INSTITUTE OF ACTUARIAL & QUANTITATIVE STUDIES

Class: TY BSc

Subject : Financial modelling

Chapter Name: Basics of Valuation

Today's Agenda

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        2. Selling general & administrative costs
        3. Financing cost
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1 What is valuation?

Estimation of an asset's value based on certain variables.

OR

Valuation is a quantitative process of determining the fair value of an asset, investment, or firm.

The context of a valuation, including its objective, generally determines the appropriate definition of value and thus affects the analyst ' s selection of a valuation approach.

What is value?

Value is the monetary, material, or assessed worth of an asset, good, or service.

Several perspectives on value serve as the foundation for the variety of valuation models available to the equity analyst. Intrinsic value is the necessary starting point, but other concepts of value — going - concern value, liquidation value, and fair value — are also important.

1.1 Value

Intrinsic value
The intrinsic value of any asset is the value of the asset given a hypothetically complete understanding of the asset 's investment characteristics.

Going – concern value
The going - concern value of a company is its value under a going - concern assumption. A going - concern assumption is the assumption that the company will continue its business activities into the foreseeable future.

Liquidation value
A company's value if it were dissolved and its assets were sold individually.

Fair market value
Fair market value is the price at which an asset (or liability) would change hands between a willing buyer and a willing seller when the former is not under any compulsion to buy and the latter is not under any compulsion to sell.

Investment value
The concept of value to a specific buyer taking account of potential synergies and based on the investor ' s requirements and expectations is called investment value.

1.2 Why do we need to study valuations?

Analysts use valuation concepts and models to accomplish the following:

- Selecting stocks
- Inferring (extracting) market expectations
- Evaluating corporate events
- Rendering fairness opinions .
- Evaluating business strategies and models
- Communicating with analysts and shareholders
- Appraising private businesses .
- Share - based payment (compensation)

2 Valuation process

Understand the business

- Industry and competitive analysis, together with an analysis of financial statements and other company disclosures, provides a basis for forecasting company performance.

Forecasting company performance

- Forecasts of sales, earnings, dividends, and financial position (pro forma analysis) provide the inputs for most valuation models

Selecting the appropriate valuation model

- Depending on the characteristics of the company and the context of valuation, some valuation models will be more appropriate than others.

Converting forecasts to a valuation

- Beyond mechanically obtaining the output of valuation models, estimating value involves judgment.

Applying the valuation conclusions

- Depending on the purpose, an analyst may use the valuation conclusions to make an investment recommendation about a particular stock, provide an opinion about the price of a transaction, or evaluate the economic merits of a potential strategic investment.

2.1 Understand the business

Industry and competitive analysis, together with an analysis of the company ' s financial reports, provides a basis for forecasting performance.

Industry and Competitive Analysis

- Because similar economic and technological factors typically affect all companies in an industry, industry knowledge helps analysts understand the basic characteristics of the markets served by a company and the economics of the company.
- Various frameworks exist for industry and competitive analysis. The primary usefulness of such frameworks is that they can help ensure that an analysis gives appropriate attention to the most important economic drivers of a business.

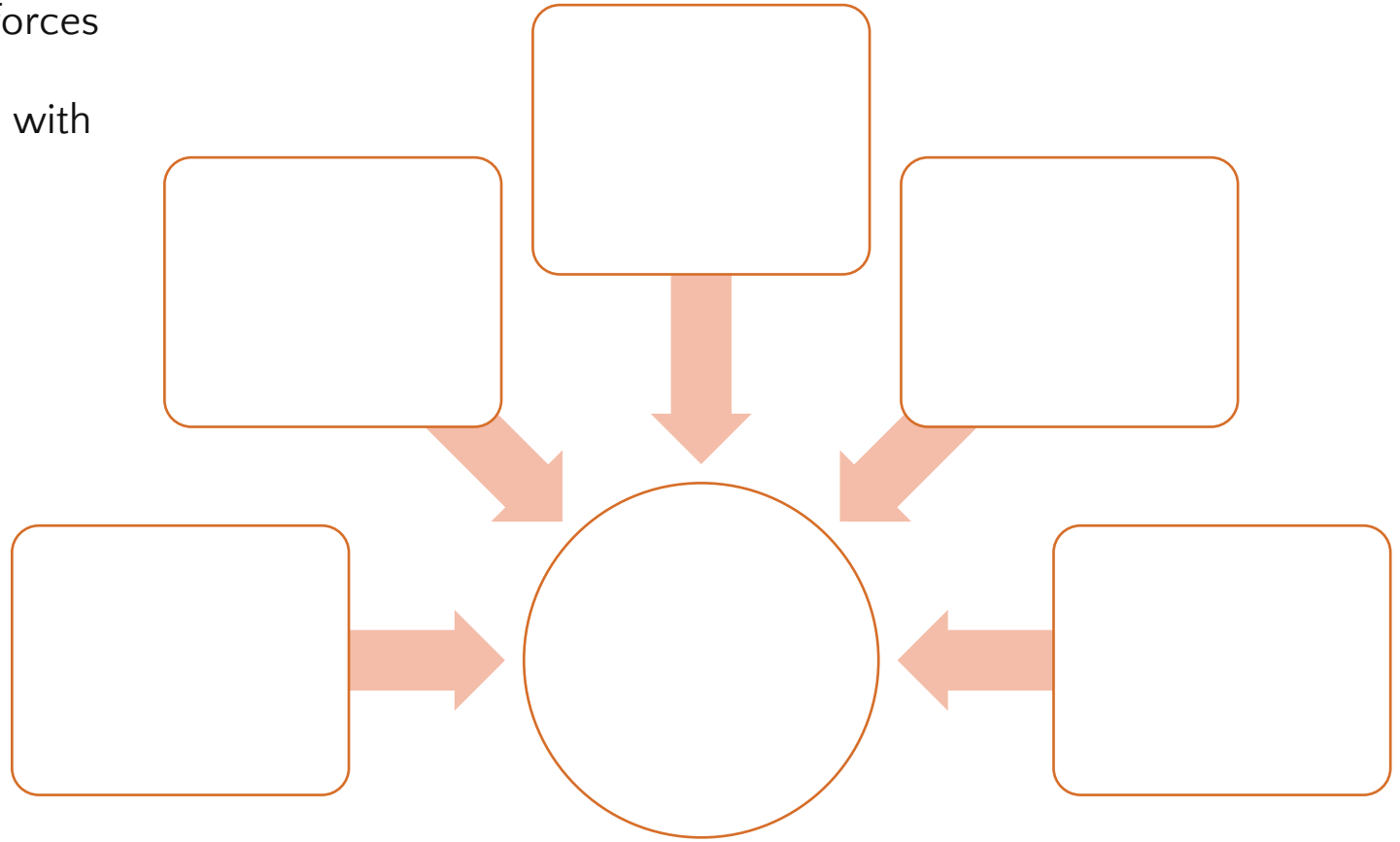
2.1.1 Porter's Five Forces

Porter's Five Forces is a model that identifies and analyzes five competitive forces that shape every industry. It is used to help determine an industry's weaknesses and strengths.

Porter's model can be applied to any segment of the economy to understand the level of competition within the industry and enhance a company's long-term profitability.

2.1.1 Porter's Five Forces

Porter identified five undeniable forces that play a part in shaping every market and industry in the world, with some caveats.



2.1.1 Porter's Five Forces

1. Bargaining power of buyers

- Powerful customers can use their clout to force prices down or demand more service at existing prices, thus capturing more value for themselves. Buyer power is highest when buyers are large relative to the competitors serving them, products are undifferentiated and represent a significant cost for the buyer, and there are few switching costs to shifting business from one competitor to another.

- Despite the fragmentation of buyers, airlines have a hard time differentiating themselves and creating customer loyalty, switching costs for buyers are nearly non-existent, and the proliferation of budget airlines undermines price levels.

2.1.1 Porter's Five Forces

2. Bargaining power of suppliers

- Companies in every industry purchase various inputs from suppliers, which account for differing proportions of cost.
  Powerful suppliers can use their negotiating leverage to charge higher prices or demand more favorable terms from industry competitors, which lowers industry profitability. If there are only one or two suppliers of an essential input product, for example, or if switching suppliers is expensive or time consuming, a supplier group wields more power.

- The major supplier groups to the airline industry are aircraft, engines, airports, and fuel suppliers. Each of the major supplier groups are highly concentrated and has huge clout. Airlines often face high cost of switching suppliers because of the benefits of fleet compatibility and the necessity of utilizing major airports.

2.1.1 Porter's Five Forces

3. Threat of entrants

- The threat of new entrants into an industry can force current players to keep prices down and spend more to retain customers. Actually, entry brings new capacity and pressure on prices and costs. The threat of entry, therefore, puts a cap on the profit potential of an industry.
This threat depends on the size of a series of barriers to entry, including economies of scale, to the cost of building brand awareness, to accessing distribution channels, to government restrictions.

- The airline industry continues to grow. The cost of entry is low with ready access to aircraft and financing, availability of skilled personnel, and access to gates. A steady stream of new airlines has entered the industry over the last several decades. New airlines often have advantages due to less seniority of personnel, which lowers wages, and newer aircraft with greater fuel efficiency.

2.1.1 Porter's Five Forces

4. Threat of substitute products or services

- When a new product or service meets the same basic need in a different way, industry profitability suffers. Videoconferencing is a substitute for travel. Email is a substitute for express mail.
  The threat of a substitute is high if it offers an attractive price-performance trade-off relative to the industry's product or if the buyer's cost of switching to the substitute is low.

- There is no effective substitute for air travel, especially for longer distances. For short haul travel, substitutes include automobile, bus or rail travel.

2.1.1 Porter's Five Forces

5. Rivalry among existing competitors

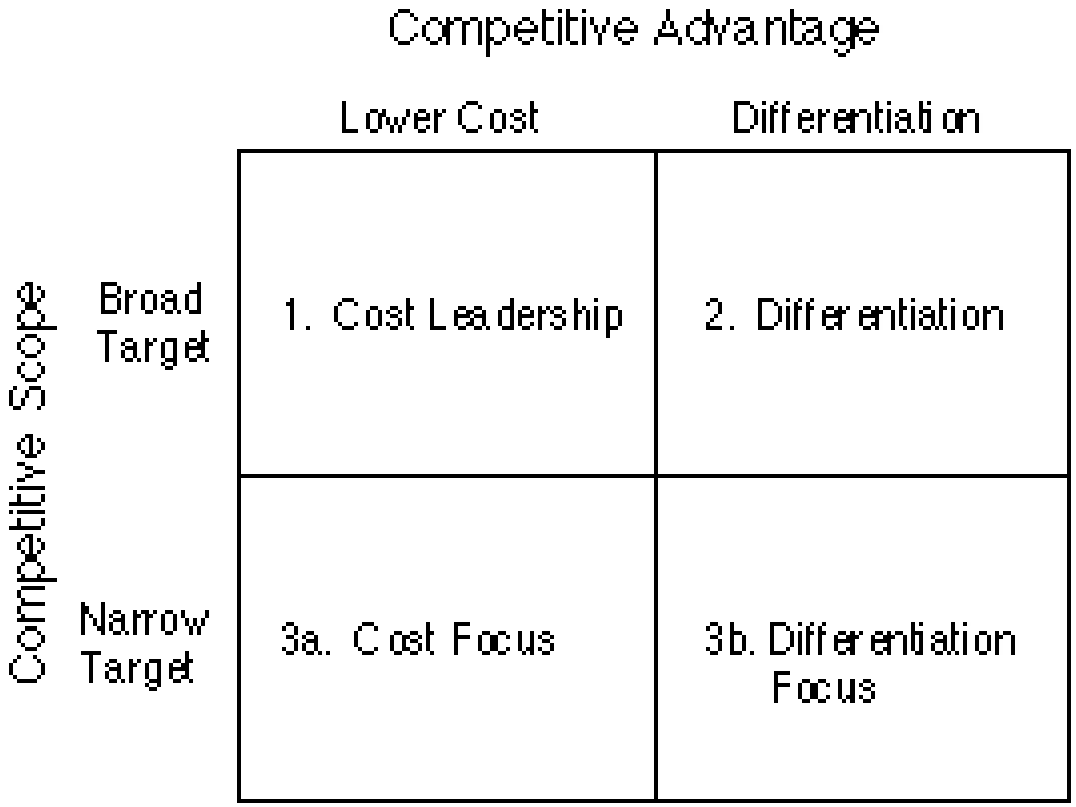
- If rivalry is intense, it drives down prices or dissipates profits by raising the cost of competing. Rivalry tends to be especially fierce if:
  Competitors are numerous or are roughly equal in size and market position
  Industry growth is slow
  There are high fixed costs, which create incentives for price cutting
  Rivals are highly committed to the business
- Firms have differing goals, diverse approaches to competing, or lack familiarity with one another

- There are numerous airlines who compete for every route. Since differentiation is low and fixed costs are high, there is constant pressure for price competition, and to match improvements in technology, cabin features, and customer service

2.1.2 Porter's Strategies

Porter's strategies for achieving above average performance is divided into 3 types:

1. Cost leadership
2. Differentiation
3. Focus



2.1.2 Porter's Strategies

1. Cost leadership

In cost leadership, a firm sets out to become the low-cost producer in its industry. The sources of cost advantage are varied and depend on the structure of the industry. They may include the pursuit of economies of scale, proprietary technology, preferential access to raw materials and other factors. A low-cost producer must find and exploit all sources of cost advantage. if a firm can achieve and sustain overall cost leadership, then it will be an above average performer in its industry, provided it can command prices at or near the industry average.

2. Differentiation

In a differentiation strategy a firm seeks to be unique in its industry along some dimensions that are widely valued by buyers. It selects one or more attributes that many buyers in an industry perceive as important, and uniquely positions itself to meet those needs. It is rewarded for its uniqueness with a premium price.

2.1.2 Porter's Strategies

3. Focus

The generic strategy of focus rests on the choice of a narrow competitive scope within an industry. The focuser selects a segment or group of segments in the industry and tailors its strategy to serving them to the exclusion of others.

The focus strategy has two variants.
(a) In cost focus a firm seeks a cost advantage in its target segment,
(b) In differentiation focus a firm seeks differentiation in its target segment.

Both variants of the focus strategy rest on differences between a focuser's target segment and other segments in the industry. The target segments must either have buyers with unusual needs or else the production and delivery system that best serves the target segment must differ from that of other industry segments. Cost focus exploits differences in cost behavior in some segments, while differentiation focus exploits the special needs of buyers in certain segments.

2.1 Understand the business

Analysts recognize a variety of risk factors that may signal possible future negative surprises. A working selection of these risk factors would include the following:

1. Poor quality of accounting disclosures
2. Existence of related – party transactions
3. Existence of excessive employee loans
4. High management turnover
5. Excessive pressure on company to make revenue or earnings targets
6. Material non audit services performed by audit firm
7. Changes in auditors
8. Management compensation tied to profitability
9. Loss of market share
10. Management pressure to meet debt covenants
11. A history of reporting violations

2.2 Forecasting Company Performance

Forecasting company performance can be viewed from two perspectives: the economic environment in which the company operates and the company 's own operating and financial characteristics.

The three typical approaches to understanding the company's revenue model are:

• Begin at the level of the overall economy then down to individual sectors, industry, and market for a specific product to arrive at a revenue projection for the individual company.	• Starts with the individual company product lines, locations, and business segments which are aggregated for the overall company, then the industry, and finally the economy.	• Combines elements of both top-down and bottom-up analysis and can be useful for uncovering implicit assumptions or errors that may arise from using a single approach.

2.2 Forecasting Company Performance

Top-Down Approaches

Growth relative to GDP:

- The analyst forecasts the growth rate of nominal gross domestic product.
- The growth rate of the specific company is then considered.
- The analyst may use the GDP growth rate to project volumes
- The inflation forecast may be used to project product prices
- Company life-cycle stage is utilized to help estimate the growth rate by using premiums or discounts (embryonic, growth, shakeout, mature, or decline).

Market growth and market share approach:

- The analyst first forecasts growth in a particular market
- Then the analyst considers the company's current market share.
- Thinks about how that share is likely to change over time.
- Uses regression analysis if the product's market revenue has a predictable relationship with GDP.

2.2 Forecasting Company Performance

Growth relative to GDP growth

GDP growth % + x%

Eg. Expected GDP growth is 5% & company's revenue will grow 15% faster
= Forecasted company's growth rate = 5 + 15% = 5.75%

Market growth and market share

❶ Estimate industry sales (market growth)

❷ Estimate company's revenue as a percentage of industry sales (market share)

2.2 Forecasting Company Performance

Evaluate whether economies of scale are present in an industry

- **Economies of scale:** A situation in which average costs per unit of good fall as volume rises
- Company with economies of scale will have lower COGS and SGA, and higher operating margins as production volume increases
- Sales volume and gross and operating margins are positively correlated

2.3 Selecting the Appropriate Valuation Model

Absolute valuation models and relative valuation models are the two broad types of valuation models that incorporate a going – concern assumption

- An absolute valuation model is a model that specifies an asset 's intrinsic value. Such models are used to produce an estimate of value that can be compared with the asset 's market price.

- Relative valuation models estimate an asset 's value relative to that of another asset. The idea underlying relative valuation is that similar assets should sell at similar prices, and relative valuation is typically implemented using price multiples or enterprise value multiples

2.4 Converting Forecasts to a Valuation

Converting forecasts to valuation involves more than inputting the forecast amounts to a model to obtain an estimate of the value of a company or its securities. Two important aspects of converting forecasts to valuation are sensitivity analysis and situational adjustments.

Sensitivity analysis

- Sensitivity analysis is an analysis to determine how changes in an assumed input would affect the outcome.

Situational adjustments

- Situational adjustments may be required to incorporate the valuation impact of specifi c issues.

Profit and Loss Account

Particulars	How will you forecast?
Revenue	Two ways to do it
	1) Market growth * Market share
	2) Company growth based on capacity
COGS	As a % of Sales
	(Build in efficiencies and raw material impact)
Selling, Admin, General expenses	As a % of Sales
	(Build in efficiencies based on fixed or variable costs)
Finance Costs	% of Long-term plus Short-term debt
Depreciation	% of gross block

2.4.5 ….continued

Finance Costs:

Interest Rate % CY = Interest for CY/Average of Short-term and Long-term debt for CY and PY
Derived Interest Rate * Average of Forecasted Debt (LT + ST) for NY and CY

Depreciation:
Depreciation Rate % = Depreciation for CY/Average of Gross Block for CY and PY
Derived Depreciation Rate * Average of Gross Block for NY and CY

Other Income = % of Sales

Tax Rate = % of PBT

Employee Cost = Employees * average salary per employee

2.4.1 Cost of goods sold

Cost of goods sold (COGS) refers to the direct costs of producing the goods sold by a company.

Because cost of goods sold is closely related to revenue, future COGS is usually estimated as a percentage of future revenue:

$$forecast\ COGS = \left(\frac{historical\ COGS}{revenue}\right) \times (estimate\ of\ future\ revenue)$$

OR

$$forecast\ COGS = (1 - gross\ margin)(estimate\ of\ future\ revenue)$$

2.4.1 Cost of goods sold

- If a company's gross margin shows an increasing or decreasing trend (reflecting changes in business or market conditions), an analyst forecasting future gross margins should consider the probability that this trend might continue.
- A closer examination of the volume and price of a firm's inputs may improve the quality of a forecast of COGS, especially in the short run. For example, fuel costs can be volatile, and will have a significant impact on an airline's COGS, gross margins, and net margins.
- Firms with commodity-type inputs that cannot easily pass on higher input costs to their customers often hedge their future input costs by using forward contracts or other derivative securities.
- Estimates of a firm's COGS may also be improved by forecasting COGS for the firm's various product categories and business segments separately.

2.4.2 Selling General & Administrative Costs

Selling general and administrative (SG&A) expenses comprise all direct and indirect selling costs, operational overhead costs, and administrative expenses unrelated to production and sales. SG&A often includes rent, utilities, legal fees and insurance.

- Compared to COGS, SG&A operating expenses are less sensitive to changes in Sales volume; SG&As fixed cost component is generally greater than its variable cost component.
- Research and development (R&D) expenditures may be set by management, especially over a near-term horizon, and may be uncorrelated with revenues. Expenses for corporate headquarters, management salaries, and IT operations are other examples of cost that are more fixed than variable in nature.
- These costs tend to frown gradually as the firm grows rather than being driven by changes in firm sales in the current period.

2.4.3 Financing cost

Financing costs are defined as the interest and other costs incurred by the Company while borrowing funds.

Two types of financing:

1. Equity financing
2. Debt financing

Borrowing costs include the following costs other than the interest costs:

- Amortization of discounts and premiums based on the borrowings of the Company
- Amortization of other costs incurred which are related to borrowings
- Foreign exchange differences and fees when the borrowings happen in foreign currency
- Finance charges concerning the financial leases

2.4.4 Income tax expense

There are three primary tax rates used in analysis:

1. The statutory rate is the percentage tax charged in the country where the firm is domiciled.
2. The effective tax rate is income tax expense as a percentage of pretax income.
3. The cash tax rate is cash taxes paid as a percentage of pretax income.

Differences between the statutory and effective tax rates can arise for a variety of reasons. A reconciliation of these two rates is contained in the footnotes to financial statements and can provide information about one-time events as well as tax rates for the various tax jurisdictions in which the firm operates. The statutory and effective tax rates may differ because there are expenses recognized in the income statement that are not deductible for tax purposes (a permanent difference).

If a company has relatively higher (lower) earnings growth in a high tax country, its effective tax rate will increase (decrease).An analyst should pay special attention to estimates of tax rates for companies that consistently report an effective tax rate that is less than the statutory rate (or consistently less than that of comparable peer companies).