

cash, Acc/Rec., Inventory, short term investments
Assets: Current assets → that are Financial
to be used within 1 year from the date Corporate
of balance sheet.

equipment, liability, building, land
Fixed Assets: " more than 1 year

Acc/P, Notes/P
Liabilities + equity: Current → paid within one year
Bank loan

Long term liabilities: → > 1 year

= Liabilities + equity

Equity = assets + liabilities + equity

TVM
Time value
money
value of
money depends
on time

fixed assets
Capital Budgeting Decisions: (Fixed Assets)

require large investments. Long term basis investment
can't easily reverse them so decide carefully.
anything that can take business to new heights or
slow downfall.

very crucial
may ~~at~~ make company bankrupt
1000 today value
1000 one year
1000 today's money you can't invest

Date

C.T.L Shareholder's Equity

Capital Structure Decisions

where the money for capital decisions come from?

Finance Manager does it. Either owner equity or debt financing. or issue shares.

current assets, current liabilities

(Daily Ops/Transactions) Working Capital Decisions

A/R, raw material purchase, S.L. liabilities pay back, build inventory

TVM: today's money gives investment opportunity. next days it becomes \$1100 but the money after 1 year would be \$1000 only.

- ① today's money good cuz better investment opp.
- ② suitable, less risky, certain
- ③ things are becoming expensive (inflation). Today's 1000 can be used to buy more stuff than we can buy with 1000 after 10 years or 1 year.

	0	1	2	3	
expected dividend	\$0	\$5	\$8	\$13	MSFT's shares profit returns \$100,000 = 10 1000 called dividend
↓					
how much to spend to buy it today?				\$100 → shares sold \$103	

$$8 + 5 + 103 = \$116$$

if at 0: \$83 its less than \$116

find present value of \$5 today and for \$8, \$103 as well then sum → becomes value at 0

Date

- found \$5's value today: \$4. Now we're indifferent should we settle with \$4 or wait 1 year and get \$5 after 1 year we same worth.

today worth \$8 \rightarrow \$5

\$103 \rightarrow \$70

$4 + 5 + 70 = \$79$

we pay: max \$79
today to buy
share

- you want to buy campus but can't have money for personal use, how much you pay for it? \$0 we want money for personal use.
 - \$79 should be but stockmarket man says \$83
You're not interested now. Overpriced \nearrow
if \$75 (underpriced) giving less overvalued getting more.
-

Date May 18th, 2022.

Financial Derivatives

Mona Jafar

- TVM is imp for long term investments

Framework for investing in education

A02:

solve 32 exam

1 year	—	150,000		
2 year	—	150,000	20,000	130,000
3 year	—	150,000	75,000	75,000
4 year	—	150,000	80,000	70,000
5	—	150,000	75,000	75,000
6	—	150,000	80,000	70,000
7	—	150,000	70,000	80,000
8	—	150,000	60,000	90,000

A03:

SMA, B&H, EWM

3 firms
obtain the graphs

A04:

use same firms
do portfolio opt.

generate 50,000 port
min variance
max return
max sharpe ratio

- For L.T. investment, always start with timeline

0	1	2	3	4	5	6	7	8
$-CF_0$	$-CF_1$	$-CF_2$	$-CF_3$	$+CF_4$	CF_5	CF_6		CF_8
admission fee	fee	3rd yr	4th yr	salary 1st year	2nd yr salary	3rd yr salary		
150 year	hostel							
hostel	2nd yr							
food	$\frac{-CF_1}{(1+D.R.)^1}$	$\frac{-CF_2}{(1+D.R.)^2}$	$\frac{-CF_3}{(1+D.R.)^3}$					$\frac{CF_8}{(1+D.R.)^8}$
	$=PV_1$	$=PV_2$	$=PV_3$					$=PV_8$

Discount =

finding value
of future value

to current value

PV = present
value
find them for
comparison

$-\$145,000$
present value
of 150,000

PV_1
 $-PV_2$
 $-PV_3$
Sum of present
values of cost
let's say $-\$700,000$

PV_4
 PV_5
 $+PV_8$
Sum of PVs
of benefit
let's say $\$2,000,000$

if benefit > cost = good, accept it.

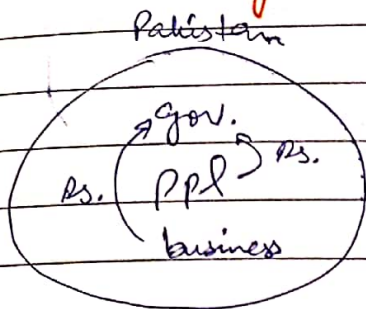
Risk & D.R.

$-D.R. \rightarrow 0.05$
 $+D.R. \rightarrow 1.20 \rightarrow$ more because inflows are
more uncertain
now this will decrease $\$2,000,000$ to
1,000,000 but
still it's > than 700,000.

it takes this much
to complete
degree today

1st year salary's
worth today

Date **May 25th, 2022.**



Imports > exports = trade deficit

Imports < exports = trade balance

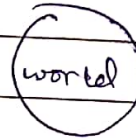
Remittances

debt

loan repayment

investment

investment withdrawn



Current Account Deficit

Demand \$80B

Supply \$30B

if gov. prints PKR
Then value of PKR ↓
inflation ↑

expenses > revenue = budget deficit

gap of \$20. You need \$ but there aren't any.
So value of \$ ↑ value of Rs. ↓
inflation ↑

Valuation of Long-Term Securities

↓
to determine price/value of something

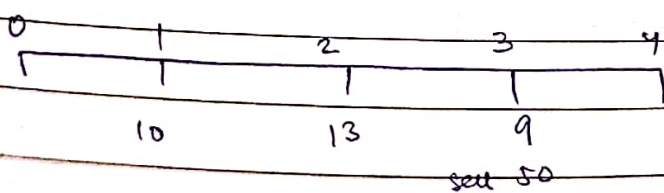
↳ financial assets = shares + bonds

- Shares → equity instrument if somebody ~~buys~~ buys shares, they become one of the owners of business
- Bonds → debt instrument

↑ if you buy bonds, you're lending money to business, credited

- Shares don't mature, they exist as long as owner wants or business remains
- Bonds are issued for > 1 year (5, 10 years)

they require maturity → when will pay back?



estimate cashflows in timeline
may may differ IRL

- dividend is shared among shareholders

Date				D. R.	
0	1	2	3	discount rate = 20% = 0.2	
Rs. 55	10	13	9	after 1 year we expect dividend \$10	
			82	its present value is \$8.3, both are same	
			59		
present values	$\frac{10}{(1.2)^1}$	$\frac{13}{(1.2)^2}$	$\frac{59}{(1.2)^3}$		
	8.3	9.027	34.14	= 51.44	

We're doing this Discounting coz we know TVM. worth of \$ today is different than 1 year later.

- You buy of Rs. 55 + receiving Rs. 51.44 then this is wrong coz loss.

Its worth is 51.44 so if you can buy it for \$50 then good. 1.44 profit

D. R. & Risk

- if Rs. 50 today, Rs. 51.44 tomorrow = Return $\approx 22\%$ good
- if Rs. 51.44, Rs. 51.44 = Return = 20% okay because we expect 20%.
- if Rs. 55, Rs. 51.44 = Return $\approx 17\%$ bad

• Risk = Deviation of actual outcome/cash inflow from expected outcome/cash inflow

- 10, 13, 59 are uncertain uncertainty \uparrow risk \uparrow
- Maybe firm says we won't pay any dividend. instead of 10 we get 0.
- MSFT didn't pay dividends for 10 years. They invested shareholders' that money in projects. The profit from that is of shareholders. Price in stock market \uparrow .

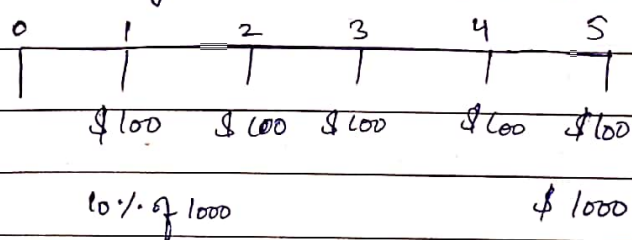
Date

- Common shares \rightarrow more, dividend payment is optional
- Preferred shares \rightarrow less, dividend payment is must

- Bonds are denominated by thousand dollars, they have a face value
Face value = \$1000

Coupon rate = 10%.

$n = 5$ years



↓

if this \$100 is not paid by firm to person, then person can move court.
Court will ask firm to do whatever to pay person, declare bankruptcy or sell assets

- bonds are ~~not~~ not risky

- risk \downarrow return \downarrow
certainty \uparrow

- ~~interest~~ D.R. $< 20\%$ (applied to shares)

- D.R. shares $>$ D.R. bonds

Date

May 26th, 2022

Shares have more uncertainty

D.R. 20% means

20% risk

20% uncertainty

Bonds are more certain

so < 20%.

Face value = \$1000

n = 5 years

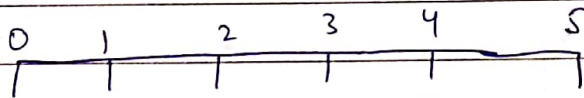
coupon rate = 10%.

Bond → Debt Instrument

① make timeline

② cash inflows

③ present value using D.R.



→ bond matures, you give it back to company + they pay back \$1000

$$\frac{100}{(1.1)^1} + \frac{100}{(1.1)^2} + \frac{100}{(1.1)^3} + \frac{100}{(1.1)^4} + \frac{1100}{(1.1)^5} = \$1000 \rightarrow \text{equal to F.V.}$$

D.R. = 10%

→ equal payments in equal interval of time = annuity in arrears/due (at the end of year)

• ↑ in this case C.R. + D.R. are same at 10%.
so 1000 = 1000 F.V.

• if D.R. 12% C.R. 10%. Then value of \$1000 ↓ for example \$930 face value
annuity in advance (at the start of year)

• if D.R. 8% C.R. 10%. Then value of 1000 ↑
for example \$1050
→ premium bonds

investors are getting profit

Capital Budgeting Techniques

Should we buy the machinery or not?

Present value = 100,000

→ saves 30,000/year (take it as inflow because it will reduce outflow)
sell at 15,000 (scrapage value)

required rate of return $\leftarrow D.R. = 15\%$

$n = 4$ years

0	1	2	3	4
-100,000	30,000	30,000	30,000	30,000 + 15,000
	1.15^1	1.15^2	1.15^3	1.15^4

26086.96

19725.49

= \$94225.66

22684.31

257282.89

Fair price

Fair price 94225 < 100,000 so don't buy it.

→ find present value for comparison

to get 94225 in 4 years is not good as have to pay 100,000 today which is more

$-100000 + 94225 = \$5774 \leftarrow NPV$ → its capital budgeting technique
negative present value
Reject

• if P.V. \$100,000 then $NPV = 0$ so accept because at least giving 15% return Accept ↑ IRR internal rate of return

• if P.V. \$110,000, then buy because gaining more
 $NPV = -100000 + 110000 = \$10,000$
Accept

reject [$NPV < 0$ Return < 15%]

accept [$NPV = 0$ Return = 15%]

accept [$NPV > 0$ Return > 15%]

• risk ↑ D.R. ↑

• treasury bills are highest in return

• $NPV > 0$ so $IRR > D.R.$

we calculate return using IRR

Date

June 1st, 2022.

-cost = sum of all PVs of cashflows

Session 1 - I 60%

Net Present Value = - present value + fair price

Valuation of long term capital budgeting techniques

S2, Final

$$NPV = -cost + \left[\frac{CF_1}{(1+D.R.)^1} + \frac{CF_2}{(1+D.R.)^2} + \dots + \frac{CF_N}{(1+D.R.)^N} \right]$$

$P.V._1 \quad P.V._2 \quad P.V._N$

A • -cost = sum of all PVs of cashflows

NPV = 0, D.R. / R.R.R. = Rate of return of this project

you're getting how much you require

A • -cost < sum of all PVs of cashflows

NPV > 0, D.R. / R.R.R. < Rate of return of this project

R • -cost > sum of all PVs of cashflows

NPV < 0, D.R. / R.R.R. > Rate of return of this project

initially we don't know how much is it
(Internal Rate of Return)
IRR

• Hit and try D.R. so that

-cost = cash inflows sum
when this occurs we get IRR
which will be equal to D.R.

• D.R. r_a → NPV NPV_a +ve

IRR r_{low} → NPV = 0 → IRR in b/w these 2 ranges

D.R. r_b → NPV NPV_b -ve

$$IRR = r_a + \frac{NPV_a}{NPV_a - NPV_b} \cdot (r_a - r_b)$$

R.R.R. = required rate of return

I.R.R. = internal rate of return / return project gives

IRR
NPV } Capital budgeting decisions
long term investment

Date

Example of truck from last class:

• 1st find $D.R.L + D.R.H$
 $\downarrow \quad \quad \downarrow$
 $NPV > 0 \quad \quad NPV < 0$

• Then find IRR b/w the range.

$D.R. = 15\%$ $NPV -ve$
 16% 92229 $NPV -ve$

$= 14\%$ 96293 $NPV -ve$
 $= 13\%$ 98434 $NPV -ve$ $-100000 + 98434 = -1566$
 $= 12\%$ 100653 $NPV +ve$ $-100000 + 100653 = +653$
here window size = 1

Window size should be equal or less than 5

$D.R.L = 12\%$

$D.R.H = 13\%$

$IRR = 0.12 + \frac{653}{653 - (-1566)} (0.13 - 0.12)$
 $= 0.1229$

$= 12.3\%$ → return this project gives in 4 years

Verify it by putting it in cashflow formula + use it as

• compare IRR with R.R.R. D.R. NPV should be close to 0.

R.R.R. = 10% but this project is giving 12.3% Accept

PRO of IRR:

In NPV we don't know how much return a project gives
So we IRR, it tells us return a project gives

$IRR = RRR$ or $IRR > RRR$] accept (same as NPV)
 $IRR < RRR$] reject