - C_0$$

IF $> \emptyset$ ACCEPT
IF $= \emptyset$ DEPENDS
IF $< \emptyset$ REJECT

A SHORT CUT

$$PV = a \cdot \frac{1-(1+i)^{-h}}{i}$$

IRR → IT'S INTERESTS WHICH TIE TO $\emptyset$ NPV WITH PV

↳ IRR > COST OF CAPITAL → ACCEPT ⚠

CAPITAL INCREASE → TYPES OF SHARE

- **COMMON STOCK** → NOMINAL VALUE × ISSUED SHARES

  - SHAREHOLDER
    - → POLITICAL RIGHT
    - → ECONOMIC RIGHT
  - → **OUTSTANDING SHARE** → SHARES ALREADY ISSUED
  - → **AUTHORIZED SHARE** → SHARES THAT ARE LEGALLY ALLOWED BY A COMPANY TO ISSUE.

* SHAREHOLDERS ARE THE LAST ONES TO BE PAID BY THE FIRM.

- **PREFERED STOCK**

  - HAS NOT POLITICAL RIGHT
  - BUT IT WILL GET A FIXED AMOUNT OF DIVIDENT EVERY YEAR.
    - → CUMULATIVE
    - → NON-CUMULATIVE

* PAYED BEFORE OF THE COMMON STOCK

- NON-VOTING STOCK

  ↳ THEY DO NOT VOTE ON THE GENERAL ASSEMBLY

    ↳ BUT THEY HAVE SOME POLITICAL RIGHTS

- REDEEMABLE STOCK

- DUAL-CLASS STOCK

  ↳ SAME AS A COMMON STOCK BUT ARE BASED ON FIRM'S PERFORMANCES COMPARED TO STANDARD AND POORS.

ISSUED SHARES -

OUTSTANDING SHARES =

IF POSITIVE → TREASURY STOCKS

BETA CAPITAL

- COMMON STOCKS +
- SURPLUS +
- RETAINED EARNINGS −
- TREASURY STOCKS =

NET BOOK VALUE

BV = EQUITY / OUTSTANDING SHARES

MARKET VALUE = CAPITALISATION = **MV**

↳ SHARE VALUE · OUTSTANDING SHARES

$$MVBV = \frac{MV}{BV} = mm(X)$$

↓ TIMES

$$\text{RETURN} \rightarrow \frac{\text{APPRECIATION}}{\text{BOUGHT PRICE SHARE}}$$

$$TSR = \text{TOTAL SHAREHOLDER RETURNS} \rightarrow \frac{\text{RETURN + DIVIDEND}}{\text{BOUGHT PRICE SHARE}}$$

COMPANY

↓

ISSUE AND SELL SHARES → PRIVATE PLACEMENT

ISSUE AND SELL SHARES → PUBLIC OFFERING

IPO = INITIAL PUBLIC OFFERING

↳ STOCK EXCHANGE MARKET

* THERE ARE 2 TYPES OF MARKETS.

PRIMARY ← | → SECONDARY

BRAND-NEW SHARES

EXISTING SHARES ON THE MARKET

* IN ORDER TO BUY A SHARE, THE CRITERIA IS **TOTAL SHAREHOLDER RETURN**

↳ $\dfrac{\text{DIVIDEND} + (P_{END} - P_{BEGINNING})}{P_{BEGINNING}}$

APPRECIA. // DEPRECIAT.

COMMON STOCK VALUE

- PRICE > VALUE → OVERVALUED
  → [SELL]
- PRICE < VALUE → UNDERVALUED
  → [BUY]

* DIVIDEND DISCOUNT MODEL

$$P_0 = \sum \frac{DIV}{(1+i)^t}$$

[A SHARE HAS NO MATURITY; THEREFORE, ITS TIME HORIZON GOES TO INFINITE.]

* PER = PRICE TO EARNINGS RATIO

EXERCISE 1

- COMMON STOCKS → NOMINAL VALUE × ISSUED SHARES → 958 $
- TREASURY STOCKS → ISSUED − OUTSTANDING → 128
- NET BOOK VALUE → 11.254 $
- SHARE BOOK VALUE → NET BOOK VALUE / OUT SHARES → 13.56 $
- NET BOOK VALUE WON'T CHANGE BUT COMMON STOCKS WILL DOUBLE
- MARKET VALUE = SHARE PRICE × OUT SHARES → 30710
- VMVC = NBV/MV

EXERCISE 2

P PRICE	D DIVIDEND	K EQUITY	g GROWTH
(20)	2	10%	0
4	0.5	[12.5%]	0
(10.2)	1	12%	2%
42	2	[10%]	5

GROWTH

$$P = \frac{D}{K - g}$$

NO GROWTH

$$P = \frac{D}{K}$$

* ALWAYS USE COMPOUND INTEREST ⚠

EXERCISE 3

PER	20
EPS	1.5 €
P	30
OUTSTANDING SHARES	250.000
CAPITALIZATION	7.500.000
EARNINGS	250.000 · 1.5 → 375.000
PAY OUT	20%
DIVIDEND YIELD	$\frac{75000}{250.000} = 0.3$

$$\frac{0.3}{30} = 0.1\%$$

EXERCISE 4

1 SHARE = 1 PSR

OS → 5M $ ⟶ 10 $

NI → 1M $ ⟶ 7 $

a) 5 PSRs TO BUY A NEW SHARE = $\frac{5M}{1M} = 5$

↳ TO BUY A NEW SHARE IS

7 $ + 5 PSRs

b) $\frac{(5.000.000 \times 10) + (1.000.000 \times 7)}{6.000.000} =$ **9.5 $**

c) 10 $ −
9.5 $ =

0.5 $

↳ THEORICAL VALUE

PANDORA BOX EXERCISE

- NEEDS → 12.500.000 $
- OUTSTANDING SHARES → 10.000.000 $
- RIGHTS → 10.000.000 $
- PRICE = 6 $ NEW PRICE SHARE = 4 $

$$\frac{12.500.000}{4} = \boxed{3.125.000} \text{ NEW SHARES}$$

$$\frac{10.000.000 \text{ RIGHTS}}{3125000} = 3.2 \text{ RIGHTS/SHARE}$$

$$10.000.000 + 3.125.000 = 13.125.000 \text{ NEW SHARES}$$

$$\text{VALUE} = \frac{10.000.000 \times 6 + 3.125.000 \times 4}{13.125.000} = 5.52 \$$$

$$PSR = 6 - 5.52 = 0.48 \$$$

C) (A) $100/4 = 25$ NEW SHARES → $\boxed{125}$ SHARES $= 100 \times 6 + 25 \times 6 = 725 \$$

(B) $\frac{100}{3.2} = 31.25 \rightarrow \boxed{131.25} = 100 \times 6 + 31.25 \times 4 =$

$725 \$$

HE IS INDIFFERENT ⚠

OPERATION BLANCHE

$$(Q - X) \cdot V_M \cdot \frac{M}{N} = PSR_x \cdot X$$

- Q = NUMBER OF OLD SHARES HELD BY THE SHARE HOLDER
- N = OUTSTANDING OLD SHARES
- M = NEW SHARES
- X = NUMBER OF PSR TO BE SOLD
- V_n = PRICE NEW SHARE

UNDERWRITING

1. **OUTRIGHT SALE**
   - THE BANK BUYS ALL THE SHARES TO RESELL THEM AT HIGHER PRICE LATER ON.

2. **BEST SELLING EFFORT**
   - BANK SELLS AT AGREED PRICE.

3. **STAND BY**
   - BANK ACQUIRES THE LAST SHARES AFTER SOLD ALL THE STANDARD ONES.

4. **PRIVATE PLACEMENT**

5. **DIRECT SALES**

SEC → SECURITIES EXCHANGE COMMISSION

NEED FOR FUNDS

- EXTERNAL
  - EQUITY (ISSUED SHARES)
  - DEBT
    - BANK
    - BONDS
- INTERNAL
  - GENERATED AND RETAINED EARNINGS
  - DEPRECIATION

EARNINGS = REVENUES - EXPENSES
- RETAINED
- DIVIDENDS

BETA CAPITAL

- EQUITY

EXTERNAL FUNDINGS →
- COMMON STOCK → Δ NEW SHARES × NOM. VALUE
- SURPLUS → Δ NSHARE (ISSUED PRICE - NV)

- RETAINED EARNINGS = RESERVES
- TREASURY STOCKS

ADVANTAGES
- DO NOT PAY INTEREST
- REDUCE (LEVERAGE) → $\frac{D}{D+E}$

DEPRECIATION

- (1) EXPENSE
- (2) NON-CASH EXPENSE

(D) → INCOME STATEMENT ⇒ DECREASE OF NET INCOME

→ BALANCE SHEET ⇒ BOOK VALUE OF THE ASSET

- **EBITDA** → (GROSS PROFIT) − OPERATIONAL COSTS
  - ↳ SALES − COST OF GOODS SOLD
- **EBIT** → EBITDA − DEPRECIATION AND AMORTIZATION
- **EBT** → EBIT − INTERESTS
- **NET INCOME** (BOTTOM LINE) → EBT − TAXES
  - (1) DIVIDENDS
  - (2) RETAINED EARNINGS

THE CHIEF FINANCIAL OFFICER HAS TO MAKE THREE DIFFERENT CHOICES :

1. INVESTMENT POLICY
2. FINANCING POLICY
3. DIVIDEND POLICY

LIABILITIES

[DEBT RATIO] → $D/(D+E+$ RETAINED EARNINGS$)$

LEVERAGE RATIO = SOLVENCY

HIGHER THE LEVERAGE LOWER IS THE SOLVENCY

VICEVERSA

CLASS EXERCISE

2)

$$\text{DIVIDENDS} = [\text{NET INCOME } 5297] - \frac{(\text{RETAINED EARNINGS } 78.732 - 77.232)}{1500} = 3797\ \$$$

$$\text{PAY-OUT RATIO} = \frac{3797}{5297} = 71.68\ \%$$

1)

$$\frac{300000}{10} = 30.000\ \$$$

$$\text{DEPRECIATION} \rightarrow 30.000\ \$ \times 21\ \% = 6300\ \$$$

ALLOWS THE COMPANY TO SAVE IN TAXES AND DIVIDENDS.

BONDS

- INVESTMEND GMADE
- HIGH YIELD
- CONVERTIBLE BOND → HYBRID FINANCIAL ASSET
  - VARIABLE INCOME → STOCNS
  - FIXED INCOME → BONDS

ASK FOR A RATING ?
- → S & P
- → MOODY'S
- → FITCH

AAA
AA+
BBB-

* BELOW THIS THRESHOLD, THE FIRM IS AT RISK OF BANKRUPTCY ⚠

- IT ALL DEPENDS ON THE INTEREST RATE

(JUNK BOND)
↓
HIGH - YIELD

①

- BORROW = 18.000 $
- $(i_{12} = 0.054)$ $t = 5$

$5 \cdot 12 = 60$

$$\frac{0.054}{12} = 0.0045$$

a) $$18.000 = C \cdot \frac{1-(1+0.0045)^{-60}}{0.0045}$$

$\rightarrow C = 342.93$

b) TOTAL INTEREST $\rightarrow$ 2166,1 $

c) $$APR = \left[(1.0045)^{60} - 1\right] \cdot 100 = 5.53\ \%$$

d + e) LOOK AT EXCEL FILE

(2) $x = 1048\ \$ \rightarrow 8x = 8384\ \$$

$1200 - 7184\ \$$

$[i_{12} = 0.12]$ $t = 4 \cdot 12 = \boxed{48}$

$0.01 \rightarrow 7184 = C \cdot \frac{1 - (1.01)^{-48}}{0.01}$

$\hookrightarrow C = 189.18$

TOTAL INTEREST $\rightarrow$ 1400 $

★ LOOK AT THE EXCEL FILE ⚠

(3)

a) CONVERSION VALUE = 30 $ (STOCK PRICE) × CONVERSION COEFFICIENT

$\frac{1000\ \$}{25}$

$= 30\ \$ \times 40 = 1200\ \$$

b) NO CONVERSION

c) THE COMPANY SHOULD CALL THE BOND ⚠

4

$\frac{10000000\ \$}{100\ \$} = 100.000$ BONDS

8% 18 × 100000 = 800000 $

100000 × 102 = 10.200000 $

ANNUAL TO THE BANK

↳ 10200000 × 0.06 = 612.000 $

SAVING = 800000 − 612000 = 188000 $

(5)

INCOME = 10000 − 9650 = 350 $

$\frac{350}{9650} = 3.63\%$

BUT THIS IS NOT THE RIGHT ANSWER BECAUSE YIELD IS PAID ANNUALLY. SO

$EAR = (1 + 0.0363)^2 - 1$

↳ 7.4 %

(6)

- 47.62 → 5 %
- 5 % → $(1.025)^2 - 1 =$ 5.06 %

I PREFER THE SECOND ⚠

P = TRADING PRICE = $\frac{C}{(1+i)} + \frac{C + \text{MATURITY RATE}}{(1+i)^n}$

n = MATURITY

- $i > C$ RATE ⇒ $P <$ FV DISCOUNT
- $i < C$ RATE ⇒ $P >$ FV PREMIUM
- $i = C$ RATE ⇒ $P =$ FV

(7)

$P = \frac{1000\ \$}{(1+0.10)^3} = 751,31\ \$$

SHORT - TERM EXTERNAL SOURCES

① SPONTANEOUS

- SUPPLIERS (WITHOUT NEGOTIATION) → FREE OF COST / WITH COST
- BANKS
- FINANCIAL MARKETS

"2/10, NET 30"

- 2 DISCOUNT EARLY PAYMENT
- 10 DAYS VALIDATION
- 30 PAYMENT DUED

- OPERATING CYCLE

ALL PROCEDURES FROM RAW MATERIALS PURCHASES TO SELLING THE PRODUCTS.

- CASH CONVERSION CYCLE

NET TIME GAP BETWEEN CASH PAYMENTS TO SUPPLIERS AND CASH RECEIPTS FROM SALES.

CCC = DAYS INVENTORY + DAYS RECEIVABLE - DAYS PAYABLE

② LETTER OF CREDIT

ISSUED BY A BUYER

↳ THEN A SELLER GOES TO A BANK TO COLLECT IT.
IF HE WANTS TO CASH IN EARLIER, THE FACE VALUE WILL BE LOWER.

EVENTUALLY, A BANK CHARGES A COMMISSION AND INTEREST.

$$\text{DISCOUNT} = N \cdot \frac{n}{360} \cdot i + N \cdot c$$

$$\hookrightarrow N\left(\frac{ni}{360} + c\right)$$

DISCOUNT = FV − AMOUNT RECEIVED

$$\begin{cases} NAR = i \cdot n \\ EAR = (1+i)^n - 1 \end{cases}$$

③ FACTORING

A BUSINESS SELLS ACCOUNT RECEIVABLES AT A DISCOUNT TO A [THIRD-PARTY] FACTOR

FACTORING ≠ LOAN

FACTORING → SELL OF AN ASSET

LOAN → DEBT

④ BUSINESS LINE OF CREDIT

⑤ LEASING

⑥ CONFIRMING

⑦ COMMERCIAL PAPER

⑧ PROJECT FINANCE

⑫ BUSINESS ANGEL

⑨ CROWDFUNDING

- REWARD
- DEBT
- DONATION
- EQUITY

⑩ FORFAITING

⑪ PRIVATE EQUITY (VENTURE CAPITAL)

WACC

WEIGHTED AVERAGE COST OF CAPITAL

$$\pi \cdot K_d + \phi \cdot K_e$$

- K_d → COST OF DEBT
- K_e → COST OF EQUITY

COST OF DEBT

$$i \cdot (1 - t)$$

- IF A COMPANY PAYS TAXES

COST OF EQUITY

↓

G & S MODEL

- CONSTANT: $P = \frac{Div}{K_e}$ → $K_e = \left(\frac{Div}{P}\right)$ → DIVIDEND YIELD
- GROWTH: $P = \frac{Div\,(1+g)}{K_d - g}$ → $K_g = \frac{Div}{P} - g$

- DEBT IS CHEAPER THAN EQUITY, BECAUSE IT IS LESS RISKIER

CAPM

CAPITAL ASSET PRICING MODEL

THE SHARE HOLDER WHEN WANTS TO BUY A SHARE, HE LOONS AT ITS **RETURN**

- R_f = RISK FREE = GOVERNMENT LONG TERM BONDS (10 y TO 30)

- MARKET PREMIUM = $(R_m - R_f)$

  R_m → RETURN OF THE MARKET (STANDARD & POOR 500)

- β = COEFFICIENT RISK VARIABLE

  > 1 OR < 1

$$R_e = R_f + \beta (R_m - R_f)$$

EXERCISES 6

$i = 20.000 €$

(1)

- SEPT 2015 → 111000 $
- SEPT 2016 → 2600 $
- SEPT 2017 → 163.200 $

THEN, IRR MUST BE CALCULATED

$$110000 = \frac{2600}{1+i} + \frac{163200}{(1-i)^2}$$

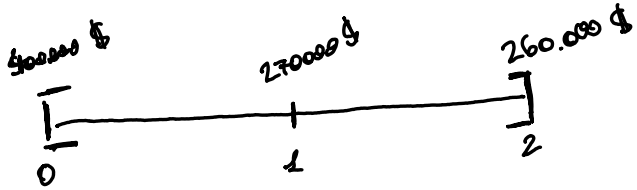
$i = 23\%$

- APPRECIATION → $\frac{0.160 - 0.110}{0.110} = 45.45\%$

②

AMOUNT	INTEREST	AMORTIZATION	PERIODIC PAYMENT
500000 $	20000 $	250000 $	270000 $
250000 $	10000 $	250000 $	260000 $

a)



$\frac{270000}{1.2}$ → 225000 €

$\frac{260000}{1.15}$ → 226086.95 €

IRR → $400000 = \frac{225000}{1+i} + \frac{226086.95}{(1+i)^2}$

→ 8.39 %

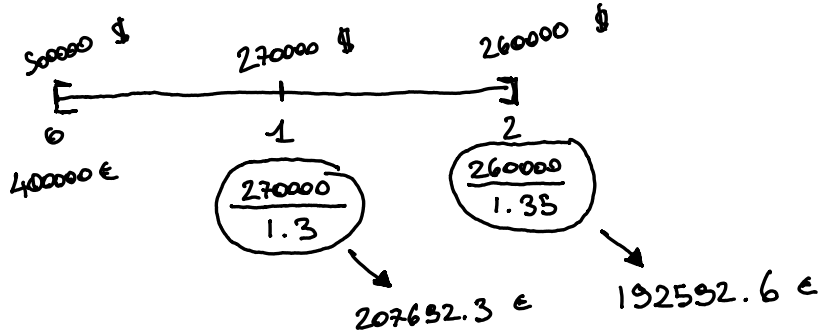
- DEPRECIATION €

$\frac{1.25 - 1.15}{1.25} = 8\%$

- APPRECIATION $

$\frac{0.85 - 0.75}{0.75} = 13.3\%$

b)



IRR → $400000 = \frac{207692.3}{1+i} + \frac{192592.6}{(1+i)^2}$

$i = 0.05$

RISK MANAGEMENT

1. IDENTIFY RISK
2. ASSESS RISK
3. CONTROL RISK
4. REVIEW CONTROL

WHEN A COMPANY DEALS WITH DIFFERENT CURRENCIES, IT CONTRACTS 2 TYPES OF RISK

- TRANSITION RISK
- TRANSLATION RISK

MANAGERS MITIGATE SUCH THREAT BY

HEDGING

↓

DELIBERATE NEW RISK TAKING

FORWARD MARKET ≠ FUTURE MARKET

↓

STANDARD FINANCIAL CONTRACTS

1. INTERNAL CURRENCY HEDGE
2. EXTERNAL CURRENCY HEDGE

IF:

- FORWARD RATE > SPOT RATE ⇒ FORWARD PREMIUM
- FORWARD RATE < SPOT RATE ⇒ FORWARD DISCOUNT

EXERCISE

LIBOR = $\frac{0.0118}{4} = 0.00295$

EURIBOR = $\frac{0.009}{4} = 0.00225$

$0.7034\ €/CAD$

- BORROW 70340 € → 0.00225 (3 m)
- INVEST 100000 CAD → 0.00295 (3 m)

AFTER 3 m $70340\ (1+0.00225) = 70498.26$ €

AFTER 3 m 100000 CA$ $(1+0.00295) = 100295$ $

$\frac{70498.26\ €}{100295\ CA\$} = 0.7025\ €/CAD\$$

IF :

LIBOR < EURIBOR

THE CURRENCY INSURED HAS A HIGHER RETURN

- EXPORTER RECEIVES MORE EUROS ;
- IMPORTER HAS TO PAY MORE EUROS.

LIBOR > EURIBOR

CURRENCY INSURED HAS LOWER RETURN

- EXPORTER RECEIVES LESS EUROS ;
- IMPORTER HAS TO PAY LESS EUROS.

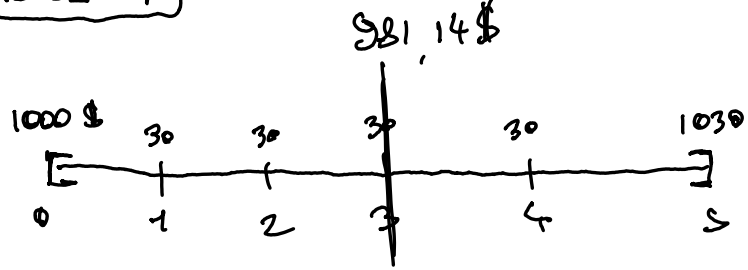
- FORMULA → $\frac{1 + i_{FOREIGN}}{1 + i_{DOLLAR}} = \frac{FORWARD\ MARKET}{SPOT\ MARKET}$

INTEREST RATE MARKET RISK

THERE'S AN INVERSE RELATIONSHIP BETWEEN INTEREST RATE AND A BOND PRICE.

- IF i GOES DOWN, BOND PRICE GROWS;
- IF i GOES UP, BOND PRICE WITHERS;

EXERCISE 7



$$\text{COUPON} = 30\left(1+0.035\right)^2 + 30\left(1+0.035\right) + 30$$

↳ 93.19 $ → 981.14 + 93.19

↓

1074,33 $

$$\text{ANNUAL RETURN} = 1000\cdot\left(1+i\right)^3 = 1074,33$$

↳ $i = 2.42\%$

FORWARD RATE AGREEMENT (FRA)

IT AFFECTS ONLY THE INTERESTS RATE. NO THE PRINCIPAL

FRA 3×12 — AGAINST

- 3: UP TO SETTLEMENT DATE (WAITING PERIOD)
- 12: 9 MONTHS (CONTRACT PERIOD)

EXAMPLE

$FRA_{RATE} = 4\%$ THEN $1000000 \cdot \frac{9}{12} \cdot 0.04 = 30000\$$

BUT IF $MARKET_{RATE} = 6\%$ → $1000000 \cdot \frac{9}{12} \cdot 0.06 = 45000\$$

IN THIS CASE THE BANK HAS TO PAY A PV OF THE DIFFERENCE

$$\frac{15000}{1 + \frac{9}{12} \cdot 0.06} = 14354.09\$$$

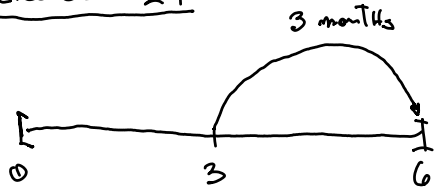
- HIGHER i THAN AGREED: BANK HAS TO PAY THE DIFFERENCE TO THE BUYER.
- LOWER i THAN AGREED: BANK HAS TO RECEIVE THE DIFFERENCE FROM THE BUYER.

a) $$\left| \left(MARKET_{RATE} - CONTRACT_{RATE} \right) \cdot \frac{X}{12} \cdot AMOUNT \right|$$

b) $$\frac{DIFFERENTIAL}{1 + \frac{X}{12} \cdot MARKET_{RATE}}$$

THESE CONTRACTS ARE TAYLOR-MADE

EXERCISE 1



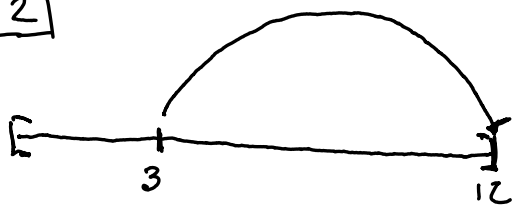
a) → $SETTLE_{DATE}$ = LIBOR 8%

FRA_{RATE} = 6%

b) $(0.08 - 0.06) \cdot \frac{3}{12} \cdot 100000 = 5000\ \$$

$$\frac{5000}{1 + \frac{3}{12} \cdot 0.08} = \boxed{4901,96\ \$}$$

EXERCISE 2



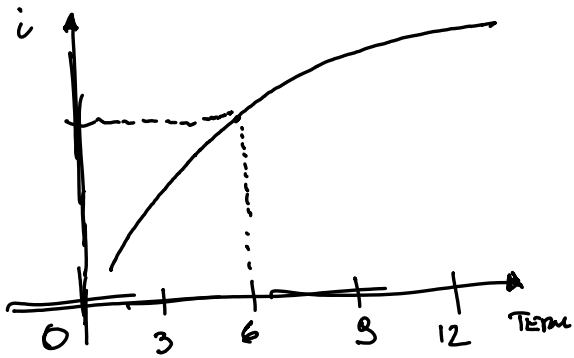
a) $i = 5\%$

b) FRA SELLER HAS TO PAY THE BUYER A DEFINED AMOUNT.

$$(0.05 - 0.04) \cdot 100000 \cdot \frac{9}{12} = 750\ \$$$

c) $$\frac{750}{1 + \frac{9}{12} \cdot 0.05} = 722.89\ \$$$

EXERCISE 3



a) $\left(0.05 - 0.0475\right) \cdot 100000 \cdot \frac{9}{12} = 1875\ \$$

THEN $\dfrac{1875}{1 + \frac{9}{12} \cdot 0.05} = \boxed{1807.23\ \$}$

b) $i < 4.75\%$

EXERCISE 4

FRA 5×8 → 3 months

↓ RATE 5.8 %

EXPIRING RATE 5.1 %

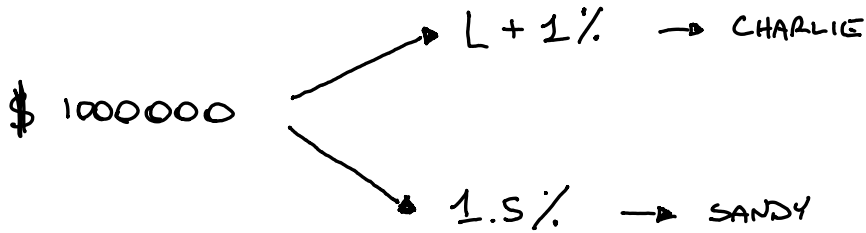
$$(0.058 - 0.051) \times \$300M \times \frac{3}{12} = 525000$$

$$\frac{525000}{1 + 0.051 \times \frac{3}{12}} = 518390\ \$$$

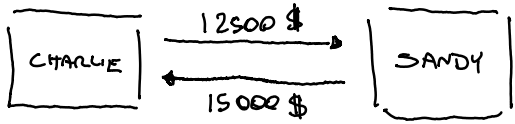
THE FIRM HAS TO PAY

INTEREST RATE SWAP

IRS

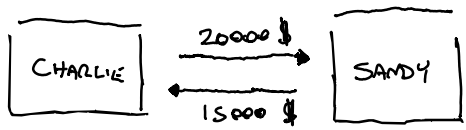


① IF LIBOR 0.25 %



SANDY PAYS 2500 $ TO CHARLIE.

② IF LIBOR 1 %



CHARLIE PAYS 5000 $ TO SANDY.

- AGENTS DON'T EXCHANGE PRINCIPALS BUT THE DIFFERENCE BETWEEN INTERESTS.

HEDGING WITH FUTURES

- SELLER TO BUYER → SHORT HEDGE
- BUYER TO SELLER → LONG HEDGE

$$\text{FUTURE} = \text{SPOT} \cdot (1 + i - \text{YIELD})^t$$

$$\text{COMMODITY} = \text{SPOT} \cdot (1 + i + \text{STORAGE COSTS} - \text{C YIELD})^t$$

CONVENIENCE YIELD − STORAGE COSTS
=
NET CONVENIENCE

PROBLEM SET 10.3

3.

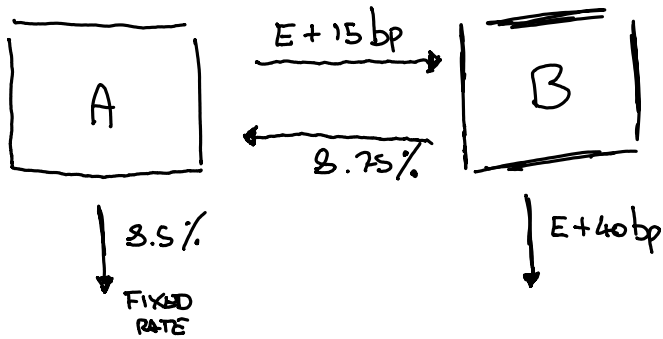
	A	B
FIXED RATE	8.5%	9.25%
FLOATING RATE	E + 15 bp	E + 40 bp

75 bp

25 bp

50 bp

IT IS SPLIT BY BOTH



A → 8.5% + E + 15bp - 8.75% = E - 10 bp

↳ SAVING E - 10bp - (E + 15 bp) = -25 bp

B → E + 40bp + 8.75% - (E + 15bp) = 9%

↳ SAVING 9% - 9.25% = -25 bp

PROBLEM SET 11

(2)

NUMBER	PRICE	VALUE	β	WEIGHT
20000	12.5	250000	1	0.22
10000	17.3	173000	0.85	0.15
20000	16	320000	1.2	0.28
10000	40	400000	1.1	0.35
		1143000		

$\beta = 0.22 + 0.1425 + 0.336 + 0.385$

↳ 1.0835

a) $\frac{1143000}{82500} \times 1.0835 = 15$ CONTRACTS

b) $\frac{1143000}{8300} \times 1.0835 = 149$ CONTRACTS

c) $-15 \cdot (82500 - 66400) = 241500\ \$$

LOSS PORTFOLIO $= 1143000 \cdot 0.2 \cdot \beta = 247688.1$

HEDGE RESULT $= 1136811.8\ \$$

$-149 \cdot (8300 - 6640) = 247340\ \$$

HEDGE RESULT $= 1142651.9\ \$$

(10)

- $635.6 = 633.5 \times (1 + i_{12})^{1/12}$
- $641.8 = 633.5 \times (1 + i_{12})^{1/4}$
- $660.6 = 633.5 \times (1 + i_{12})^{3/4}$
- $678.7 = 633.5 \times (1 + i_{12})^{5/4}$

(11)

$$P = 20 \cdot (1 + 0.05)^{1/2} - 1 \cdot (1 + 0.05)^{1/4}$$

$$20.4939 - 1.012$$

$$\hookrightarrow 19.48\ \$$$

(12)

$$4300 = 4187.5 \cdot (1 + i)$$

$$\hookrightarrow 2.68\ \%$$

$$LIBOR = \frac{0.0118}{4} = 0.00295$$

$$EURIBOR = \frac{0.009}{4} = 0.00225$$

$0{,}7034\ €/CAD$

$\$\ CAD = 100000\ \$$

$EUROS = 70340\ €$

$$70340 \cdot (1 + 0.00225) = 70498.265\ \$$$

$$100000 \cdot (1 + 0.00295) = 100295\ \$$$

$$0.7029\ €/CAD$$

$$1000 \cdot (1 + 0.05) = 1050\ \$$$

$$5000 \cdot (1 + 0.155) = \frac{57750}{55} = 1050$$

$\equiv$ SAMS

11) $= 20\$ \cdot (1+0.05)^{1/2} - 1\$ (1+0.05)^{1/4}$

↳ 18482 $

---

5) $\frac{25874}{25218} - 1 \times (4) = 10,40\%$

6) $1000 \times (1+0.05) = 10.5\$$

RUP $50/1\$ = 1000 = 50000$ RUP

55/1 $50000 \cdot (1+0.155) =$ 57750 RUP

$\frac{57750}{55} = 1050\$$

b)

$$\frac{1143000}{8300} \times 1.0534 = 148 \text{ CONTRACTS}$$

c)

$$15 \cdot (82500 - 66400) = 241500 \text{ PROFIT}$$

$$(8300 \cdot 0.8) \cdot 10$$

d)

$$= 1143000 \times 0.2 \times 1.0834203$$

$$\rightarrow 247669.99 \$$$

$$15 \left(82500 - 99600\right) = -256500$$

$$1143000 + 247669.99 - 256500 = 1134170 \$$$

(2)

a) IF 0.35 $ > THEORETICAL VALUE 

IF 0.35 $ < THEORETICAL VALUE 

SINCE THE PSR = 0.5 $, THE SHAREHOLDER IS UNHAPPY.

PROBLEM SET 2

1

a) $100.000 / 5 = 20.000$ NEW SHARES

b) 20.000 SHARES $\times$ $20 = 400.000$ $

MONEY RAISED

c) 120.000 SHARES

d) $$\frac{(100.000 \times 23) + (20.000 \times 20)}{120.000} = 22.5\ \$$$

e) $2.300.000\ \$ + 400.000\ \$ = 2.700.000\ \$$

f) $23\ \$ - 22.5\ \$ = 0.5\ \$$

PSR THEORETICAL VALUE

FUTURES 1

1) B

2) C

3) B

4) C

5) A

6) A

7) B

8) C

9) A

10) $FW_{14} = 3.4 \cdot (1+0.04) + 0.1(1+0.04) = 3.64\$$

8)

III

$$20000 \times 12.5\,\$ +$$
$$10000 \times 17.3\,\$ +$$
$$20000 \times 16\,\$ +$$
$$10000 \times 40\,\$ =$$
$$1143\,000\,\$$$

IBEX 35 = 82500 $

$$\beta_{PORTFOLIO} = 1 \times \frac{20000 \times 12.5}{1143\,000} + 0.55 \times \frac{10000 \times 17.3}{1143000} + 1.2 \times \frac{20000 \times 16}{1143000} + 1.1 \times \frac{10000 \times 40}{1143000}$$

$$\rightarrow 1.0834205$$

PORTFOLIO SENSITIVITY

$$\frac{1143000}{82500} \times 1.0834 = 15 \text{ CONTRACTS}$$

EXERCISE 9

1) A
2) C
3) B
4) C
5) A
6) B
7) C
8) D
9) A
10) B

$$\frac{1 + n_{\text{Eau}}}{1 + n_{\cdot}} = \frac{F}{S}$$

EXERCISE 3

MULTIPLE QUESTIONS CHOICE.

1) A
2) C
3) C
4) C
5) C
6) D

3) DEPRECIATION = 30.000 $

EBITDA	120.000	120.000	
D	-30.000	—	
EBIT	80.000	120.000	
FINANCIAL RESULT	-4.000	-4.000	
EBT	86.000	116.000	
25% TAX	21.500	29.000	
NET INCOME	64.500	87.000	22.500
DIV 45%	29.025	39.150	10.125

Δ RETAINED CASH-FLOW

↳ (7500) + (10.125) = 17.625

↳ DIVIDENDS VARIATION

ΔTAXES = 30000 × 25% = 7500 $

4) DEBT = 10, EQUITY = 5, RESERVES 3 → LIABILITIES = 18

(LEVERAGE) = 10/18 = 55.56%

↳ DEBT/LIABILITIES

AT THE END OF THE YEAR.

EQUITY = 5
DEBT = 10
RESERVES = 3 + 1.2 = 4,2

10 / 19,2 = 52,08 % ? 55.56 %

$$\Delta L = \frac{\Delta R}{1 - D_{RATIO}} = \frac{1.2}{1 - 0.55} = 2.7$$

$$18 + 2.7 = 5 + 4.2 + 10 + \Delta D$$

$\Delta D = 1.5$ → LET'S CHECK $\frac{10 + 1.5}{18 + 2.7} = 55,56\%$

EXERCISES 8

1) b

2) a

3) c

$$WACC = 0.5 \times K_d + 0.5 \times K_e$$

$$0.12 = 0.5 \times 0.05 + 0.5 \cdot K_e$$

4) B

$$0.14 = 0.33 \times 0.1 + 0.66 \cdot K_e$$

5) D

$$0.05 = 0.66 \cdot 0.07 + 0.33 \cdot K_e$$

6) B

7) C

8) D

9) c

10) C

FUTURE 2)

1)

2)

3)

4)

5) $\frac{100000000}{99300} = 1002\ \$$

6) $\frac{5000000}{93250} = \frac{53.6}{}$ CONTRATS

$\beta = 0.6 \cdot 53.6 = \boxed{32.17}$