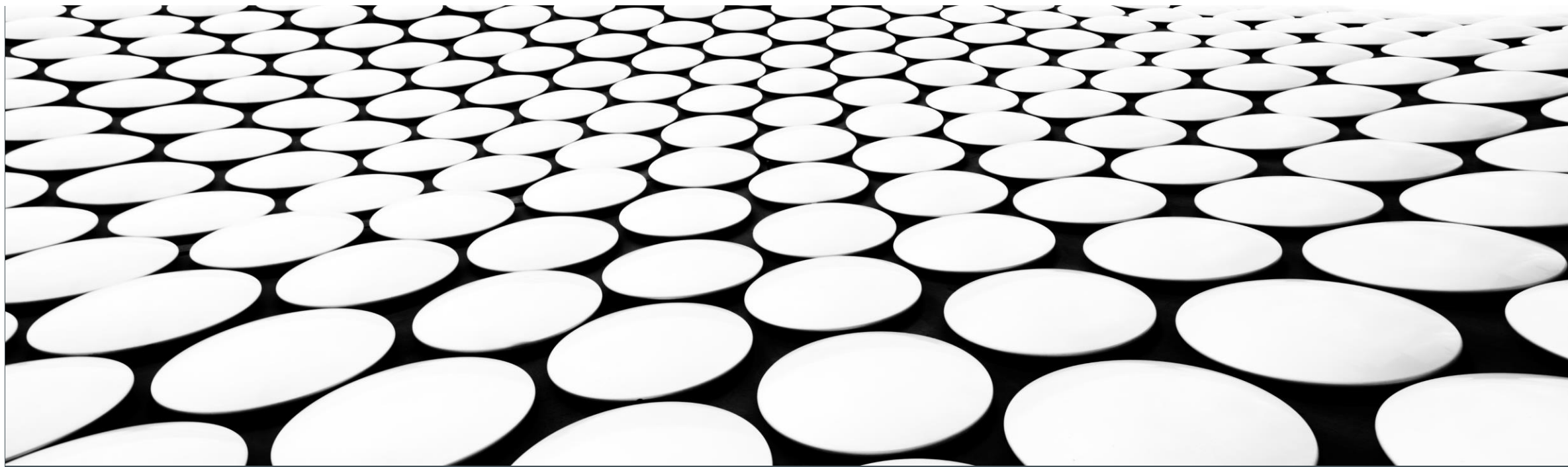

MODULE XI – VALUATION APPLICATION – SITUATION SPECIFIC VALUATION

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VALUATION APPLICATION – SITUATION SPECIFIC VALUATION

VALUATION APPLICATION

Situation Specific Valuation

- **Distressed asset valuation**
- **Start-up entities valuation**
- **Valuation of cyclical firms**
- **Valuation of small and medium enterprises**
- **Valuation of investment entities**
- **Valuation for insurance coverage**

VALUATION APPLICATION

Distressed Asset Valuation

- ❑ Corporate distress stands for a situation in a firm when it is unable to meet its debt. In other words when the value of the total assets of a company is insufficient to discharge its total external liabilities, the said company can be said to be a “distress company”.
- ❑ This is a tool and a technique which is used by the buyer side as a part of the Financial Due Diligence exercise to evaluate the degree of distress of the target entity.
- ❑ Owing to uncertainties like pandemic, war and climate change every due diligence exercise for a potential takeover need to do a distress analysis of the target entity. Hence this exercise is essential specially during current uncertain times.

VALUATION APPLICATION

Distressed Asset Valuation – Indicators of distress

Operating activities

- Low production capacity utilisation
- High rate of rejection of output
- Low input output ratio
- High operating cost compared to competition
- High level of obsolescence of machines and manufactured products
- Delay in payment of wages
- High labour turnover
- Declining sales volume
- Accumulation finished goods in the warehouses
- Failure of distribution network
- Defective marketing strategy

Financing activities

- Rapidly increasing debts
- Major shortfall of revenues vis-à-vis expenses
- Non-payment of statutory liabilities
- High interest charges to be paid month on month
- Continuous default on interest and repayment of debt
- Non-payment of salaries for multiple months
- Deteriorating liquidity position of the enterprise
- Paying a debt by taking another debt
- Increase in foreign currency debt owing to fluctuation in exchange rate

VALUATION APPLICATION

Distressed Prediction

Distress prediction is a very essential tool in the field of finance to assess the future probable financial condition of a corporate entity, in order that any impending financial crisis that may crop up in the near future may be detected in advance and actions taken to avert the same.

VALUATION APPLICATION

Distressed Prediction – Models used

- There are various models used for distress prediction used by the corporates, to assess the sustenance and survival of an enterprise in the long run. The types of models are as under:
 - Univariate model : In this model, a single variable is used for corporate distress prediction
 - Multivariate model: In this model, a number of variables are used for corporate distress prediction.

VALUATION APPLICATION

William H Beaver's study of univariate analysis of corporate distress prediction (Continued)

He used two stages of examination, namely,

- (a) A comparison of mean values of financial ratios taken into consideration of two types of enterprises
- (b) Examination of predictive power of financial ratio with the help of Dichotomous Classification test. The steps are as under:
 - (1) Select at random two types of firms. i.e. failed firms and non-failed firms
 - (2) A single uniform ratio (e.g. current ratio, debt-equity ratio, or operating cost to sales ratio) is calculated
 - (3) Firms are arranged in descending order of the value of ratio as calculated in (2) above
 - (4) A simple average of two consecutive ratios at every stage as arranged in (3) above is calculated (called the cut-off point)

VALUATION APPLICATION

William H Beaver's study of univariate analysis of corporate distress prediction

(5) Now the ratio of every firm as calculated in (2) above is compared with (4) above at every stage.

For example, in case of total debts to total assets ratio,

if the actual ratio of a firm is lower than the respective cut-off point, the condition of the firm is predicted as non-failed firm.

Conversely, if the actual ratio is higher than the respective cut-off point, the condition is predicted as a failed firm.

Similarly in the case of current ratio,

if the actual ratio of a firm is higher than the respective cut-off point, the condition of the firm is predicted as non-failed firm.

Conversely, if the actual ratio is lower than the respective cut-off point, the condition is predicted as a failed firm.

(6) If any deviation of such prediction from the actual position of the firm is observed, then such deviation is counted as an error.

(7) Determine the optimum cut-off point where the number of total errors is minimum

(8) Determine the percentage of error included in total prediction

VALUATION APPLICATION

Edward I Altman's study of multivariate analysis

A multivariate model was discovered based on Multiple Discriminant Analysis (MDA). Out of the 22 accounting ratios he selected 5 of them to measure:

- (a) Liquidity position of the firms
- (b) Reinvestment of earnings of the firms
- (c) Profitability of the firms
- (d) Financial leverage of the firms
- (e) Sales generating ability of firm's assets.

VALUATION APPLICATION

Edward I Altman's study of multivariate analysis

Based on the above premises, he came up with an equation as under:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0 X_5$$

Where, Z = Overall index of multiple index function and the five variables are:

X₁ = Working capital to total assets (a liquidity measure)

X₂ = Retained earnings to total assets (a measure of reinvestment of earnings)

X₃ = EBIT to total assets (a profitability measure)

X₄ = Market value of equity & preference to book value of total Debt (a measure of leverage)

X₅ = Sales to total assets (a measure of sales-generating ability of the firms' assets).

VALUATION APPLICATION

Edward I Altman's study of multivariate analysis

Based on the above formula, the results would be as follows:

- If the calculated value of Z score is lower than 1.81, it is predicted that the enterprise is a failed or bankrupt entity.
- If the calculated value of Z score is higher than 2.99, it is predicted that the enterprise is a non-failed or non-bankrupt entity.
- If the Z score falls between 1.81 and 2.99, which is referred to as the grey area, it is predicted that the enterprise consists of both bankrupt and non-bankrupt elements and therefore requires further investigation to determine its solvency status.

VALUATION APPLICATION

Edward I Altman's study of multivariate analysis

Based on the above formula, the results would be as follows:

Illustration I

From the information given below relating to Glorious Ltd, calculate Altman's Z score and comment:

Working capital/total assets = 45%

Retained earnings/total assets = 25%

Earnings before interest and taxes/total assets = 30%

Market value of equity/book value of total debt = 250%

Sales/Total assets = 3 times

VALUATION APPLICATION

Edward I Altman's study of multivariate analysis

Based on the above formula, the results would be as follows:

Illustration I - Solution

As per Altman's Model (1968) of Corporate Distress Prediction

$$Z = 1.2X1 + 1.4 X2 + 3.3 X3 + 0.6 X4 + 1.0X5$$

Here the five variables are as under:

$$\text{Working capital/total assets} = 45\% = X1$$

$$\text{Retained earnings/total assets} = 25\% = X2$$

$$\text{Earnings before interest and taxes/total assets} = 30\% = X3$$

$$\text{Market value of equity/book value of total debt} = 250\% = X4$$

$$\text{Sales/Total assets} = 3 \text{ times} = X5$$

Transposing the values in the formula:

$$Z = (1.2 \times 45\%) + (1.4 \times 25\%) + (3.3 \times 30\%) + (0.6 \times 250\%) + (1.0 \times 3)$$

$$Z = 0.54 + 0.35 + 0.99 + 1.50 + 3$$

$$Z = 6.38$$

Conclusion:

The calculated value of Z score lies much higher than 2.99. It is predicted with assurance that the company is a non-bankrupt and non-failed company.

VALUATION APPLICATION

Edward I Altman's study of multivariate analysis

Based on the above formula, the results would be as follows:

Illustration II

From the information given below relating to Perilous Ltd, calculate Altman's Z score and comment:

Working capital/total assets = 25%

Retained earnings/total assets = 5%

Earnings before interest and taxes/total assets = 10%

Market value of equity/book value of total debt = 50%

Sales/Total assets = 1.5 times

VALUATION APPLICATION

Edward I Altman's study of multivariate analysis

Based on the above formula, the results would be as follows:

Illustration II - Solution

As per Altman's Model (1968) of Corporate Distress Prediction

$$Z = 1.2X1 + 1.4 X2 + 3.3 X3 + 0.6 X4 + 1.0X5$$

Here the five variables are as under:

$$\text{Working capital/total assets} = 25\% = X1$$

$$\text{Retained earnings/total assets} = 5\% = X2$$

$$\text{Earnings before interest and taxes/total assets} = 10\% = X3$$

$$\text{Market value of equity/book value of total debt} = 30\% = X4$$

$$\text{Sales/Total assets} = 0.75 \text{ times} = X5$$

Transposing the values in the formula:

$$Z = (1.2 \times 25\%) + (1.4 \times 5\%) + (3.3 \times 10\%) + (0.6 \times 30\%) + (1.0 \times 1.5)$$

$$Z = 0.30 + 0.07 + 0.33 + 0.18 + 0.75$$

$$Z = 1.68$$

Conclusion:

The calculated value of Z score lies much lower than 1.81. It can be predicted that the company is a bankrupt and failed company.

VALUATION APPLICATION

Start-up entities valuation

- ❑ Start-up valuation is the process of determination of the value of a start-up organization. Start-up valuation methods are particularly important because they are typically applied to start-up companies that are currently at a pre-revenue stage.
- ❑ For startups with little or no revenue or profits and uncertain future, carrying out valuation for these organizations can be quite complex.
- ❑ Unlike mature organizations startups do not have steady revenues and earnings in the form of EBITDA margin, or based on other industry specific multiples.
- ❑ These startups may still be some distance away from commercial operations and generation of revenue traction. Hence there is no perceptible cash flow projections based on actual results.

VALUATION APPLICATION

Start-up entities valuation - Factors

- Proof of concept*
- Promoters profile*
- Prototyping*
- Market analysis and prospective demand*
- Emerging industries*
- High margin potential*

VALUATION APPLICATION

Valuation Methods related to Start-ups

- Berkus method*
- Scorecard valuation method*
- Venture capital (VC) method*
- Risk factor summation method*
- Asset-based valuation method*
- Cost-to-duplicate method*
- Market multiple method*
- Discounted cash flow method*
- Valuation by stage method*

VALUATION APPLICATION

Valuation Methods related to Start-ups – Berkus Valuation Method

- ❑ The angel investor Dave Berkus has come up with this valuation method related to start-ups.

His method evaluates five critical aspects of a start-up:

Concept	The product offers basic value with acceptable risk.
Prototype	This reduces technology risk.
Quality management	If it is not already there, the start-up has plans to install a quality management team.
Connections	There are some strategic relationships in place already, which reduces competitive risks in the market.
Launch plan	– There is some evidence of a sales plan and preparation for product rollout. (This does not apply to all pre-revenue startups)

- ❑ Each component is given a value rating, which adds up to provide the overall valuation of the project.
- ❑ The Berkus method is a simple estimation, often used for tech startups. It is a useful way to gauge value, but as it does not take the market into account, it may not offer the scope some people desire.

VALUATION APPLICATION

Valuation Methods related to Start-ups – Scorecard Valuation Method

This is one of the more popular start-up valuation methods used by angel investors. It is also known as the Bill Payne valuation method, and it works by comparing the start-up to others that have already been funded.

The constituents of this valuation method have been highlighted along with weightage as under:

Constituents	Weightage
Strength of Management Team	30%
Size of the opportunity	25%
Product Technology	15%
Competitive environment	10%
Sales and Marketing	10%
Need for more financing	5%
Other	5%
Total	100%

However, like many methods, ranking these factors is a very subjective process.

According to Payne, “In building a business, the quality of the team is paramount to success. A great team will fix early product flaws, but the reverse is not true.”

VALUATION APPLICATION

Valuation Methods related to Start-ups – Venture Capital Method

- ❑ This method has been developed by The Harvard Business School professor Bill Sahlman. It is a two-step process that requires pre-money valuation formulae enumerated as under:

First, we calculate the terminal value of the business in the harvest year.

Secondly, we track backward with the expected ROI and investment amount to calculate the pre-money valuation.

- ❑ Terminal value is the expected value of the start-up on a specific date in the future, while the harvest year is the year that an investor will exit the start-up. Another term used to calculate the value is the Industry P/E ratio, which is the stock price-to-earnings ratio.

❑ Calculation of terminal value

We need the following input to calculate terminal value:

- Projected revenue in the harvest year
- Projected profit margin in the harvest year
- Industry P/E ratio

The terminal value is calculated as follows:

Terminal Value = projected revenue x projected margin x P/E ratio

Terminal Value = Earnings x P/E ratio

VALUATION APPLICATION

Valuation Methods related to Start-ups – Risk Factor Summation Method

- ❑ This method combines aspects of the Scorecard method and the Berkus method to provide a more-detailed estimation focused on the risks involved with an investment. It takes the following risks into consideration:
 - Management
 - Stage of the business
 - Funding/capital risk
 - Manufacturing risk
 - Technology risk
 - Sales and marketing risk
 - Competition risk
 - Legislation/political risk
 - Litigation risk
 - International risk
 - Reputation risk
 - Potential lucrative exit
- ❑ This technique is well-suited when examining the risks that need to be managed to make a successful exit, and it can be paired with the Scorecard method to give a holistic overview of the start-up's valuation.

VALUATION APPLICATION

Valuation Methods related to Start-ups – Asset-based Valuation Method

- ❑ When value of a start-up organization with no revenue is derived, the asset-based valuation may be the easiest method to use, as it offers a solid assessment of the real value of the start-up.
- ❑ The formula is as under:

$$\text{Book Value per share} = \frac{(\text{Shareholders equity} - \text{Preferred equity})}{\text{Total outstanding common shares}}$$

- The initial costs of the start-up's assets are offset by impairment costs and depreciation.
- The total value of physical assets is added to current assets like cash-on-hand and accounts receivable.
- Any outstanding debts or expenses will be subtracted from the total to determine the asset-based valuation.
- The problem here is that this method considers the start-up in its current state – not how it will be in the future. Investors are more interested in the latter, and so, as an asset-based valuation does not take that into account, this method has major limitations.

VALUATION APPLICATION

Valuation Methods related to Start-ups – Cost-to-duplicate Method

- This approach involves calculating how much it would cost to build another company just like it from scratch. The idea is that a smart investor would not pay more than it would cost to duplicate. This approach will often look at the physical assets to determine their fair market value.
- This method considers the physical assets of the start-up and then attempts to evaluate how much it would take to duplicate the start-up elsewhere.
- This method does not reflect the company's future *potential* for generating sales, profits and return on investment.
- Also, it does not capture intangible assets, like brand value, that the venture might possess even at an early stage of development. Because it generally underestimates the venture's worth, it is often used as a “lowball” estimate of company value. The company's physical infrastructure and equipment may only be a small component of the actual net worth when relationships and intellectual capital form the basis of the firm.
- In a similar way to the Asset-based method, this does not take the future potential into account, nor does it consider intangible assets such as brand value or the current hot trends in the market.
- Therefore, as it is quite an objective approach, this is best used to get a lowball estimate of pre-revenue startup valuation.

VALUATION APPLICATION

Valuation Methods related to Start-ups – Market Multiple Method

- Investors like this approach, as it gives them a pretty good indication of what the market is willing to pay for a company. Basically, the market multiple approach values the company against recent acquisitions of similar companies in the market.
- In order to value a firm at the infancy stages, extensive forecasts must be determined to assess what the sales or earnings of the business will be once it is in the mature stages of operation.
- Providers of capital will often provide funds to businesses when they believe in the product and business model of the firm, even before it is generating earnings.
- While many established corporations are valued based on earnings, the value of start-ups often must be determined based on revenue multiples.
- The market multiple approach, arguably, delivers value estimates that come close to what investors are willing to pay. Unfortunately, there is a hitch: comparable market transactions can be very hard to find. It's not always easy to find companies that are close comparisons, especially in the start-up market. Deal terms are often kept under wraps by early-stage, unlisted companies – the ones that probably represent the closest comparisons.

VALUATION APPLICATION

Valuation Methods related to Start-ups – Discounted Cash Flow Method

- ❑ For most start-ups – especially those that have yet to start generating earnings – the bulk of the value rests on future potential.
- ❑ In this scenario Discounted Cash Flow analysis represents an important valuation approach. DCF involves estimation of future cash flows which the company may generate in the foreseeable future and then, using an expected rate of investment return, calculate how much that cash flow is worth at present value. In typical start-ups a higher discount rate is applied to factor in the high risk that the company will inevitably fail to generate sustainable cash flows.
- ❑ The disadvantage of DCF method is the quality of future earnings and cash flows as uncertainty sets in based on projecting the future market conditions. The analyst needs to factor in robust assumptions on the edifice of which the cash flow projections will rest. Moreover, the value that DCF models generate is a function of expected rate of return used for discounting cash flows, as the weighted average cost of capital is still not mature enough. Because of these reasons the analysts use probability analysis to work out a range of values rather than one estimated value.

VALUATION APPLICATION

Valuation Methods related to Start-ups – Valuation by stage Method

This is the development stage valuation approach, often used by angel investors and venture capital firms to quickly come up with a rough-and-ready range of company value. Such “rule of thumb” values are typically set by the investors, depending on the venture's stage of commercial development. The further the company has progressed along the development pathway, the lower the company's risk and the higher its value. A valuation-by-stage model might look something like this:

Stages of development	Rs. 5 million to Rs. 10 million	Rs.10 million to Rs. 50 million	Rs. 50 million to Rs.100 million	Rs.100 million to Rs.500 million	Rs. 500 million to Rs.1000 million
Has an exciting business idea or business plan					
Has a strong management team in place					
Has a robust proof of concept					
Has signs of customer base					
There are clear signs of revenue and EBITDA growth					

In all likelihood, start-up ventures that have nothing more than a business plan will likely get the lowest valuations from all investors. As the company succeeds in meeting development milestones, investors will be willing to assign a higher value on a step by step basis.

VALUATION APPLICATION

Valuation of cyclical firms

□ Cyclical companies

Cyclical companies are a group of companies whose performance is sensitive to the business cycle. Thus, when the economy is growing, these companies perform well, and their performance drops significantly during an economic downturn.

A good example is car manufacturers; a new car often isn't deemed necessary when the economy and your income are tight. On the other hand, when the economic situation improves, you might buy one

VALUATION APPLICATION

Valuation of cyclical firms

Valuation methods	Narrative
Absolute average over time	This approach highlights average earnings over a certain period. As suggested by Ben Graham, the Dean of Wall Street, the period used must be at least ten years to ensure that it covers an entire cycle. The advantage of this approach is simplicity, and the disadvantage is that it can somehow lead to underestimation for companies with rapidly growing earnings.
Relative average over time	This method considers the average net profit margin over time, instead of net profit, and apply the average margin to revenues in the most recent period. The result would generate normalized earnings. This technique can be applied to capital expenditure and working capital, as well.
Sector average	Regarding companies with limited history and operating changes, it's more reasonable to use sector average to calculate the normalized earnings. The concept enunciates that we find the average operating margin for all companies in a particular sector over the past ten years and then apply the margin to estimate the operating income of an individual company operating in that sector. The advantage of this approach is that the sector margin tends to be less volatile than an individual firm. However, the disadvantage of this approach is that the difference in operating efficiencies of each company in the industry may get averaged out and lead to a significant difference in operating margin.

VALUATION APPLICATION

Valuation of cyclical firms – Application of Market Multiples

Some comparable market multiples used are as under:

EV/Sales
EV/EBITDA
EV/EBIT
EV/Invested capital
Price/Earnings
Price/Cash flows
Price/Book Value

- ❑ When valuing cyclical companies, it is necessary to take the economic cycle into consideration as it significantly affects the companies' performance in the long term. However, it is very difficult to forecast where the company will be in the cycle year by year.
- ❑ Thus, using normalized earnings by averaging the past's earnings or the average margin over a certain period such as ten years, will give more reasonable valuation results so better investment decisions.

VALUATION APPLICATION

Valuation of small and medium enterprises

- ❑ Small and Medium Enterprises are characterized by the strong presence of a single entrepreneur or an entrepreneurial group or one/more entrepreneurial families, whose values, motivations, goals, risk aversion, personality, preferences, work experiences and aversion to loss of control affect significantly every corporate decisions.

- ❑ Accordingly, the distinctive characteristics of SMEs would be broadly as under:
 - there is coincidence between corporate ownership and corporate governance, the entrepreneur is the business owner-manager,
 - the corporate capital and the personal capital of the entrepreneur are not perfectly separated,
 - the entire corporate system is shaped by the entrepreneur,
 - they are characterized by a low level of equity and a high level of bank debt,
 - they are privately held companies, non-quoted on the financial markets; the shareholdings are rarely traded,
 - they do not employ adequate control and planning systems,
 - accounting information is often insufficiently reliable, since it is not public, not subject to auditing and it only satisfies fiscal duties.

VALUATION APPLICATION

Valuation of small and medium enterprises

Discounted cash flow method

It is the most popular method to arrive at nearly accurate valuation. The term discounting is used because the value of the future cash flows is converted to present value.

- Discounted Cash Flow method is regarded superior to the other methods mainly because it considers the time value of money as well as inflation into account while calculating the valuation of the business.
- Though all the methods are commonly used for valuing a small business, the Discounted Cash Flow gives a better picture of the business and is more relatable for the investors, as well as the business owners.
- Most of the companies, however, go for a combination of two or more methods for calculating the valuation of the business to reach at unbiased decision.

VALUATION APPLICATION

Valuation of small and medium enterprises

□ Liquidation and Accounting method

- The liquidation and accounting approach estimates the value of the company's assets.
- Methods in this approach consider that a company's value lies in the balance sheet, it determines the value from a static viewpoint. Other affects are not considered (Fernández P. 2013).
- This approach, also named as asset-based valuation, estimates the value of the present assets.

Book value

The book value of the company is the difference between the value of the total assets and liabilities. In other words, the book value is the shareholder's equity (capital and reserves) (Fernández P., 2013). The value which is presented in the balance sheet is used in this method.

$\text{Book value (shareholder's equity)} = \text{total assets} - \text{total liabilities}$

Adjusted book value

The adjusted book value will be used to overcome the differences in book and market value. All balance sheets items are, where necessary, adjusted to a (more) suitable market value.

Liquidation value

Another method of the asset-based valuation is the use of liquidation value: "value assets based upon the presumption that they have to be sold now" (Damodaran, 2005). Liquidation expenses (i.e. payments to employees) are deducted from the net worth.

$\text{Liquidation value} = \text{book value/adjusted book value} - \text{liquidation expenses}$

VALUATION APPLICATION

Valuation of small and medium enterprises

□ Relative Valuation method (Market comparables)

- For carrying out valuation under this method, similar companies are looked at by their industry benchmark, as well as the market capitalization.
- Thereafter, the companies are evaluated on common multiples such as EV/EBITDA, PE ratio, PE ratio and so on. For fair valuation, the company should be evaluated on more than one standard to identify the current and the potential value of the company.
- However, this approach has its own limitations wherein collecting all the past data of the company is difficult, especially the transactions conducted between the private companies.
- Therefore, this approach is not used solely, but in combination with other approaches. Comparable Transaction Valuation is often used along with Discounted Cash Flow to present fair value of business.
- Some of the frequently used multiples are the EBIT, EBITDA, sales, book value and price earnings multiples.

VALUATION APPLICATION

Valuation of Investment entities

- Investors in Private Capital Funds need sufficient, timely, comparable, and transparent information from their Managers to allow Investors to:
 - Exercise fiduciary duty in monitoring deployed Investment capital,
 - Report periodic performance to ultimate Investors, beneficiaries, boards, etc. as applicable; and
 - Prepare financial statements that are consistent with applicable accounting standards.
 - Make asset allocation decisions,
 - Make manager selection decisions; and
 - Make investor level incentive compensation decisions.

VALUATION APPLICATION

Valuation of Investment entities

□ Valuation methods

The Valuer should use one or more of the following Valuation Techniques as of each Measurement Date, considering Market Participant assumptions as to how Value would be determined:

- **Market Approach**
 - Multiples
 - Industry Valuation Benchmarks
 - Available Market Prices
- **Income Approach**
 - Discounted Cash Flows
- **Replacement Cost Approach**
 - Net Assets

VALUATION APPLICATION

Valuation of Insurance coverage

☐ Valuation methods

- **Insurance Replacement Cost New (IRCN)**

the amount it takes to replace damaged or destroyed property with new buildings, equipment, and furnishings of like kind and quality; IRCN considers any improvements or upgrades; and

- **Actual cash value (ACV) or Sound Value**

the replacement cost of property, less the accumulated depreciation for age and wear

- **Reproduction Cost New estimates**

the cost to replicate a building, piece of equipment, or other property exactly as the original, using the same materials, without consideration of any upgrades or improvements.

- **Market value**

This method is rarely offered as a property insurance valuation option, but often used as a reference to determine which valuation method is most appropriate. A number of factors are considered when a property's market value is appraised. These include location, capitalization rates, rent growth rate, the general state of the real estate market, and others. Market value is referenced most often during buying and selling of a property.



THANK YOU!