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Valuation Using Cash Flow
Discounting Methods
A structured Presentation for
WIRC of ICAI
Mumbai
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Overview

Introduction to Valuation

Valuation Analysis

Historical Analysis

Future Projections

Cash Flows to
firm/equity

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Overview

Sensitivity & Expected Value

Cost of Equity/Firm

Continuing value

Determining Value on Cash flow discounting

Understanding Limitations

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Introduction to valuation

You can spend hours discussing on valuation still end up with a wrong target

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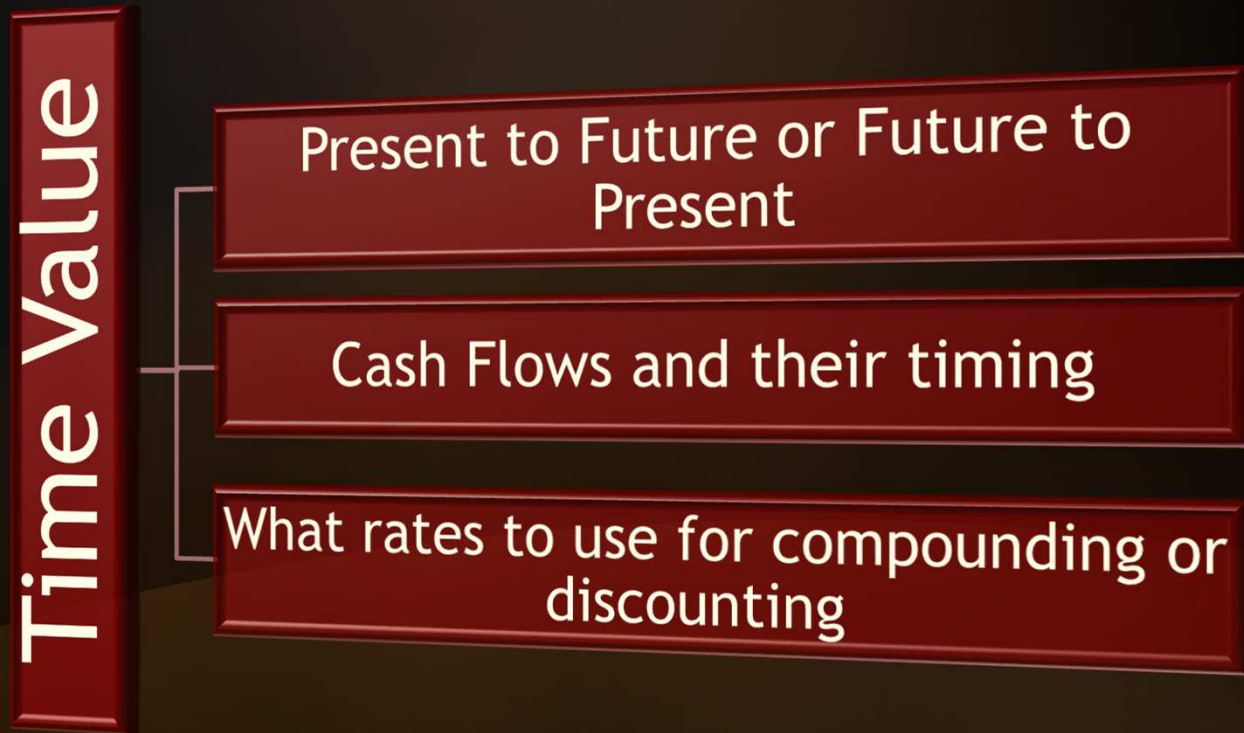
Value is all pervading

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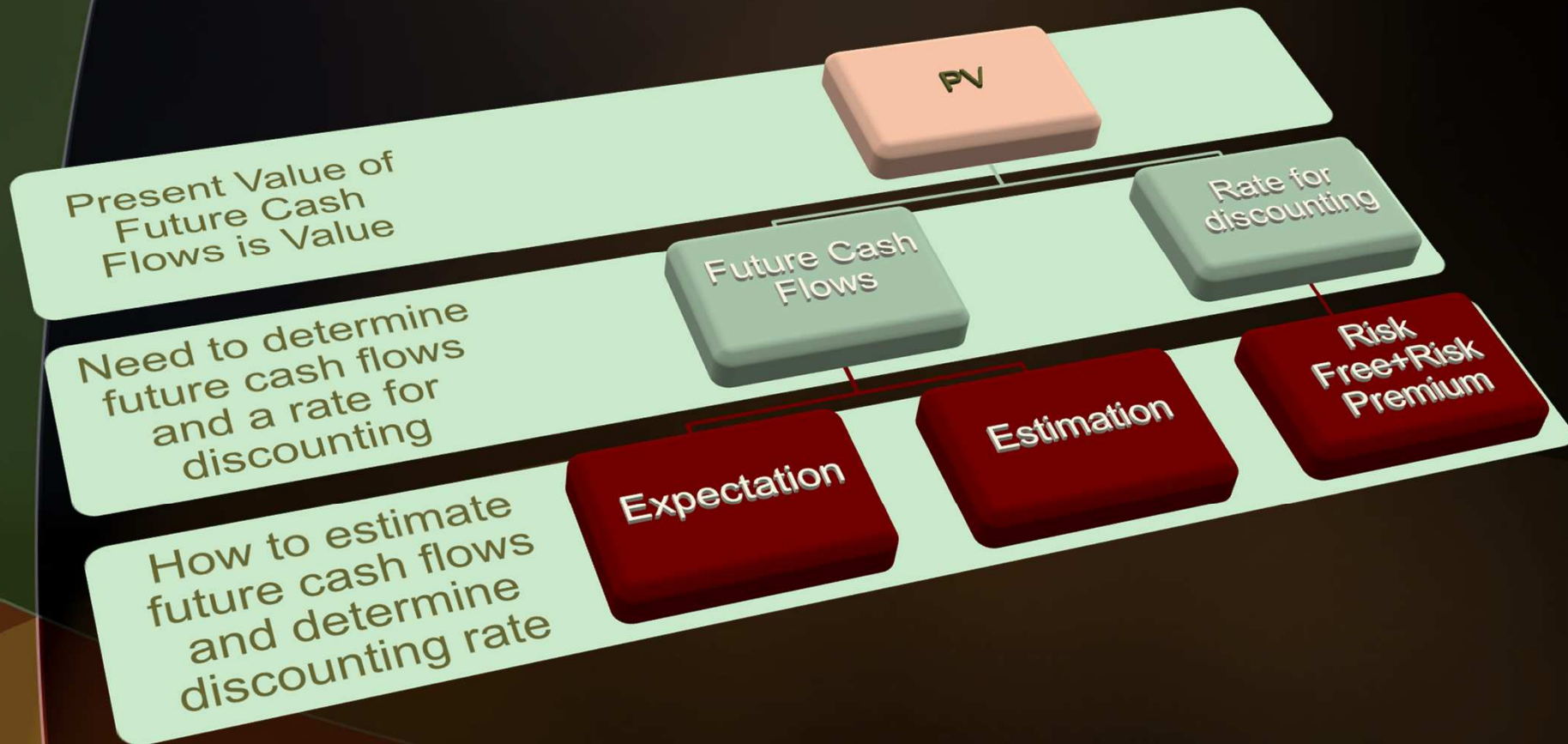


What is Value in Finance



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Value in Finance



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Value in Finance

When you value companies, future life is not finite. Projections cannot be infinite.

Hence the need to limit projections and also estimate a terminal value to factor the value of the company from future cash flow thereafter to infinity.

Determining a risk based rate for discounting is also a challenge, notwithstanding deterministic approaches coupled with robust maths.

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Value in Finance

Perceptions differ. With the result you end with situations where $25/5$ may not be 5

Each Valuer brings some bit of individuality to the process of valuation

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Value in Finance

If you can estimate the cash flows and determine the rate for discounting you can value anything on this earth.

Cash flow estimations should be incremental cash flows
–For example brand valuation requires estimation of additional cash flows from brand not possible without the brand

Estimation of future cash flow in valuation of companies is driven by historical analysis, future expectations and estimations following that expectation.

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Valuation Analysis

In Finance there should be no room for snob value. It must be driven by estimates of cash flow and their discounting.

Business Prospects

Management/Succession

Competitor Mapping


Threats

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Business Prospects



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Business Prospects-Paint Industry

Market Size as of 2014 31650 Crores. Decorative paints will be 22450 crores


Expected to grow at 1.5 to 2 times the growth rate of GDP around 9% to 12%

Per Capita Consumption still low in the country

Market is divided into decorative paints and Industrial

Margins better in decorative but competition from unorganised sector

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Business Prospects-Paint Industry

Unorganised sector is around 35% of total market

Decorative Paint is around 79% of total market for paints.

Inflation deflates demand and 2014 was a bad year

Barriers to entry include Brand, distribution network, production locations, working capital efficiency

Substitutes include wall papers and paper and paint combination.

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Business Prospects-Kansai Nerolac

Completed 94 years. Into its 95th Year. More prominent in Industrial paints where it is market leader

Five Plants-Lote, Bawal, Jaipur, Chennai and Hosur.

Attempting to penetrate decorative paint market for greener lead free paints. Sharuk is Brand Ambassdor



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Business Prospects-Kansai Nerolac

Sound management team. Consistent expansion.
Leverage on Kansai brand and association

In tune with changing times, present in social media,
harness technology for progress

Aggressive marketing strategy to capture high end
decorative paint market.

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Historic Analysis

Asset
Analysis

Income
Analysis

Liability
Analysis

Expenditure
Analysis

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Asset Analysis

Attempt to Flush out:
Assets shown but are not really
assets.
Really assets but expensed out due
to Accounting rules
Impairment – Adequacy
Loss Provisions – Adequacy
Undisclosed gains (MTM Gains)
Asset Revaluation-Rationale

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Asset Analysis

1. Lease vs. Buy
2. Investment in Human Training
3. R and D expenditure
4. Good will
5. Brand value
6. Deferred Tax

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Liability Analysis

Attempt to Flush out:
Liabilities shown but are not really
Liabilities.
Really liabilities but kept outside the
books. [Enron]
Loss Provisions – Adequacy
Provisions due to Litigations –
Adequacy

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Liability Analysis

1. Environment Liability
2. Product warranty liability
3. Guarantees and composite service liability
4. Pensions or other employee benefit obligations
5. Litigation (recent Vodafone case)
6. Hybrid Securities

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Revenue Analysis

Attempt to Flush out:
Non revenue treated as revenue.
Real Revenue is not taken into
account
Source of Income –Business or
others

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Revenue Analysis

1. Payments received in Advance
2. Product/Service provided over multiple years
3. Right to use product or service but seller reserves residual rights
4. Credit worthiness of customer is questionable
5. Refunds for dissatisfied customers.

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Expenditure Analysis

Analytical Issues include:
Assets consumed over various periods
Resources are consumed but the timing and payment of future amounts is uncertain
Decline in value of un-used resources.


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Expenditure Analysis

1. Depreciation
2. Goodwill Amortisation
3. R and D expense
4. Advertisement
5. Refunds for dissatisfied customers.

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Ratio Analysis and Projections

Ratio Analysis-Thought process and Interpretation are more important not mechanical application of numbers

We take a look at Kansai Nerolac Paints Limited to determine its historical position. We will use the same to project the future cash flow as well.

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Making Projections

Projections are also like that. You may end up calling it totally wrong. You may end up getting it all wrong because market change

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Projections

My approach is simple and straight forward.

Projected Ratios

Resulting Ratios

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Two Lessons

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Projections

Step 1

- Projecting Ratios are the ones used to project the future numbers

Step 2

- Once the projections are complete the resulting ratios are computed to see whether they are in sync

Step 3

- If not you go back and revisit the projecting ratios

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Projections

With the Computed ratios and the expectations on the business of Kansai Nerolac, we project growth, cash flows and financial statements.

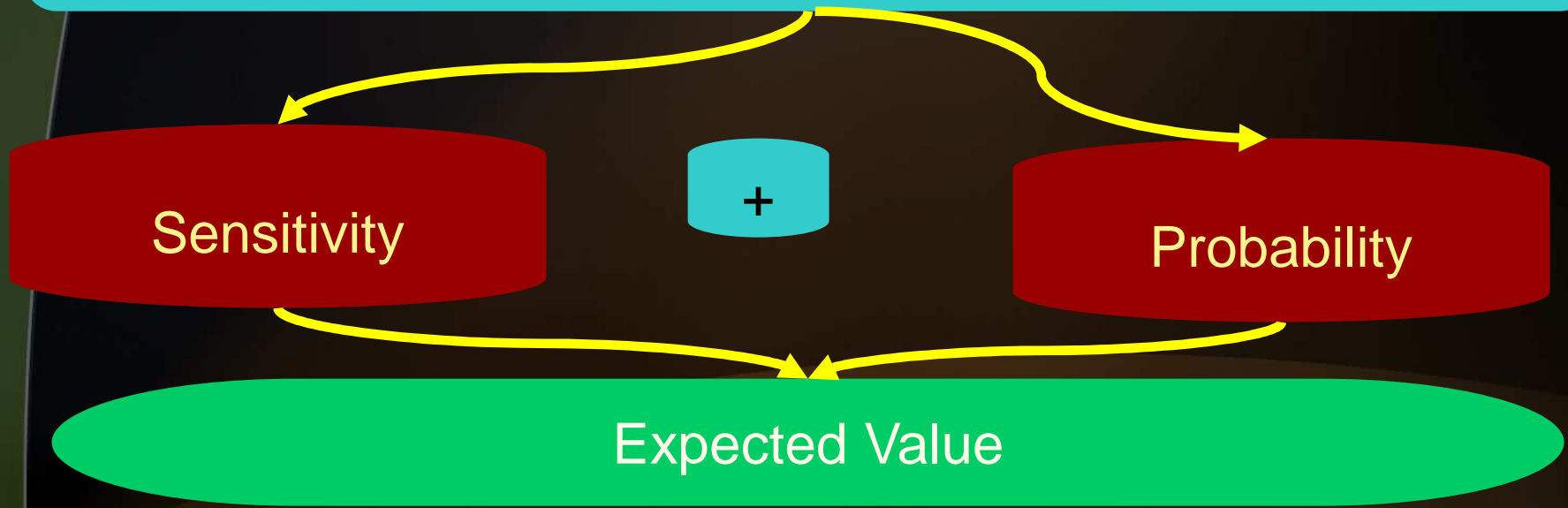
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Sensitivity Analysis, Expected Value

Since projections are projections there is no guarantee for their accuracy. What do you do



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DCF APPROACH TO VALUATION

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A Point to Note

Effort and approach may be tailor made to specification

Valuation for a nominal stake in the company, Significant stake, an acquisition, a joint venture etc all may be different and the efforts put in to determine value may also be different.

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DCF Basics

Cash flow projections/estimations

Determining Discount Rates

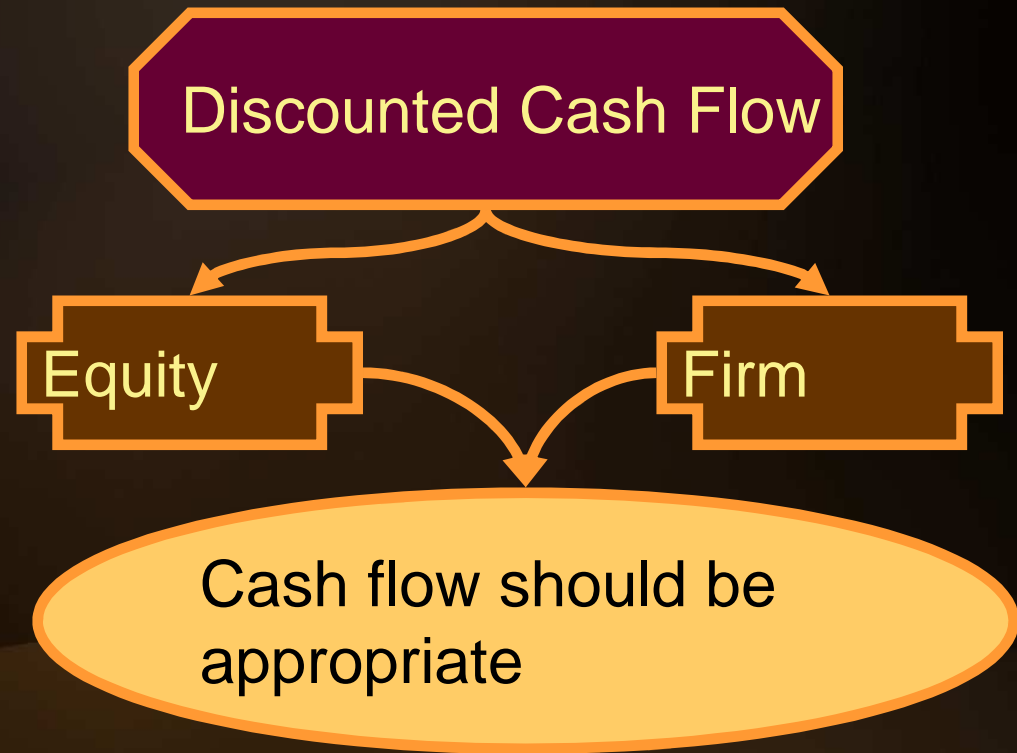
Determining Growth rate if used.

Limitation on Models used

If you know the nuts and bolts no need to panic

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What to discount



Most appropriate when cash flows are positive

Discounting must be for appropriate cash flows

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A word of Caution

Valuation is as good as cash flow estimates

Take holistic view while projecting

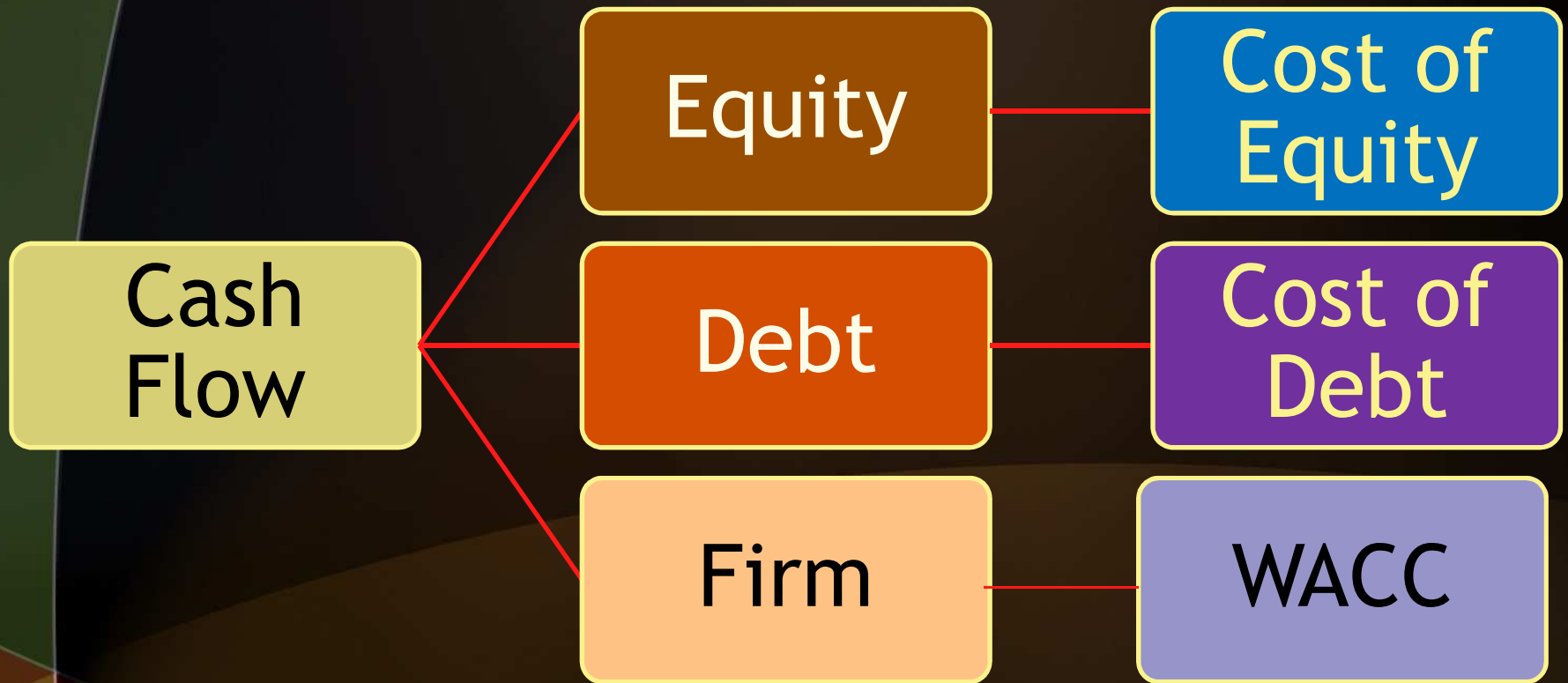
You can lose opportunities

We have already covered this

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Choosing Discount Rate



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Cost Of Equity

Flows from CAPM

$$\text{COE} = R_f + \beta * (M_r - R_f)$$

Computing Beta for
Kansai

http://www.nseindia.com/products/content/equities/equities/eq_security.htm

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Cost Of Equity

NSE 500 Historical Data from

http://www.nseindia.com/products/content/equities/indices/historical_index_data.htm

Interest Rate Historical Data from

http://www.nseindia.com/products/content/debt/wdm/gove_sec_index.htm

Computing Cost of Equity

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Cost of Equity

Determining Market Return-What historical period to consider- longer the better

Determine Market Return and Premium

What Risk Free Rate to use?? Using forward rates is an answer

Use Forward Rate Template in Excel

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Impact and Adjustment for Leverage

Higher leverage results in higher risk.
Hence must be reflected in higher
beta

Adjust the beta for leverage impact

$$B_L = B_{UL} * (1 + ((1-t)) * (D/E))$$

Vary beta for varying leverage

Levered Beta is much
easier to understand

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Cost of Debt

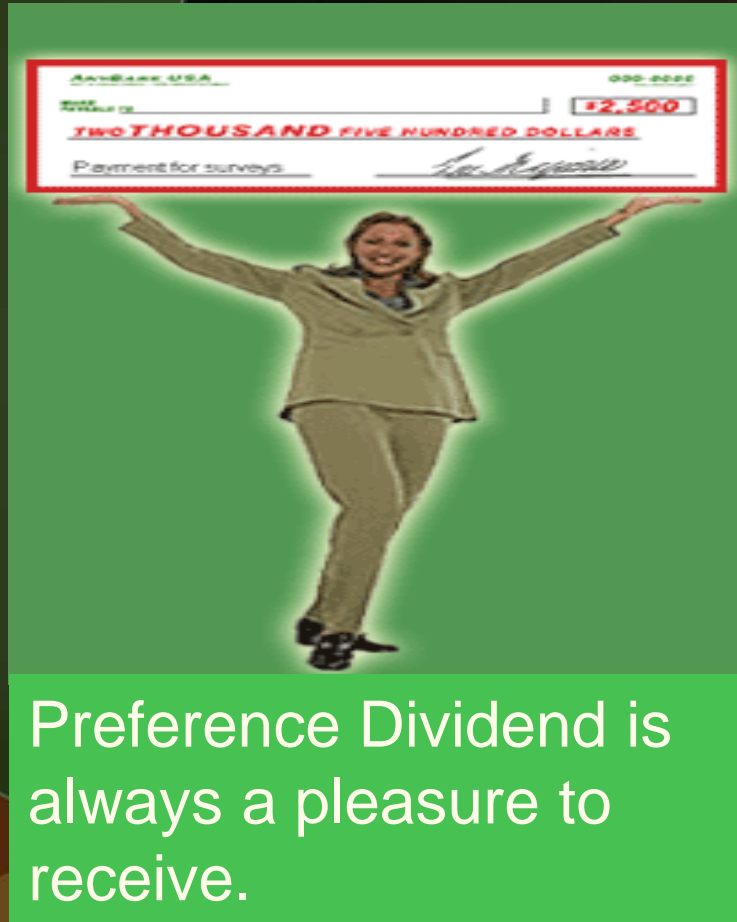


Is always the
marginal cost of
borrowing (net of tax)

Ya I get that Point
clearly,

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Cost of Preference Shares



- Cost of preference share will be observed yield-
 $\text{Pref.Div}/\text{M.Price of Pref. Share}$
- For non quoted preference shares, comparative value will be used.

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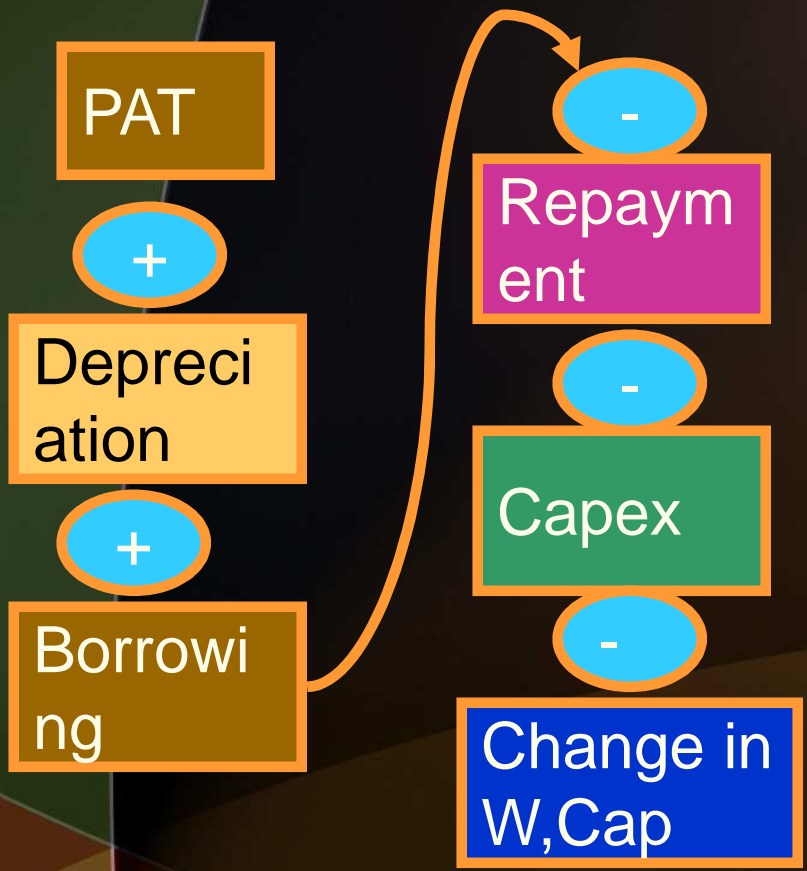
WACC

Cost of each component weighted by its percentage to total

Well the idea cannot change. You know it well

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Estimation of Cash Flow



You can remove borrowing inflow then take capex and working capital net of debt fund.

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Asset Life and Time Horizon

Valuation time horizon

<

Asset Time Horizon

Terminal Value is important
in valuation

Hence the need for Terminal
Value

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Time Horizon and Cash Flows

Significant value comes from TV

Wrong determination
could be disastrous.

For assumed growth rate check for required return on capital.
Alternatively start from ROC and determine growth.

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Time Horizon and Cash Flows

When you project a steady growth rate from the terminal year, it is logical to presume that Company will maintain a constant asset turnover and profit margin. (Sales/Assets) (Nopat/Saes)

If Sales in Year 1 is 100 and it grows by 20% and Profit Margin is 10%, Then year 1 profit is 10 and Year 2 profit is 12. Also if the asset turn over ratio is 2 year 1 asset is 50 and year two asset is 60. Change in asset is 10. As a percentage of turnover is 10%. The year 3 asset must be 72. Check this. Turnover is 144. Asset should be 72. Increased by 12 from 60 to 72

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Time Horizon and Cash Flows

We can then say that the change in assets ΔA is constant. If you denote this by b then $b = \Delta A / \text{NOPAT}$.

$$\begin{aligned} \text{Then } FCF_t &= \text{NOPAT}_t - \Delta A = \text{NOPAT}_t - b * \text{NOPAT}_t \\ &= \text{NOPAT}_t * (1-b) \end{aligned}$$

$$\begin{aligned} \text{But } \text{NOPAT}_t &= \text{NOPAT}_{t-1} + \text{ROC} * b * \text{NOPAT}_{t-1} \\ &= \text{NOPAT}_{t-1} * (1 + \text{ROC} * b) \end{aligned}$$

$$\begin{aligned} \text{Growth rate } g &= \frac{\text{NOPAT}_t - \text{NOPAT}_{t-1}}{\text{NOPAT}_{t-1}} = \\ &= \frac{\text{NOPAT}_{t-1} * (1 + \text{ROC} * b) - \text{NOPAT}_{t-1}}{\text{NOPAT}_{t-1}} \\ &= \frac{\cancel{\text{NOPAT}_{t-1}} * (1 + \text{ROC} * b - 1)}{\cancel{\text{NOPAT}_{t-1}}} = b * \text{Roc} \end{aligned}$$

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Time Horizon and Cash Flows

Growth rate $g = b * ROC$

=Going back to FCF_t we have

$$FCF_t = NOPAT_t * (1 - b)$$

= $NOPAT_t * (1 - g/ROC)$ given that

$$g = b * ROC$$

Given a growth estimate g from the terminal year you can then back work the return on capital required which is

$$ROC = g / \left(1 - \frac{FCF_t}{NOPAT_t}\right)$$

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Alternate View

The same concept can be understood alternatively. Change in the asset is nothing but the amount ploughed back. Thus if profit is 100 and dividend is 20, then 80 is ploughed back and assets must also change by 80. Hence change in asset is nothing but 1-payout ratio.

Growth is nothing but growth in ROE. Consider a case where the Equity is 500 and the profit is 100. The company pays dividend of 20. ROE is 20% $100/500$. The equity for the next year will be $500+80=580$. At 20% return the PAT must be 116. ROE growth is $116/100-1=16\%$.
Growth Rate = $.80 \times .20 = 16\%$ $G=B \times ROE$

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Alternate View

Now if you have the growth at 16% and retention ratio of 80% the ROE that is possible is nothing but $16\%/80\%$.
 $=20\%$

When you factor a terminal growth rate of certain percentage say 5% and you have a retention ratio policy then you can back work what must be the sustainable ROE that can make the estimate work. That ROE must be sustainable. If not you must rework your numbers

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Estimating Growth Rates

Standard approach is to project from past adjusted for external circumstances

Trend could be linear or compounding

If not able to estimate use excels built in functions.

Honest growth rates reaction -similar

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Pitfalls to guard against

Projecting from past may not be right. Size also matters

Negative growth in the past could distort future projections

External environment might be undergoing a change

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Theory to Practice

Moving from Theory to practice we complete the exercise

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Limitations of Cash Flow Model

Firms in Trouble
Negative cash flow

Firms with
unused or under
utilised assets

Cyclical Firms

Either use smoothed
out cash flows or
predict the cycle and
consequential cash
flows

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Limitations of Cash Flow Model

Firms under Acquisition-Synergy and Management

Firms under restructuring

Private Firms

Complex changes in cash flows cannot be culled from reported figures.

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What is Value

What is a good value? That depends a lot on whose money is at stake

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Recap

Cash Flow, Cash Flow, Cash Flow

Predictions and projections can go wrong

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Recap

Over confidence is dangerous

No Consolation for bad projection

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Recap

You need deeper insights

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Some Good Books On Valuation

Damodaran Trilogy-Damodaran on Valuation
The Dark Side of Valuation
Investment Valuation

Valuation-Measuring and Managing the Value of Companies by Tim Koller, Marc Goedhart, David Wessels.

Valuation for Mergers, Buyouts and Restructuring by Enrique R. Arzac

Investment Banking : Valuation, Leveraged Buyouts, and Mergers and Acquisition-Josua Rosenbaum and others

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Thank You

What is a good value can change
from moment to moment

There are limitations on what can be achieved in a short span

If I have tickled your interest to explore the subject further I
will consider the time well spent

Hope you enjoyed the session. All the very best for your future

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