Learning Module 8: Equity Valuation: Concepts & Basic Tools

Q.121 An equity valuation model that estimates the intrinsic value as the present value of expected future benefits is *most likely*:

A. a multiplier model.

B. an asset-based model.

C. a present value model.

The correct answer is **C.**

The intrinsic value of an equity is most accurately estimated using a present value model. This approach is grounded in the principle of time value of money, which posits that the value of money is affected by the time it is received or paid. A present value model calculates the intrinsic value of an equity as the present value of its expected future benefits, which could be in the form of dividends, free cash flows, or other financial benefits accruing to the investors.

This model takes into account the future cash flows that the investment is expected to generate and discounts them back to their present value using an appropriate discount rate. This method is widely regarded as one of the most fundamental and theoretically sound approaches to equity valuation.

A is incorrect. A multiplier model, also known as a relative valuation model, estimates an asset's value based on the valuation multiples of similar assets. Common examples include the price-to-earnings (P/E) ratio, price-to-book (P/B) ratio, and enterprise value multiples. These models are based on market perceptions and comparisons rather than the intrinsic future benefits of the equity.

While multiplier models can provide useful benchmarks and are easy to apply, they do not directly account for the present value of expected future benefits, making them less suitable for estimating intrinsic value based on future cash flows.

B is incorrect. An asset-based model values a company based on the net asset value of its underlying assets. This approach is often used for companies with significant tangible assets, such as real estate or manufacturing firms. The asset-based model focuses on the current value of a company's assets minus its liabilities, rather than the present value of future benefits.

While this model can be useful in certain contexts, especially for liquidation scenarios or for companies with significant tangible assets, it does not directly estimate the intrinsic value based on the expected future benefits to equity holders, such as dividends or free cash flows.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (e) Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

Q.1098 The economic principle guiding the price multiple comparable methods is:

A. the law of one price.

B. the constant growth rate.

C. the constant required rate of return.

The correct answer is **A.**

The economic principle guiding the price multiple comparable methods is the law of one price. This principle asserts that two identical assets should sell at the same price. The rationale behind this principle is straightforward: if two assets offer the same cash flows or benefits, their prices should be equal in an efficient market, as any price discrepancy would lead to arbitrage opportunities.

Arbitrage refers to buying the asset in the market where it is undervalued and selling it in the market where it is overvalued, thus profiting from the price difference until it no longer exists. The law of one price is fundamental in financial markets and underpins the concept of price multiples.

Price multiples, such as the price-to-earnings (P/E) ratio, are used to compare the value of companies by standardizing the price of an asset by some measure of its cash flow or earnings. By applying the law of one price, investors can identify potentially overvalued or undervalued securities by comparing their multiples against those of similar companies or the industry average.

B is incorrect. The constant growth rate is an assumption primarily associated with the Gordon Growth Model, which is used to value a stock by assuming constant dividends that grow at a certain rate indefinitely. While the constant growth rate is a critical factor in some valuation models, it does not directly guide the price multiple comparable methods.

Price multiples are relative valuation metrics that compare a company's market value to a financial performance metric, such as earnings or sales, and do not inherently rely on the assumption of a constant growth rate.

C is incorrect. A constant required rate of return is another assumption used in various valuation models, including the Gordon Growth Model and the Capital Asset Pricing Model (CAPM). It represents the return investors expect to receive from an investment, considering its risk.

While the required rate of return is crucial for discounting future cash flows to their present value in absolute valuation models, it does not directly influence the application of price multiple comparables. Price multiples are used in relative valuation to compare companies based on current market prices and financial metrics, without explicitly calculating the present value of future cash flows.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (j) Explain the rationale for using price multiples to value equity, how the price to earnings multiple relates to fundamentals, and the use of multiples based on comparables.

Q.1099 What will happen to the value of a stock if the difference between the return on the stock and the constant growth rate widens?

A. There will be no change.

B. The value of the stock will increase.

C. The value of the stock will decrease.

The correct answer is **C.**

The value of the stock decreases because the estimated stock value is very sensitive to the denominator. Candidates can use figures to arrive at the answer. The formula used to estimate the intrinsic value of a dividend-paying stock is: $V_o = \frac{D_1}{r-g}$, where V_o is the intrinsic value of a stock, D_1 is the expected dividends in year 1, obtained by using the formula: $D_1 = D_o(1 + g)$, r is the required rate of return, and g is the growth rate. Assume an arbitrary numerator (D_1) say, 5. Then assume that the initial difference between the return on the stock and the constant growth rate was 2, and now it has widened to 3.
Initial value of stock = $\frac{5}{2} = 2.5$, value of stock as at now = $\frac{5}{3} = 1.67$

As seen above, the value of the stock has declined.

A and B are incorrect. The value of the stock decreases.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.1102 In which of the following methods do analysts adjust book values of the firm's assets and liabilities to their fair values?

A. Asset-based models.

B. Market multiple models.

C. Discounted cash flow models.

The correct answer is **A.**

Analysts adjust the book values of a firm's assets and liabilities to their fair values using asset-based models. This approach is grounded in the principle that a company's intrinsic value can be determined by assessing the net value of its assets and liabilities.

Asset-based models focus on the balance sheet items, adjusting them from their historical cost to current market values to provide a more accurate picture of a company's worth. This method is particularly useful for companies with significant tangible assets, where the market value of these assets can differ substantially from their book values due to factors like depreciation or market conditions.

B is incorrect. Market multiple models do not adjust the book values of a firm's assets and liabilities to their fair values. Instead, these models estimate a company's value based on multiples of financial performance metrics, such as earnings, sales, or book value, compared to similar companies in the industry.

Market multiple models are primarily used for relative valuation, relying on the assumption that similar companies should trade at similar multiples. This method focuses on comparing a company's current market valuation to that of its peers, rather than adjusting the company's balance sheet items to their fair values.

C is incorrect. Discounted cash flow (DCF) models do not directly adjust the book values of assets and liabilities to their fair values. DCF models estimate a company's value based on the present value of its expected future cash flows. This method involves forecasting the company's free cash flows over a certain period and discounting them back to their present value using a discount rate that reflects the risk of those cash flows.

While DCF models may consider the value of a company's assets and liabilities in determining future cash flows and terminal value, the primary focus is on the income statement and cash flow statement rather than adjusting balance sheet items to fair market values.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (m) Describe asset-based valuation models and their use in estimating equity value.

Q.1104 Which of the following is a disadvantage of price multiple valuations?

A. Lagging price multiples reflect the past.

B. Price multiples are relatively easy to use and interpret.

C. Price multiples cannot be used in time series and cross-sectional comparisons.

The correct answer is **A.**

One of the primary disadvantages of using price multiple valuations is that they often reflect past performance and may not accurately predict future performance. This is because price multiples, such as the price-to-earnings (P/E) ratio, price-to-book (P/B) ratio, and others, are based on historical financial data. For instance, the P/E ratio uses earnings that have already been reported.

While historical performance can provide valuable insights, it does not necessarily indicate how a company will perform in the future. Market conditions, competitive dynamics, and company-specific factors can change, potentially rendering past multiples less relevant for future valuation. This limitation is particularly pronounced in rapidly changing industries where past performance may be a poor predictor of future success.

B is incorrect. This option suggests that price multiples are relatively easy to use and interpret, which is actually an advantage, not a disadvantage. Price multiples provide a straightforward way to compare companies within the same industry or sector, making them accessible tools for investors and analysts.

They simplify complex financial data into ratios that can be easily compared across different companies, helping investors make informed decisions. However, the simplicity of price multiples can also lead to oversimplification, as they do not account for the nuances of a company's financial health, growth prospects, or industry conditions.

C is incorrect. In fact, one of the advantages of price multiples is their versatility in allowing for both time series and cross-sectional analyses. Time series analysis involves comparing a company's price multiples over different time periods to assess trends and performance over time.

Cross-sectional analysis, on the other hand, involves comparing the price multiples of different companies within the same industry at a specific point in time to gauge relative valuation. This flexibility makes price multiples valuable tools for evaluating and comparing the financial performance and valuation of companies.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (f) Explain advantages and disadvantages of each category of valuation model.

Q.1106 Some firms do not currently pay dividends but are expected to pay dividends in the future. Which of the following methods should an analyst *most likely* use for analysis?

A. Asset-based models.

B. Valuation using multiples.

C. Dividend discount models.

The correct answer is **B.**

Valuation using multiples is a suitable method for analyzing firms that do not currently pay dividends but are expected to do so in the future. This approach, also known as comparable company analysis, estimates the intrinsic value of a company's stock by comparing it to similar companies based on various financial metrics.

These metrics can include share price multiples such as the price-to-earnings (P/E) ratio, which is calculated by dividing the company's share price by its earnings per share. Additionally, enterprise value multiples such as EV/EBITDA and EV/Total Revenue are used, where EV represents the company's enterprise value, and EBITDA stands for earnings before interest, taxes, depreciation, and amortization.

This method is particularly useful for firms that are not currently paying dividends, as it allows analysts to derive value from other financial indicators that reflect the company's performance and potential for growth.

A is incorrect. Asset-based models focus on a company's net assets to estimate its intrinsic value. This method involves subtracting the company's current liabilities from its current assets to determine its net asset value.

While this approach can provide insights into the company's financial health, it may not accurately reflect the future earnings potential or growth prospects of firms that do not currently pay dividends but are expected to in the future. Asset-based models are more suited to companies with significant tangible assets and less emphasis on future growth potential.

C is incorrect. Dividend discount models (DDMs) are used to value a company based on the present value of its expected future dividends. This method requires the firm to be currently paying dividends, as it relies on forecasting these payments and discounting them back to their present value to estimate the stock's intrinsic value.

For firms that do not currently pay dividends but may do so in the future, the DDM approach is not applicable, as there are no current dividends to base the valuation on. Therefore, while DDMs are a powerful tool for valuing dividend-paying firms, they are not suitable for companies in the early stages of growth or those that reinvest their earnings instead of distributing them as dividends.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (f) Explain advantages and disadvantages of each category of valuation model.

Q.1108 Which of the following is *least likely* one of the common price multiples used for valuation?

A. Price to earnings.

B. Price to dividend.

C. Price to book value ratios

The correct answer is **B.**

Price to dividend, is the least likely common price multiple used for valuation. Valuation using multiples is a fundamental approach in finance to estimate the value of a company's stock. This method relies on comparing the company's current market value to certain financial metrics to derive a relative valuation.

Among the most commonly used price multiples are the Price to Earnings (P/E) ratio and the Price to Book Value (P/BV) ratio. The P/E ratio compares the company's market price per share with its earnings per share (EPS), providing insights into how much investors are willing to pay per dollar of earnings.

The P/BV ratio, on the other hand, compares the market price per share with the book value per share, offering a perspective on how much investors are paying for the net assets of the company.

A is incorrect. The Price to Earnings (P/E) ratio is one of the most widely used price multiples in valuation. It measures the market's valuation of a company relative to its earnings. The P/E ratio is calculated by dividing the market price per share by the earnings per share (EPS).

This ratio is used by investors and analysts to determine the relative value of a company's shares in comparison to its earnings, providing a basis for comparing the company's valuation with that of its peers or the market as a whole. A higher P/E ratio might indicate that the company is overvalued or that investors are expecting high growth rates in the future.

C is incorrect. The Price to Book Value (P/BV) ratio is another fundamental price multiple used in the valuation of companies. It compares a company's market price per share to its book value per share. The book value is derived from the company's balance sheet and represents the net asset value of the company according to its financial statements.

The P/BV ratio provides insights into how much investors are willing to pay for each dollar of book value. A lower P/BV ratio might indicate that the company is undervalued, suggesting that its market price does not reflect the true value of its net assets. This ratio is particularly useful for valuing companies with significant tangible assets on their balance sheets.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (k) Calculate and interpret the following multiples: price to earnings, price to an estimate of operating cash flow, price to sales, and price to book value.

Q.1109 The expected P/E ratio of a stock is 10, and the actual P/E ratio is 10.8. What can we say about the stock?

A. The stock is overvalued.

B. The stock is undervalued.

C. The stock is correctly valued.

The correct answer is **A.**

When the actual Price-to-Earnings (P/E) ratio of a stock is higher than its expected P/E ratio, it indicates that the stock is trading at a price higher than what its earnings can justify, suggesting that the stock is overvalued. The P/E ratio is a widely used metric to evaluate the valuation of a stock relative to its earnings. A higher P/E ratio might indicate that investors are expecting higher earnings growth in the future compared to stocks with a lower P/E ratio.

However, when the actual P/E ratio exceeds the expected P/E ratio, it implies that the stock's price has increased to a level that is not fully supported by its earnings potential, leading to an overvaluation. This situation can occur due to various factors, including speculative trading, market optimism about the company's future prospects, or general market overvaluation.

Investors might pay a premium for the stock based on expectations of future growth, which may or may not materialize. Therefore, a careful analysis of the reasons behind the high P/E ratio is essential before making investment decisions.

B is incorrect. This option suggests that the stock is undervalued, which would be the case if the expected P/E ratio was higher than the actual P/E ratio. This scenario is opposite to what is described in the question, where the actual P/E ratio is higher than the expected, indicating overvaluation rather than undervaluation.

C is incorrect. Correct valuation implies that the stock's market price is in line with its earnings potential, and there is no significant discrepancy between the price investors are willing to pay and the earnings the company is expected to generate.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (k) Calculate and interpret the following multiples: price to earnings, price to an estimate of operating cash flow, price to sales, and price to book value.

Q.1348 What is the market risk premium if the expected return on a stock is 12% while its beta is 1.5? Assume the risk-free rate to be 6%.

A. 6%

B. 4%

C. 10%

The correct answer is **B.**

Recall that,

$$\text{Expected return on stock} = \text{Risk-free rate} + \text{Beta} \times \text{Market Risk premium}$$

Note:

$$\text{Market Risk premium} = \text{Expected Return on the Market - Risk-free rate}$$

$$\begin{aligned} \text{Expected return on stock} &= \text{Risk-free rate} + \text{Beta} \times (\text{Expected Return on the Market - Risk-free ra} \\ 12\% &= 6\% + 1.5(\text{Market Risk Premium}) \\ \Rightarrow \text{Market Risk Premium} &= \frac{(12\% - 6\%)}{1.5} = 4\% \end{aligned}$$

Therefore, the market risk premium is 4%.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (e) Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

Q.1755 Which of the following valuation models *most likely* estimates a stock's value as the present value of cash flows distributed to shareholders?

A. Multiplier models.

B. Asset-based models.

C. Dividend discount model.

The correct answer is **C.**

The Dividend Discount Model (DDM) is a valuation model that estimates a stock's value as the present value of all future dividends distributed to shareholders. This model is grounded in the principle that the value of a stock is essentially the sum of all its future dividend payments when discounted back to their present value. This approach allows investors to estimate the intrinsic value of a stock based on the expected dividends and the discount rate, which reflects the risk and the time value of money.

A is incorrect. Multiplier models, such as the price-to-earnings (P/E) ratio or the enterprise value-to-EBITDA (EV/EBITDA) ratio, do not directly estimate a stock's value based on the present value of cash flows distributed to shareholders.

Instead, these models estimate the intrinsic value of a stock based on multiples of some financial performance measures, like earnings or EBITDA. These models are more focused on comparing the stock's current market price to its earnings or other financial metrics, rather than estimating the present value of future cash flows to shareholders.

B is incorrect. Asset-based models estimate a company's intrinsic value by calculating the net asset value, which is the difference between the total value of the company's assets and its liabilities. This approach is more relevant for companies with significant tangible assets and does not directly involve the estimation of the present value of future cash flows distributed to shareholders.

Asset-based valuation is particularly used for companies in industries like real estate or investment companies, where the value of the company is closely tied to the value of its assets rather than its earnings or dividend payments.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (e) Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

Q.1756 Calculate the present value of a stock if the stock is expected to pay dividends of $1.50 and $2 at the end of the 1st and 2nd year, respectively. At the end of the second year, the stock is expected to sell for $25. Assuming that the required rate of return of 12%, the stock's intrinsic value is :

A. $22.86

B. $24.50

C. $26.36

The correct answer is **A.**

We use the dividend discount model to estimate the intrinsic value of a dividend-paying company.

The formula used to estimate intrinsic value using the dividend discount model is:

$$V_o = \sum_{(t=1)}^{n} \frac{D_t}{(1+r)} + \frac{P_n}{(1+r)^n}$$

Where:

V_o = the present value of a stock today,

D_t = expected dividend in year t,

r = required rate of return, and

P_n = selling price of the stock at the end of the investment horizon.

The stock pays a dividend of $1.50 at the end of the first year. We have to account for it in our calculation, as shown in the first part of the below equation. The second part of the equation represents the accumulation of year 2's dividend and stock price discounted at the required rate of return.

$$\left(\frac{1.5}{1.12^1}\right) + \left(\frac{(2+25)}{1.12^2}\right) = \$22.86$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (g) Calculate the intrinsic value of a non-callable, non-convertible preferred stock.

Q.1757 Texas Corp. is a calculator manufacturing firm which is expected to pay a dividend of $2 next year that will grow at the rate of 5% for two more years. If the stock is expected to sell for $30 at the end of the third year, and the required rate of return is 11%, then the present value of the stock is *closest to*:

A. $25.00

B. $27.05

C. $31.50

The correct answer is **B.**

We use the dividend discount model to estimate the intrinsic value of a dividend-paying company.

The formula used to estimate intrinsic value using the dividend discount model is:

$$V_o = \sum_{t=1}^{n} \frac{D_t}{(1+r)^t} + \frac{P_n}{(1+r)^n}$$

Where:

V_o = the present value of a stock today,

D_t = expected dividend in year t,

r = required rate of return, and

P_n = selling price of the stock at the end of the investment horizon.

Texas Corp pays dividends every year for three years, and we have to account for these dividends by discounting them at the required rate of return, as shown in the first and second part of the equation below.

At the end of the third year, apart from the dividends paid, we have to include the stock's selling price then discount the sum at the required rate of return, as shown in the last part of the equation below.

$$\text{Expected price} = \left(\frac{2}{1.11^1}\right) + \left(\frac{2.1}{1.11^2}\right) + \left(\frac{(2.205+30)}{1.11^3}\right) = \$27.05$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.1758 Which of the following is the *most appropriate* formula for calculating free cash flow to equity?

A. FCFE = CFO + Net borrowing.

B. FCFE = CFO - Increase in fixed income - Net borrowing.

C. FCFE = Net income + Depreciation - Increase in net working capital - Increase in net fixed investment + Net borrowing.

The correct answer is **C.**

Free cash flow to equity is one way to estimate a stock's intrinsic value under the present value (discounted cash flow models). The other approach under the present value model is the dividend discount model.

Free cash flow to equity measures the amount of cash available to a firm's shareholders after all debts, expenses, and reinvestments have been paid.

$$\text{Free cash flow to equity} = \text{Net income} + \text{Depreciation} - \text{Increase in net working capital} - \text{Increase in net fixed investment} + \text{Net borrowing}$$

or

$$\text{FCFE} = \text{CFO} - \text{Fixed capital investment} + \text{Net borrowing}$$

A is incorrect. It oversimplifies the calculation of FCFE. The formula:

FCFE = CFO + Net borrowing

only considers cash flow from operations and net borrowing, neglecting the impact of capital expenditures and changes in working capital. This omission can lead to an inaccurate representation of the actual cash available to equity shareholders, as it does not account for the cash used in or provided by these important activities.

B is incorrect. It inaccurately represents the formula for calculating FCFE. Net borrowing represents additional funds available to shareholders, and an increase in fixed income is not a standard component of the FCFE calculation. This formula fails to accurately capture the components necessary for determining the free cash flow available to equity shareholders.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (e) Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

Q.1759 Core Inc. has preferred stocks outstanding priced at $70 that pay a fixed yearly dividend of $3.50. Assuming a required rate of return of 8%, the value of the preferred stock of Core is *closest to*:

A. $20.

B. $43.75.

C. $63.80.

The correct answer is **B.**

The value of preferred stock is calculated by dividing the dividend by the required rate of return:, i.e.,

Market value $= \frac{\text{Dividend}}{\text{Required rate of return}}$.

Value of Core's preferred stock $= \frac{\$3.5}{\$0.08} = \$43.75$,

implying that each share of Core Inc. is currently worth $43.75.

This calculation shows that the value of each share of Core Inc.'s preferred stock, based on the given dividend and required rate of return, is $43.75.

This value represents the price at which the stock should theoretically trade, assuming the market conditions reflect the required rate of return and the dividend remains constant.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (g) Calculate the intrinsic value of a non-callable, non-convertible preferred stock.

Q.1761 Which of the following is *least likely* an assumption of the constant growth model?

A. The rate of return and the growth rate is constant.

B. Dividends are appropriate measures of shareholders' wealth.

C. The growth rate will always be greater than the required rate of return.

The correct answer is **C.**

The constant growth or Gordon Growth Model is used to estimate the intrinsic value of a dividend-paying company that is insensitive to the business cycle and in a mature growth phase. It assumes that dividends are appropriate measures of shareholders' wealth. It also assumes that the rate of return and the growth rate is constant and that the required rate of return is greater than the growth rate.

Thus, choice C is incorrect. The model assumes that the required rate of return is greater than the growth rate, not the other way round.

To determine the intrinsic value of a company using the Gordon growth model, we use the formula.

$$V_o = \frac{D_1}{r - g}$$

Where:

V_o = the intrinsic value of the stock,

D_1 = the dividend in year 1,

r = the required rate of return, and

g = the growth rate.

A is incorrect. It accurately reflects one of the assumptions of the constant growth model. The model assumes that both the rate of return and the growth rate of dividends are constant over time. This assumption simplifies the calculation of the intrinsic value of a stock by allowing for a perpetual growth rate that can be easily factored into the model. It is based on the premise that the company in question is in a stable phase with predictable financial performance.

B is incorrect. It also correctly identifies an assumption of the constant growth model. Dividends are considered a direct measure of the wealth returned to shareholders and are used in the model to estimate the intrinsic value of a company. The model assumes that dividends will continue to be paid out to shareholders at a constant growth rate, reflecting the company's commitment to returning value to its shareholders and its financial stability.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a

two-stage dividend discount model, as appropriate.

Q.1762 Stocks of MZJ Inc. recently paid a dividend of $2. If the dividend is expected to grow at the constant the rate of 4%, the value of the stock assuming an 11% required rate of return is *closest to*:

A. $19.65

B. $28.57

C. $29.71

The correct answer is **C.**

Using the constant growth model, the value of MZJ's stock will be:

$$P = \frac{D}{(r-g)}$$

Where;

P = the current price/value of the stock,

D_1 = dividend in year 1,

Obtained using the equation; $D_1 = D_o(1+g)$

r = required rate of return, and

g = growth rate

$$\text{Price of MZJ} = \frac{(2 \times 1.04)}{0.11 - 0.04} = \$29.71$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.1763 When using Gordon's growth model, which of the following conditions will *most likely* increase the value of a stock?

A. Increasing the required rate of return and the growth rate.

B. Increasing the required rate of return and decreasing the growth rate.

C. Decreasing the required rate of return and increasing the growth rate.

The correct answer is **C.**

The value of a stock using Gordon's constant growth formula is:

$$\frac{D_o(1+g)}{r-g},$$

Where;

$D_o(1 + g) = D_1$ (Dividend in year 1),

D_o = Dividend in year 0,

r = required rate of return, and

g = The growth rate

We can increase the value of the stock by dividing the numerator by a smaller number. We can obtain this smaller number by increasing g and decreasing r.

Note: The difference between r and g should not be negative.

Generally, a stock value is positively correlated with the growth rate and inversely correlated with the required rate of return.

A is incorrect. Increasing both the required rate of return and the growth rate simultaneously does not necessarily increase the value of a stock according to Gordon's model. While increasing the growth rate g tends to increase the stock value by increasing future dividends, increasing the required rate of return r has the opposite effect.

It makes future dividends less valuable in present terms, as investors demand a higher return for their investment. The net effect on the stock value depends on the relative changes in g and r, but generally, increasing r has a stronger negative impact on stock value than the positive impact of increasing g.

B is incorrect. Increasing the required rate of return while decreasing the growth rate will most likely decrease the value of a stock according to Gordon's growth model. This scenario increases the denominator r−g of the valuation formula, making the present value of future dividends less valuable.

A higher required rate of return indicates that investors are demanding more for their investment, which decreases the attractiveness of the stock. Simultaneously, a lower growth rate in dividends suggests that the company's future cash flows will not increase as much, further diminishing the stock's value. This combination of factors leads to a decrease in the stock's valuation.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.1764 Galaxy Ceramics is a ceramic and tiles manufacturing company based in Palo Alto. Some information regarding the stock of the company is given in the following table:

Required rate of return	12%
Return on equity	10%
Earnings per share	$5
Dividend	$1.50 per share

Assuming the dividend was paid last year, the growth rate of Galaxy's is *closest to*:

A. 3%.

B. 6%.

C. 7%.

The correct answer is **C.**

To determine the growth rate of Galaxy Ceramics, we can use the formula that links the growth rate to the company's retention rate and its return on equity (ROE). The growth rate can be calculated as follows:

$$\text{Growth rate} = \text{Retention rate} \times \text{Return on equity}$$

The dividend payout ratio is a crucial component in calculating the retention rate. It represents the proportion of earnings paid out as dividends to shareholders.

The retention rate, on the other hand, indicates the proportion of earnings retained in the business for reinvestment. Mathematically, the retention rate can be calculated as $1-\text{dividend payout ratio}$.

Given the earnings per share (EPS) of $5 and a dividend of $1.50 per share, the dividend payout ratio can be calculated as follows:

$$\begin{aligned}\text{Dividend payout ratio} &= \frac{\text{Dividends per share}}{\text{Earnings per share}} \\ &= \frac{1.5}{5} \\ &= 30\%\end{aligned}$$

Therefore, the retention rate is:

$$\text{Retention rate} = 1 - 0.3 = 0.7$$

Given the return on equity (ROE) of 10%, the growth rate of Galaxy Ceramics can be calculated as:

$$\text{Growth rate} = 0.7 \times 10\% = 7\%$$

CFA Level I, Topic 6 - Equity, Learning Module 8: Equity Valuation: Concepts & Basic Tools. LOS (g): Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.1765 Galaxy Ceramics is a ceramic and tiles manufacturing company based in Palo Alto. Assuming the dividend was paid last year and using the data given in the following table, calculate the value of Galaxy's stocks using the constant growth model.

Required rate of return	12%
Return on equity	10%
Earnings per share	$5
Dividend	$1.50 per share

A. $25.75

B. $30

C. $32.10

The correct answer is **C.**

The sustainable growth rate of a firm, SGR, is given by:

$$\text{SGR} = \text{ROE} \times \text{retention ratio}$$

Where;

$$\text{Retention ratio} = 1 - \text{Dividend payout ratio}$$

$$\text{Dividend payout ratio} = \frac{\text{Dividend per share}}{\text{Earnings per share}}$$

$$1 - \frac{1.5}{5} = 1 - 0.3$$

The growth rate for Galaxy is thus;

$$0.7 \times 10\% = 7\%$$

Stock value according to the constant growth model = $\frac{D_1}{r-g}$

Where;

- D_1 = is the expected annual dividend per share for the following year obtained by multiplying the dividend for the current year by 1 + g,
- k = is the required rate of return, and
- g = is the sustainable growth rate.

$$\text{Stock value} = \frac{1.5(1.07)}{(0.12 - 0.07)} = \$32.10$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.1766 Ibiza Vibe is the chain of nightclubs in southern Spain. In the last five years, the firm's stock price has doubled. The relevant information regarding the company is given below:

Required rate of return	9%
Growth rate	4%
Expected earnings per share	$4
Dividend payout	40%

Using the data provided in the table, Ibiza Vibe's price-to-earnings ratio is *closest to*:

A. 8.

B. 12.

C. 32.

The correct answer is **A.**

Price to earnings is calculated using the formula:

$$\frac{\text{Price per share}}{\text{Earnings per share}}$$

Ibiza's earning per share is $4. However, we do not know its price per share and thus have to estimate it using Gordon's growth model (since it's a dividend-paying company), using the formula:

$$V_o = \frac{D_1}{r - g}$$

Where;

- V_o = value (current price) of the share,
- D_1 = Dividend in year 1,
- r = required rate of return, and
- g = the growth rate

We do not know the dividend, but we know that:

$$\begin{aligned} \text{Dividend payout ratio} &= \frac{\text{Annual dividend}}{\text{Earnings per share}} \\ 0.4 &= \frac{\text{Annual dividends}}{4} \\ \text{Annual dividends} &= 0.4 \times 4 \\ &= 1.6 \end{aligned}$$

Therefore,

$$\text{Price per share} = \frac{1.6}{0.09 - 0.04} = 32$$

And,

$$\text{P/E} = \frac{32}{4} = 8$$

Ibiza's price-to-earnings ratio is 8.

Note: The dividend obtained is D_1 and not D_0 because the $4 used is **expected** earnings per share and not the current earnings per share.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (k) Calculate and interpret the following multiples: price to earnings, price to an estimate of operating cash flow, price to sales, and price to

book value.

Q.1767 The price-to-earnings ratio based on fundamentals is *best* known as:

A. market P/E.

B. justified P/E.

C. historical P/E.

The correct answer is **B.**

The price-to-earnings ratio based on fundamentals is known as Justified P/E.

The price to earnings ratio is a price multiple. Price multiples can be used independently of present value (discounted cash flow valuation) models. However, price multiples are related to fundamentals through discounted cash flow models, developing expressions known as the justified value of multiples, i.e., the value justified by (based on) fundamentals.

As an example, we can use the Gordon growth model to arrive at a forward justified price per earnings ratio.

$$P_0 = \frac{D_1}{r - g}$$

Where;

- P_0 = intrinsic value of the stock,
- r = required rate of return,
- g = growth rate, and
- D_1 = dividends in year 1, obtained by multiplying dividends in year 0 by (1 + g)

To arrive at the justified forward price per earnings ratio by relating a fundamental through Gordon's growth model, we divide both sides of the above equation by the fundamental "next year's earnings estimate, "E_1," as shown below:

$$\frac{P_0}{E_1} = \frac{D_1/E_1}{r - g}$$

Where;

- E_1 = Estimate of next year's earnings, and
- D_1/E_1 = the dividend payout ratio.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (j) Explain the rationale for using price multiples to value equity, how the price to earnings multiple relates to fundamentals, and the use of multiples based on comparables.

Q.1768 An analyst has recently gathered the following information regarding the shares of Eternity Automotive Company that trade on the open market:

Share price	$25
Shares outstanding	250,000
Market value of total debt	$5 million
Cash and Investments	$1.1 million
Inventory	$500,000

Using the given data, the enterprise value of Eternity Automotive Company is *closest to*:

A. $6.25 million.

B. $9.65 million.

C. $10.15 million.

The correct answer is **C.**

The enterprise value (EV) of a company is a comprehensive measure that reflects the total value of the company, often considered as the theoretical takeover price if the company were to be bought. It is calculated by adding the market value of equity (share price multiplied by the number of shares outstanding) to the market value of total debt and then subtracting cash and investments.

This calculation provides a more accurate representation of a company's value than simply looking at its market capitalization because it includes debt (which the acquirer would assume) and excludes cash and investments (which the acquirer would gain).

Using the given data, the enterprise value of Eternity Automotive Company can be calculated as follows:

$$\begin{aligned} \text{EV} &= \text{Market value of equity} + \text{Market value of debt} - \text{Cash and investment} \\ &= (\$25 \times 250{,}000 \text{ shares}) + \$5,000,000 - \$1,100,000 \\ &= \$10,150,000 \end{aligned}$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (l) Describe enterprise value multiples and their use in estimating equity value.

Q.1769 Which of the following is *most likely* a disadvantage of the discounted cash flow valuation model?

A. They are widely accepted.

B. They allow for sensitivity analysis

C. Value estimates are very sensitive to input values.

The correct answer is **C.**

The discounted cash flow (DCF) valuation model is a powerful tool used in finance to estimate the value of an investment based on its expected future cash flows. However, one of the primary disadvantages of the DCF model is that the value estimates it produces are highly sensitive to the input values used in the calculation, such as the discount rate and the projected growth rates of cash flows.

This sensitivity means that small changes in these inputs can lead to significant variations in the estimated value of an investment, making the DCF model somewhat unreliable in situations where the future cash flows or the appropriate discount rate are uncertain. This characteristic of the DCF model requires analysts to exercise caution and perform rigorous sensitivity analyses to understand how changes in assumptions impact the valuation.

A is incorrect. The widespread acceptance of the DCF valuation model is indeed an advantage, not a disadvantage. Its acceptance and use across the finance industry provide a common language and framework for valuing investments, facilitating comparisons and discussions among investors, analysts, and other stakeholders.

The model's ability to theoretically value any investment based on expected future cash flows makes it a versatile and valuable tool in financial analysis.

B is incorrect. The ability of the DCF model to allow for sensitivity analysis is another advantage, not a disadvantage. Sensitivity analysis enables analysts to explore how changes in key assumptions, such as growth rates or discount rates, affect the valuation outcome.

This analysis is crucial for understanding the range of possible values for an investment and assessing the risk associated with specific assumptions. By identifying which variables have the most significant impact on the valuation, analysts can focus their research and due diligence efforts more effectively, leading to more accurate and reliable investment decisions.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (f) Explain advantages and disadvantages of each category of valuation model.

Q.3649 An equity analyst is tracking the stock price of an Information Technology (IT) company. The company's share currently trades at $50. Based on the company's financial statements, the analyst predicts that the company will pay a dividend of $3 and $4 in the next two years. He also forecasts that the company's shares would trade at $60 at the end of these two years. For an investor with a required rate of return of 10%, the best course of action would *most likely* be to:

A. sell shares of the stock.

B. buy shares of the stock.

C. short-sell shares of the stock.

The correct answer is **B.**

Based on information regarding the payment of the dividend, the current share price can be calculated as:

$$\text{Share price} = \frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + \frac{P_2}{(1+r)^2}$$

$$= \frac{3}{(1+10\%)^1} + \frac{4}{(1+10\%)^2} + \frac{60}{(1+10\%)^2} = \$55.62$$

The fair value of the shares based on expected dividends is $55.62, yet the shares are currently trading at $50, which indicates that the shares are undervalued. If an investor believes that the predictions made by the equity analyst are accurate, he must buy shares of the stock.

A is incorrect. The stock is undervalued, not overvalued. Selling undervalued shares would mean missing out on potential gains as the stock price adjusts to its fair value.

C is incorrect. Short selling involves borrowing shares to sell them at the current price with the expectation of buying them back at a lower price in the future. This strategy is typically employed when an investor believes that the stock is overvalued and expects its price to decline.

In this case, since the stock is undervalued, short selling would not be an appropriate strategy. Short selling in a scenario where the stock is expected to increase in value could result in significant losses when the investor is required to buy back the shares at a higher price.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (a) Evaluate whether a security, given its current market price and a value estimate, is overvalued, fairly valued, or undervalued by the market.

Q.3650 An equity analyst is tracking the share price of a steel company. The company's dividends are expected to grow at a rate of 4% per year. Additional financial details of the company are given in the following exhibit.

Exhibit: Jury Steel Limited – Financial details for the year 2014

Net Income	$55,000
Dividends	$20,000
Number of Common Shares	8,000

If the earnings retention ratio of the company remains constant, the return on equity of the company next year will be *closest to*:

A. 6.35%.

B. 7.67%.

C. 8.97%.

The correct answer is **A.**

To calculate the return on equity (ROE) for the next year, given the constant earnings retention ratio and a dividend growth rate of 4%, we use the formula that links the growth rate (g), the earnings retention ratio (b), and the ROE. The formula is:

$$g = b \times ROE$$

Thus,

$$ROE = \frac{g}{b}$$

Where;

- g = dividend growth rate
- b = earnings retention rate = (1 – Dividend payout ratio)
- ROE = return on equity. We know that g = 4% = 0.04
- And; b = 1 − dividend payout ratio

Where;

$$\text{Dividend payout ratio} = \frac{\text{Annual dividends}}{\text{Net Income}}$$

$$b = 1 - \frac{20,000}{55,000}$$

$$= 0.63$$

Therefore,

$$\text{ROE} = \frac{0.04}{0.63} = 6.35\%$$

Note:

$$\text{ROE} = \frac{\text{Net income}}{\text{book value of shares}}$$

But we just have the number of shares here, so we cannot use this formula to directly work out ROE's value.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3651 A company’s dividends are expected to grow at a rate of 4% per year. Additional financial details of the company are given in the following exhibit.

Exhibit 1: Marek Ltd – Financial details for the year 2015

Net Income	$27,500
Dividends	$10,000
Surplus Transferred to Reserves	$12,500
Outstanding Shares	4,000

Assuming that the required rate of return is equal to the return on equity, the intrinsic value of the company's shares is *closest to*:

A. $111.26.

B. $113.54.

C. $118.23

The correct answer is **B.**

Dividends paid by the company per share

$$\frac{\$10,000}{4,000} = \$2.50$$

According to the Gordon Growth Model, the intrinsic value can be calculated as:

$$\frac{D_1}{(k-g)}$$

Where;

$$(D_1 = D_0(1+g)$$

We know that g = 0.04, but we do not know the value of k, except that it is equal to the ROE.

However, recall that

$$g = b \times ROE$$

Thus,

$$ROE = \frac{g}{b}$$

Where;

- g = dividend growth rate
- b = earnings retention rate = (1 – Dividend payout ratio)
- ROE = return on equity

We also know that:

$$\text{Dividend payout ratio} = \frac{\text{Dividends}}{\text{Net Income}}$$

Therefore,

$$b = 1 - \frac{10,000}{27,500} = 0.6364$$

And,

$$ROE = \frac{0.04}{0.6364} = 6.29\%$$

We now have all the inputs and can finally work out the intrinsic value:

$$= \frac{\$2.50(1+4\%)}{(6.29\%-4\%)} = \$113.54$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3652 An equity analyst is tracking the share price of a PharmaCom's stock. The company's dividends are expected to grow at a rate of 12% per year. Additional financial details of the company are given in the following exhibit.

Exhibit 1: PharmaCom – Financial details for the year 2011

Net Income	$1,300,000
Dividends	$65,000
Surplus Transferred to Reserves	$1,235,000
Outstanding Shares	80,000

If the company does not issue fresh equity, the earnings per share of the company next year will be *closest to*:

A. $18.2.

B. $5.73.

C. $6.73.

The correct answer is **A.**

To calculate the earnings per share (EPS) for the next year without issuing fresh equity, we need to understand the relationship between dividends, net income, and the dividend payout ratio. The dividend payout ratio is defined as the proportion of net income that is paid out as dividends to shareholders.

It is calculated as dividends paid divided by net income. Given the financial details for PharmaCom, we can calculate the dividend per share and use the dividend payout ratio to find the EPS for the next year.

The net income for the year 2011 is $1,300,000, and the dividends paid are $65,000. The number of outstanding shares is 80,000. Therefore, the dividend per share for the year 2011 is calculated as follows:

$$\text{Dividend per share} = \frac{\text{Dividends}}{\text{Outstanding Shares}} = \frac{\$65,000}{80,000} = \$0.8125$$

Given that the dividends are expected to grow at a rate of 12% per year, the dividend per share

for the next year (2012) can be calculated by applying the growth rate:

$$\text{Dividend per share}_{2012} = \text{Dividend per share} \times (1 + \text{Growth Rate}) = \$0.8125 \times (1 + 0.12) = \$0.91$$

The dividend payout ratio is the ratio of dividends paid to net income, which can be calculated as follows:

$$\text{Dividend payout ratio} = \frac{\text{Dividends}}{\text{Net Income}} = \frac{\$65,000}{\$1,300,000} = 0.05 \text{ or } 5\%$$

Knowing the dividend payout ratio and the dividend per share for the next year, we can calculate the EPS for 2012. The EPS is inversely related to the dividend payout ratio when the dividend per share is known:

$$\text{EPS}_{2012} = \frac{\text{Dividend per share}_{2012}}{\text{Dividend payout ratio}} = \frac{\$0.91}{0.05} = \$18.20$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (k) Calculate and interpret the following multiples: price to earnings, price to an estimate of operating cash flow, price to sales, and price to book value.

Q.3653 A company recently developed a piece of software that is new to the market and currently has no competitors. However, equity research analysts believe that due to the huge market opportunities presented by the new software, the segment would attract fierce competition within the next 3 to 4 years. The *most* appropriate model to determine the intrinsic value of the company would be the:

A. multiplier model.

B. Gordon Growth Model.

C. multistage dividend discount model.

The correct answer is **C.**

The most appropriate model to determine the intrinsic value of the company, given the expected change in market dynamics due to new competition, is the multistage dividend discount model. This model is particularly suited for companies that are expected to experience varying growth rates over different periods.

In the scenario described, the company is anticipated to enjoy a period of high growth due to its unique software offering and lack of competition. However, as the market opportunity attracts more competitors, the growth rate is expected to normalize or decrease.

The multistage dividend discount model allows for the valuation of the company by discounting dividends that are expected to grow at different rates in different stages, thus providing a more accurate reflection of the company's intrinsic value under changing market conditions.

A is incorrect. The multiplier model, which includes both share price multiples and enterprise value multiples, is not the most suitable for this scenario. While multiplier models can provide a quick valuation based on current earnings, sales, or EBITDA, they do not adequately account for the expected changes in growth rates over time.

These models are more appropriate for valuing companies with stable and predictable financial performance, rather than those in dynamic sectors with fluctuating growth rates like the company in question.

B is incorrect. The Gordon Growth Model, also known as the Dividend Discount Model (DDM) with constant growth, assumes that dividends will grow at a constant rate indefinitely. This assumption does not align with the expected business trajectory of the company, which is likely to see a high growth rate initially due to its unique market position, followed by a slowdown as competition increases.

The model's inability to accommodate varying growth rates over different periods makes it less suitable for accurately valuing a company in a rapidly evolving industry or market segment.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (i) Identify characteristics of companies for which the constant growth or a multistage dividend discount model is appropriate.

Q.3654 A company currently pays a dividend of $2 which is expected to grow at a rate of 8% for the next two years and then at a rate of 1% until perpetuity. If the required rate of return is 12%, then the intrinsic value of the company's shares is *closest to*:

A. $20.89.

B. $15.89.

C. $22.89.

The correct answer is **A.**

The intrinsic value of a company's shares can be calculated using the Dividend Discount Model (DDM), which considers the present value of expected future dividends. In this case, the company pays an initial dividend of $2, which is expected to grow at a rate of 8% for the next two years and then at a rate of 1% into perpetuity.

Given a required rate of return of 12%, we can calculate the intrinsic value of the company's shares as follows:

The dividends for the first two years and the perpetual growth thereafter are calculated as:

$$\begin{aligned} D(0) &= \$2.00 \\ D(1) &= \$2 \times (1 + 8\%) = \$2.16 \\ D(2) &= \$2.16 \times (1 + 8\%) = \$2.33 \\ D(3) &= \$2.33 \times (1 + 1\%) = \$2.36 \end{aligned}$$

$$\text{Intrinsic value after two years} = \frac{(\$2.36)}{(12\% - 1\%)} = \$21.45$$

Step 2:

$$\text{Intrinsic value today} = \frac{\$2.16}{(1.12)} + \frac{\$2.33}{(1.12)^2} + \frac{\$21.45}{(1.12)^2} = \$20.89$$

We can use the financial calculator to arrive at the above answer.

First, we calculate the future selling price using Gordon's Growth Model formula.

$$\begin{aligned} V_o &= \frac{D_1}{r - g} = \frac{D_o (1 + g)}{r - g} \\ &= \frac{2 \times (1 + 0.08)^2 \times (1 + 0.01)}{0.12 - 0.01} = 21.419 \end{aligned}$$

Then we use the CF function of the financial calculator to solve. We will add the above-calculated future selling price (21.419) to the last cash flow (CF3).

$$[CF0 = 0,\ CF1 = 2 \times 1.08,\ CF2 = 2 \times (1.08)^2,\ CF3 = 2 \times (1.08)^3 + 21.419]$$

Press “CPT” “NPV,” input “I” as 12, then finally press “CPT” to get the NPV as 20.8.

Note: Candidates do not have to work out the CF values separately. They can directly calculate the cashflows. For example, once the calculator’s screen shows CF2, candidates should type $2 \times (1.08^2)$, press ENTER, and scroll down twice to CF3.

After every cash flow, candidates should press “ENTER” then scroll down twice to get to the next Cash flow (Once for CF1).

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3655 An equity analyst is tracking the shares of a pharmaceutical company – Jilliax Inc. The company has an expected earnings retention ratio of 80%, a dividend growth of 4%, and a required rate of return of 8%. The leading P/E ratio of the company is *closest to*:

A. 3.

B. 4.

C. 5.

The correct answer is **C.**

The leading Price-to-Earnings (P/E) ratio of a company can be calculated using the formula that relates the expected dividend payout ratio to the difference between the required rate of return and the dividend growth rate. This relationship is expressed as:

$$\frac{P_0}{E_1} = \left(\frac{\frac{D_1}{E_1}}{k - g} \right)$$

$$\frac{D_1}{E_1} = \text{expected dividend payout ratio}$$

$$\text{Dividend payout} = 1 - \text{Earnings Retention Ratio} = 1 - 80$$

$$\text{Leading P/E ratio} = \frac{20}{8\% - 4\%} = 20\%/4\% = 5$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (j) Explain the rationale for using price multiples to value equity, how the price to earnings multiple relates to fundamentals, and the use of multiples based on comparables.

Q.3656 GGH Corp. has an expected earnings retention ratio of 75%, a dividend growth rate of 3%, and a required rate of return of 7%. Based on this information, what can a trader at HY Investment Bank expect to occur if they are currently short 500,000 shares of GGH Corp., given that the shares are trading at a P/E ratio of 8?

A. Hold on to his short position.

B. Buy back the company's shares.

C. Buy back the company's shares and go long additional shares of GGH.

The correct answer is **A.**

The leading P/E can be calculated using the formula:

$$\text{Leading P/E ratio} = \frac{1-b}{r-g} = \frac{1-75\%}{7\%-3\%} = 6.25$$

The current P/E ratio (8) is higher than the leading P/E ratio (6.25) which indicates that the stock is overvalued. Hence, the company's shares must be sold or, in the case above, the short position should be maintained.

CFA Level I, Topic 6 - Equity, Learning Module 8: Equity Valuation: Concepts & Basic Tools. LOS (a): Evaluate whether security, given its current market price and a value estimate, is overvalued, fairly valued, or undervalued by the market.

Q.3657 A perpetual preferred share promises to pay a dividend of $5. If the required rate of return is 10%, then the intrinsic value of the preferred share is *closest to*:

A. $52.50.

B. $50.

C. $55.

The correct answer is **B.**

The intrinsic value of a perpetual preferred share can be calculated using the formula for the present value of a perpetuity. The formula is given by:

$$V_{perpetual} = \frac{D}{r}$$

where V(perpetual) is the intrinsic value of the perpetual preferred share, D is the annual dividend payment, and r is the required rate of return (expressed as a decimal). Given that the annual dividend (D) is $5 and the required rate of return (r) is 10% or 0.10, we can substitute these values into the formula to find the intrinsic value of the preferred share:

$$V_{perpetual} = \frac{50}{10} = \$50$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (g) Calculate the intrinsic value of a non-callable, non-convertible preferred stock.

Q.3658 An equity analyst manages a global equity portfolio. He tracks two telecom companies, the financial details of which are given in exhibit 1.

Exhibit 1: Telecom Companies

Company	IntraTelecom	SupraCom
Country of Operation	X	Y
Dividend Payout Ratio	30%	30%

All other operating and financial parameters of the companies are similar. Furthermore, both countries have identical risk profiles.
Exhibit 2 provides the central bank stance of country X and Y, respectively.

Exhibit 2: Central Bank Stance

Country	Central Bank Stance
X	The central bank is pursuing a policy of monetary easing and intends to keep the interest rates at record low levels to boost economic activity.
Y	The central bank is pursuing a policy of monetary tightening and is concerned about the increase in asset prices. It intends to keep the interest rates high.

The analyst forecasts the forward P/E of both companies assuming different growth rates. If actual growth rates of the companies exceed the analyst's projection, the impact on the P/E ratio will *most likely* be higher for:

A. IntraTelecom.

B. SupraCom.

C. neither of the two companies.

The correct answer is **A.**

The impact on the Price-to-Earnings (P/E) ratio of a company when actual growth rates exceed the analyst's projections is influenced by various factors, including the interest rate environment in which the company operates.

In this scenario, IntraTelecom operates in Country X, where the central bank is pursuing a policy of monetary easing with the intention to keep interest rates at record low levels to boost economic activity.

On the other hand, SupraCom operates in Country Y, where the central bank is pursuing a policy of monetary tightening, intending to keep interest rates high to curb the increase in asset prices.

Low-interest rates generally lead to higher asset prices, including equities, as investors search for better returns than what is offered by fixed-income securities. This environment makes equities more attractive, leading to higher P/E ratios as investors are willing to pay more for each dollar of earnings.

Therefore, if the actual growth rates of IntraTelecom exceed the analyst's projections, the impact on its P/E ratio will likely be higher compared to SupraCom, which operates in a high-interest rate environment. The low-interest rate in Country X supports economic expansion and potentially higher earnings growth for IntraTelecom, making its stocks more appealing to investors and thus, increasing its P/E ratio more significantly.

B is incorrect. This option incorrectly suggests that the P/E ratio impact would be higher for SupraCom. However, SupraCom operates in a high-interest rate environment (Country Y), which generally dampens the attractiveness of equities due to higher returns available from fixed-income securities.

This environment could limit the upward pressure on SupraCom's P/E ratio, even if its actual growth rates exceed projections.

C is incorrect. Suggesting that neither of the two companies would experience a higher impact on their P/E ratio disregards the differing monetary policies and interest rate environments of the countries in which IntraTelecom and SupraCom operate.

The monetary policy stance directly influences the cost of capital and investor sentiment towards equities, which in turn affects the P/E ratios of companies. Given the low-interest rate environment in Country X, IntraTelecom is more likely to see a significant impact on its P/E ratio if growth exceeds expectations.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (j) Explain the rationale for using price multiples to value equity, how the price to earnings multiple relates to fundamentals, and the use of multiples based on comparables.

Q.3659 A telecom company acquired its competitor in a highly competitive bid. Subsequent to the acquisition, the company books a ‘Goodwill’ which forms 30% of its balance sheet. An equity analyst intends to value the company, the valuation methods *least likely* to be used by the analyst are:

A. multiplier models.

B. asset-based valuation models.

C. relative valuation models.

The correct answer is **B.**

Asset-based valuation models are least likely to be effective for valuing a company where a significant portion of the balance sheet consists of intangible assets such as goodwill. In the scenario where a telecom company has acquired its competitor, resulting in goodwill that forms 30% of its balance sheet, the asset-based valuation method becomes less suitable.

This is because asset-based valuation primarily focuses on the company's tangible assets and liabilities to determine its value. Goodwill, an intangible asset, represents the excess of the purchase price over the fair value of the identifiable net assets of the acquired company. It reflects non-physical assets such as brand reputation, customer relationships, and intellectual property, which are not easily quantifiable in monetary terms. Therefore, relying on an asset-based approach might undervalue the company since it does not adequately capture the value of these intangible assets.

A is incorrect. Multiplier models could be effectively used in valuing the company. These models, including price-to-earnings (P/E) ratio, price-to-sales (P/S) ratio, and enterprise value-to-EBITDA (EV/EBITDA), leverage financial metrics that can incorporate the effects of intangible assets like goodwill.

For instance, a high P/E ratio might reflect the market's expectation of future growth, partly due to the acquired goodwill. Thus, multiplier models remain relevant for companies with significant intangible assets.

C is incorrect. Relative valuation models are also suitable for valuing the company. These models involve comparing the company to its peers or competitors based on various financial metrics and ratios. Since goodwill can influence a company's financial performance and market valuation, relative valuation models can account for the presence of significant intangible assets by comparing similar companies within the same industry.

This approach allows analysts to assess whether the company is undervalued or overvalued relative to its peers, taking into consideration the impact of goodwill on its financial statements and market perception.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (m) Describe asset-based valuation models and their use in estimating equity value.

Q.3660 Consider the following statements:

I. Price multiple models allow for the comparison of companies operating in different industries.
II. Price multiple models allow for both cross-sectional and time-series relative comparisons of companies.

Which of these statements are accurate?

A. I

B. II

C. I & II

The correct answer is **B.**

The second statement accurately captures one of the key strengths of price multiple models: their ability to facilitate both cross-sectional and time-series relative comparisons of companies. Cross-sectional analysis involves comparing a company's financial metrics and valuation multiples against those of other companies at a specific point in time.

This type of analysis is useful for identifying undervalued or overvalued stocks within a peer group or industry. On the other hand, time-series analysis involves comparing a company's financial metrics and valuation multiples over different time periods. This can help investors understand how the company's valuation has changed over time in response to its financial performance, market conditions, or other factors.

Price multiple models are particularly suited for these types of analyses because they provide a standardized way to compare valuation levels, regardless of the absolute size of the companies being compared.

A is incorrect. While price multiple models can technically be applied to any company, comparing multiples across different industries can be misleading due to the vast differences in industry characteristics, growth prospects, risk profiles, and capital structures.

For meaningful comparisons, it is generally recommended that companies be compared within the same industry or sector where they operate under similar economic conditions and business models. Therefore, while price multiple models are versatile, their utility across different industries is limited without adjusting for these differences.

C is incorrect. As explained, the first statement is not entirely accurate without considering the need for industry-specific comparisons.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (j) Explain the rationale for using price multiples to value equity, how the price to earnings multiple relates to fundamentals, and the use of multiples based on comparables.

Q.3661 The shares of AAA Telematics Limited are currently trading at $50 and pay a yearly $4 dividend. In the after-hours, the company announces that it has closed-in on a $100 million project from a big investment bank. The information causes a revision of AAA's next year forecasted share price which rises to $80. If analysts expect the shares of the company to generate a yearly holding period return of 18%, then the price of AAA's stock is most likely to open at a price of:

A. $63.72.

B. $67.80.

C. $71.19.

The correct answer is **C.**

To determine the opening price of AAA Telematics Limited's stock following the announcement of a significant project win, we can use the formula for calculating the expected holding period return (HPR). The HPR is given by the formula:

$$HPR = \frac{P_1 - P_0 + D}{P_0}$$

Where:

- P1 is the forecasted share price at the end of the period (\$80 in this case).
- P0 is the current share price, which we are trying to find.
- D is the dividend paid during the period (\$4 in this case).

Given that the analysts expect a yearly holding period return of 18%, we can rearrange the formula to solve for P0, the opening price of the stock:

$$0.18 = \frac{80 - P_0 + 4}{P_0}$$

Solving this equation for P0 gives us:

$$1.18P_0 = 84$$

$$P_0 = \frac{84}{1.18} = \$71.19$$

Therefore, the stock is most likely to open at a price of $71.19.

Q.3662 Exhibit 1 shows the dividends paid by three companies for the past five years.

Exhibit 1: Dividends paid to investors

Company	2012	2013	2014	2015	2016
WWW	$2.00	$2.20	$2.42	$2.66	$2.93
ZZZ	$2.50	$3.00	$3.30	$4.13	$5.36
YYY	$1.50	$1.80	$2.34	$3.28	$3.60

The company *most* likely to be valued using the Gordon growth dividend discount model is:

A. WWW.

B. ZZZ.

C. YYY.

The correct answer is **A.**

	Growth rate (2012-2013)	Growth rate (2013-2014)	Growth rate (2014-2015)	Growth rate (2015-2016)
WWW	$\frac{2.2-2.0}{2.0}=0.1$	$\frac{2.42-2.0}{2.2}=0.1$	$\frac{2.66-2.42}{2.42}=0.1$	$\frac{2.93-2.66}{2.66}=0.1$
ZZZ	$\frac{3.0-2.5}{2.5}=0.2$	$\frac{3.3-3.0}{3.0}=0.1$	$\frac{4.13-3.3}{3.3}=0.25$	$\frac{5.36-4.13}{4.13}=0.3$
YYY	$\frac{1.8-1.5}{1.5}=0.2$	$\frac{2.34-1.8}{1.8}=0.3$	$\frac{3.28-2.3}{2.34}=0.4$	$\frac{3.6-3.28}{3.28}=0.97$

WWW's dividend grew at a constant rate of 10% while the dividend growth rate of the other two companies varied from year to year.

The Gordon growth dividend discount model is ideal for valuing firms that have a stable dividend policy. Therefore, the company most likely to be valued using the Gordon growth dividend discount model is WWW.

B is incorrect. Company ZZZ, while showing significant growth in dividends, does not exhibit a consistent growth rate year over year. The growth rate fluctuates, with increases of 20%, 10%, 25%, and 30% over the four years. This inconsistency in growth rates makes ZZZ less suitable for valuation using the Gordon Growth Model.

C is incorrect. Company YYY, similar to ZZZ, shows a variable dividend growth rate over the years. The growth rates for YYY are 20%, 30%, 40%, and approximately 9.7%, indicating significant variability. This inconsistency makes YYY an unsuitable candidate for the Gordon Growth Model. The model's reliance on a constant growth rate means it is best applied to companies with stable and predictable dividend policies, which is not the case for YYY.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a

two-stage dividend discount model, as appropriate.

Q.3663 Company X does not pay dividends now, but it is supposed to do so in three years. The dividend is estimated to be $3.00 and is expected to be received three years from now. The dividend is estimated to grow at the rate of 4.5% per year to infinity. The required rate of return 7%. The current intrinsic value of the company's X share is *closest to*

A. $125.4

B. $97.96

C. $102.36

The correct answer is **C.**

To solve this problem, we need to use the Gordon growth model to estimate the value at year three, noting that the year-end dividend is $3(1.045) and then find the present value at time $t = 0$. Using the following formula:

$$V_0 = \sum_{t=1}^{\infty} \frac{D_1}{r - g}$$

Where
V_0 = value of a share of stock today, at $t = 0$.
D_t = expected dividend in year t, assumed to be paid at the end of the year.
r = required rate of return on the stock
In this case we need,

$$V_0 = V_3(1.07)^{-3}$$

Where

$$V_3 = \frac{3(1.045)}{0.07 - 0.045} = 125.4$$

So that,

$$V_0 = 125.4(1.07)^{-3} = 102.36$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3664 An equity analyst intends to use the Gordon growth dividend discount model to value a company. He assumes that the dividend of the company will grow at the constant rate ‘g’ and the company's dividend payout ratio will remain constant over the following decades.
The most consistent assumption concerning the company's earnings is that:

A. the earnings growth rate will exceed the dividend growth rate.

B. the earnings growth rate will be lower than the dividend growth rate.

C. the earnings growth rate will be equal to the dividend growth rate.

The correct answer is **C.**

The Gordon Growth Model (GGM) is a method used to value a company's stock by assuming a constant growth rate in dividends paid to shareholders. The model is particularly useful for companies that are expected to have stable growth rates in the foreseeable future.

The assumption that the dividend payout ratio will remain constant is crucial for the application of this model. Given this assumption, the most consistent assumption regarding the company's earnings is that the earnings growth rate will be equal to the dividend growth rate.

This consistency arises because the dividend payout ratio is defined as the fraction of earnings paid out as dividends to shareholders. If the dividend payout ratio remains constant and dividends grow at a constant rate g , then it logically follows that earnings must also grow at this same rate g for the payout ratio to remain unchanged.

A is incorrect. Suggesting that the earnings growth rate will exceed the dividend growth rate contradicts the assumption of a constant dividend payout ratio. If earnings were to grow at a faster rate than dividends, the dividend payout ratio would decrease over time, which is inconsistent with the premise of the Gordon Growth Model in this scenario.

B is incorrect. Proposing that the earnings growth rate will be lower than the dividend growth rate also contradicts the assumption of a constant dividend payout ratio. If dividends were to grow at a faster rate than earnings, the dividend payout ratio would increase over time, which again is inconsistent with the premise of the Gordon Growth Model in this scenario.

The only way for the dividend payout ratio to remain constant while dividends grow is for earnings to grow at the same rate as dividends.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3665 Exhibit 1 summarizes broad assumptions regarding JulaVista Inc.

Exhibit 1: Julavista Inc.

Dividend paid this year	$4.00
Dividends growth rate	3%
Rate of return required by equity investors	8%

The percentage of the stock's intrinsic value that's attributable to the dividend growth assumption is:

A. 39.3%.

B. 50%.

C. 60%.

The correct answer is **A.**

To determine the percentage of a stock's intrinsic value attributable to the dividend growth assumption, we first calculate the stock's intrinsic value with and without the dividend growth.

The intrinsic value with dividend growth considers the future dividends that are expected to grow at a certain rate, discounted back to their present value at the required rate of return. The intrinsic value without dividend growth assumes dividends remain constant indefinitely.

The intrinsic value of JulaVista Inc.'s stock, considering the dividend growth, is calculated using the Gordon Growth Model (also known as the Dividend Discount Model for a perpetually growing dividend), which is given by:

$$\text{Intrinsic Value} = \frac{D0 \times (1 + g)}{r - g}$$

Where:

- D0 is the dividend paid this year, which is $4.00.
- g is the dividend growth rate, which is 3% or 0.03 in decimal form.
- r is the required rate of return by equity investors, which is 8% or 0.08 in decimal form.

Substituting the given values, we get:

$$\text{Intrinsic Value} = \frac{4.00 \times (1 + 0.03)}{0.08 - 0.03} = \frac{(4.00 \times 1.03)}{0.05} = \frac{4.12}{0.05} = \$82.40$$

The value of the company's stock without dividend growth (assuming dividends remain constant) is calculated by dividing the constant dividend by the required rate of return:

$$\text{Value without growth} = \frac{D_0}{r} = \frac{4.00}{0.08} = \$50.00$$

Therefore, the percentage of the stock's intrinsic value attributable to the dividend growth assumption is calculated as:

$$\frac{\text{Intrinsic Value with growth - Value without growth}}{\text{Intrinsic Value with growth}} = \frac{\$82.40 - \$50.00}{\$82.40} = 0.393 = 39.3\%$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3666 An e-commerce firm began its operations one year ago. The company's management has indicated that it will start paying dividends from its fifth operating year and onward and expect to maintain a dividend payout ratio of 40% with a dividend growth rate of 5%. If the company pays a dividend of $5.00 five years from now, then the company's stock price today given a required rate of return for investors of 8% is *closest* to:

A. $210.10.

B. $122.50.

C. $120.10.

The correct answer is **B.**

Stock price in five years

$$V_5 = \frac{D_5(1+g)}{r-g} = \frac{D_6}{r-g} = \frac{\$5 \times (1+5\%)}{(8\%-5\%)} = \$175$$

Dividend paid in year 5 = 5

Stock Price Today

$$V_0 = \frac{175}{(1.08)^5} + \frac{5}{(1.08)^5} = \frac{180}{(1.08)^5} = \$122.5$$

CFA Level I, Equity, Learning Module 8: Topic 6 - Equity Valuation: Concepts & Basic Tools. LOS (g): Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3667 Exhibit 1 shows the financial information of Ulyss, a firm operating in the oil industry.

Exhibit 1: Financial information - Ulyss

	Dividends	EPS
After 1 year	$4.50	$12.00
After 2 years	$5.40	$14.40
Share price at the end of Year 2		$120.00
Stock beta		1.2
Market average return		10%
Yield on government bonds		3.50%

If the company's dividend is assumed to grow at the same constant rate, then the return on equity (ROE) ratio of the company is closest to:

A. 20%

B. 32%

C. 38%

The correct answer is **B.**

To determine the return on equity (ROE) for Ulyss, we first need to calculate the dividend growth rate and the earnings retention ratio. The dividend growth rate can be found by comparing the dividends from one year to the next. The earnings retention ratio is calculated by determining what portion of the earnings per share (EPS) is not paid out as dividends, which essentially represents the portion of earnings retained by the company for reinvestment.<.p>

The dividend growth rate is calculated as follows:

$$\text{Dividend Growth Rate} = \frac{\text{Dividend in Year 2 - Dividend in Year 1}}{\text{Dividend in Year 1}} = \frac{\$5.40 - \$4.50}{\$4.50} = 20\%$$

This indicates that the dividends are growing at a rate of 20% from Year 1 to Year 2.The earnings retention ratio is calculated by subtracting the dividend from the EPS and dividing by the EPS:

$$\text{Earnings Retention Ratio} = \frac{\text{EPS - Dividend}}{\text{EPS}} = \frac{\$12.00 - \$4.50}{\$12.00} = 62.5\%$$

$$\text{ROE} = \frac{20\%}{62.50\%} = 32\%$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3668 Exhibit 1 shows the financial information of Ulyss, a firm operating in the oil industry.

Exhibit 1: Financial information - Ulyss

	Dividends	EPS
After 1 year	$4.50	$12.00
After 2 years	$5.40	$14.40
Share price at the end of Year 2		$120.00
Stock beta		1.2
Market average return		10%
Yield on government bonds		3.50%

The stock price of Ulyss today is *closest* to:

A. $106.27

B. $102.27

C. $105.27

The correct answer is **C.**

To get the stock price, we first have to calculate the required rate of return using CAPM.

$$R_r = R_f + \beta\ (\text{Market Risk Premium}),$$

where
R_r= Required Rate of Return,
R_f= risk-free rate, and
β = Beta (Measure of how risky the stock is)

$$\text{Market Risk Premium} = (R_m - R_f)$$

Where:

R_m = Average Market Return
Risk free rate = 3.50%

Market risk premium = Avg. market return – Risk-free rate = 10% - 3.50% = 6.50%

Beta = 1.20
Required rate of return for equity investors = 3.50% + 1.20 × 6.50% = 11.30%

$$\begin{aligned}\text{Stock price today } &= \frac{\$4.50}{(1+11.3\%)} + \frac{\$5.40}{(1+11.3\%)^2} + \frac{\$120}{(1+11.3\%)^2} \\ &= \$4.04 + \$101.23 = \$105.27\end{aligned}$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation:

Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3669 The Free Cash Flow to Equity (FCFE) valuation model assumes that:

A. The cashflows left after debt payment will be distributed to the equity holders.

B. The cashflows left after debt payment and taxes will be distributed to the equity holders.

C. The cash flows left after debt payments, reinvestments and taxes will be distributed to the equity holders.

The correct answer is **C.**

The Free Cash Flow to Equity (FCFE) valuation model is predicated on the assumption that the cash flows remaining after accounting for debt payments, reinvestments, and taxes will be available for distribution to equity holders.

This approach provides a comprehensive view of the funds that are truly available to shareholders, after the company has made all necessary expenditures to sustain and grow its business. The FCFE formula is given by:

FCFE = Cash Flow from Operations (CFO) − Cash Flow needed for Fixed Capital Investment (Bor

This formula takes into account the cash generated from the company's operations and adjusts it for the cash spent on fixed capital investments, such as property, plant, and equipment, which are necessary for the company's growth and sustainability.

Additionally, it factors in the net borrowing, which represents the difference between any new borrowings and the repayment of existing debt. This comprehensive approach ensures that the FCFE reflects the net cash flow that could potentially be distributed to equity holders, after fulfilling all other financial obligations and investment needs.

A is incorrect. This option suggests that only the cash flows left after debt payment will be distributed to the equity holders. However, this view is too narrow as it overlooks the critical aspects of reinvestments and taxes, which are essential outflows that a company must account for before determining the cash available for distribution to equity holders.

Ignoring these factors would overestimate the available cash flow to equity holders, as it does not consider the cash used for sustaining and growing the business, nor does it account for the tax obligations.

B is incorrect. While this option expands on option A by including taxes in the calculation, it still falls short of capturing the full picture by omitting the cash flow needed for fixed capital investments. Reinvestments in the business are crucial for its long-term growth and

sustainability.

Without accounting for these reinvestments, the calculation would again overestimate the cash available to equity holders, as it would not reflect the company's expenditures on maintaining and expanding its operational capabilities.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (e) Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

Q.3670 PPP Construction Project's Limited, a construction company, has been receiving a lot of media attention lately. The company started its operation in 1990 and was rated as one of the top 50 best-managed company for five years consecutively. However, recently, concerns have been raised by the shareholders about the company's management. The company has been incurring a substantial loss by undertaking projects with negative net present values (NPVs).
If an equity research analyst wants to value the company, the *most* appropriate valuation model(s) to be used would be:

A. the Free Cash Flow to Equity Valuation (FCFE) Model.

B. the Dividend Discount Model (DDM).

C. either the Free Cash Flow to Equity Valuation (FCFE) Model or the Dividend Discount Model (DDM).

The correct answer is **A.**

The Free Cash Flow to Equity (FCFE) Valuation Model is the most appropriate for valuing PPP Construction Project's Limited in this scenario. The FCFE model calculates the cash flow available to the company's equity shareholders after accounting for all expenses, reinvestments, and debt payments.

This model is particularly useful in situations where a company's dividend payments are not clear or do not accurately reflect the company's financial health, as might be the case with PPP Construction Project's Limited, which has been incurring substantial losses. The FCFE formula is given by:

$$\text{FCFE} = \text{CFO} - \text{FCInv} + \text{Net Borrowing}$$

Where:

- CFO = is cash flow from operations,
- FCInv = is capital expenditures, and
- Net Borrowing = is the difference between new debt issued and debt repayments.

This model is advantageous in this context because it provides a direct measure of the cash flows that could potentially be paid to shareholders, making it a more accurate reflection of the company's value to equity holders, especially in light of its recent financial troubles.

CFA Level I, Topic 6 - Equity, Learning Module 8: Equity Valuation: Concepts & Basic Tools. LOS (e): Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

Q.3671 A company is valued using the Free Cash Flow to Equity Valuation (FCFE) Model and the Dividend Discount Model (DDM). Both valuation models will provide the same value for the firm if the company invests excess cash in:

A. negative net present value (NPV) projects.

B. positive net present value (NPV) projects.

C. zero net present value (NPV) projects.

The correct answer is **C.**

The Free Cash Flow to Equity (FCFE) Valuation Model and the Dividend Discount Model (DDM) are two prominent methods used for valuing a company. The FCFE model focuses on the cash flows available to equity shareholders after accounting for all expenses, reinvestments, and debt payments.

On the other hand, the DDM values a company based on the present value of its expected future dividends. For both models to yield the same valuation for a company, it is crucial that the company's investment decisions regarding excess cash align with the expectations embedded within these models.

Investing excess cash in projects with zero Net Present Value (NPV) ensures that the company's value remains unchanged by these investments. NPV is the difference between the present value of cash inflows and the present value of cash outflows over a period.

A zero NPV means that the project is expected to generate a return exactly equal to the cost of capital, indicating that it neither adds nor subtracts value from the company. This condition is necessary for both the FCFE and DDM models to align because it implies that all excess cash is either distributed to shareholders or invested in a manner that does not affect the company's overall valuation.

A is incorrect. The DDM would not account for the value lost in poor investments, while the FCFE model would reflect this decrease in available cash flows to equity shareholders.

B is incorrect. While investing in positive NPV projects is generally beneficial for a company's value, it creates a divergence between the FCFE and DDM valuations. Positive NPV projects increase the company's value beyond what is accounted for by expected dividends in the DDM.

The FCFE model would capture the increased cash flows resulting from these profitable investments, leading to a higher valuation compared to the DDM, which primarily focuses on dividends. Thus, for both models to equate the company's value, the investment must be in projects with zero NPV.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (e) Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

Q.3672 An analyst uses an equity valuation model that emphasizes on the anticipated dividends rather than the ability to pay the dividends. The model is *mostly likely* to be:

A. Free Cash Flow to Equity Valuation (FCFE) Model.

B. Dividend Discount Model (DDM).

C. either the Free Cash Flow to Equity Valuation (FCFE) Model or the Dividend Discount Model (DDM).

The correct answer is **B.**

The Dividend Discount Model (DDM) is primarily focused on the anticipated dividends for equity valuation. This model operates on the principle that the value of a stock is worth the sum of all its future dividend payments when discounted back to their present value.

This approach is particularly useful for companies that pay dividends consistently. The DDM is a fundamental analysis method that helps investors determine the fair value of a stock based on the dividends it is expected to pay in the future. The model takes into account the expected growth rate of these dividends as well as the required rate of return by the investors. The formula for the DDM is expressed as:

$$\text{Value} = \sum_{t=1}^{\infty} \frac{D_t}{(1 + k)^t}$$

where $\mathbf{D_t}$ is the expected dividend in year **t**, and **k** is the required rate of return or discount rate.

This model is particularly suited for stable, dividend-paying companies and may not be as relevant for companies that do not pay dividends or have unpredictable dividend policies.

A is incorrect. The Free Cash Flow to Equity (FCFE) Model values a stock by discounting the expected future free cash flows to equity holders back to their present value. This model is more focused on the company's ability to generate cash that can be potentially distributed to shareholders, rather than the dividends that are actually paid out.

It takes into account the capital expenditures, changes in working capital, and debt payments to calculate the free cash flow available to equity holders.

C is incorrect. While both the Free Cash Flow to Equity (FCFE) Model and the Dividend Discount Model (DDM) are used for equity valuation, they emphasize different aspects of a company's financial health and return to shareholders.

The FCFE model is concerned with the cash flows available to equity holders after accounting for expenses, investments, and debt payments, whereas the DDM focuses solely on the dividends expected to be paid to shareholders.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (e) Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

Q.3673 Chiasson & Alabama, a private equity fund, has investments in multiple companies. Exhibit 1 shows the private equity fund's ownership percentage across different companies.

Exhibit 1: Chiasson & Alabama Investments

Company	Ownership %	Initial Investment
CCC	80%	$200 million
DDD	20%	$50 million

The *most* appropriate valuation model to value Company CCC is the:

A. Free Cash Flow to Equity Valuation (FCFE) Model.

B. Dividend Discount Model (DDM).

C. either the Free Cash Flow to Equity Valuation (FCFE) Model or the Dividend Discount Model (DDM).

The correct answer is **A.**

The most appropriate valuation model for Chiasson & Alabama to value Company CCC is the Free Cash Flow to Equity (FCFE) Model. This model is particularly suitable due to the significant ownership stake (80%) that Chiasson & Alabama holds in CCC. With such a substantial ownership percentage, the private equity fund has considerable influence over the company's operations, including its dividend policies and investment decisions.

The FCFE Model calculates the value of equity as the present value of all future expected free cash flows to equity holders, after accounting for the company's debt payments. This model is especially relevant in scenarios where the investor has control or significant influence over the company, as it allows for a more direct assessment of the cash flows that can be extracted from the business.

B is incorrect. The DDM is based on the premise that a company's value is the present value of all future dividends. However, in the case of CCC, where Chiasson & Alabama can significantly influence or determine the dividend payouts due to their 80% ownership, relying solely on dividends as a measure of value might not capture the full economic benefit Chiasson & Alabama can derive from its investment.

The FCFE Model, which considers the cash flows available to equity holders after fulfilling all financial obligations, offers a more comprehensive valuation in this context.

C is incorrect. While both models aim to estimate the value of an investment, the choice between them should be informed by the investor's ability to influence the company's financial policies. In situations where the investor, like Chiasson & Alabama, has a controlling interest, the FCFE Model is more suitable as it directly evaluates the cash flows that can be allocated to equity holders, beyond just dividends.

This approach is more aligned with the investment strategy of a private equity fund that seeks to

maximize the value extracted from its holdings through operational control and strategic financial management.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (e) Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

Q.3674 An analyst forecasted the dividend policy of Philly's SteakHouse, as shown in exhibit 1.

Exhibit 1: Philly's SteakHouse – Expected Dividend Policy

Year	Dividend
2018	$3.00
2019	$4.00
2020	$6.00
After 2020	Dividends will grow at a rate of 4%

Assuming the required rate of return for equity investors to be 10%, the share price of Philly's SteakHouse in 2017 is *closest* to:

A. $84.68.

B. $84.17.

C. $88.68.

The correct answer is **C.**

To determine the share price of Philly's SteakHouse in 2017, we need to calculate the present value of expected dividends, including the terminal value of the stock at the end of 2020, discounted back to 2017.

The terminal value represents the present value of all future dividends beyond 2020, growing at a constant rate of 4%. The required rate of return for equity investors is given as 10%, which we will use as the discount rate.

The formula for calculating the present value of a dividend in a given year is:

$$PV)\_(Dividend) = Dividend \times (1 + r)^{n}$$

where r is the required rate of return, and n is the number of years from the valuation date to the dividend payment date. The terminal value at the end of 2020, which represents the present value of all future dividends growing at 4% indefinitely from 2021 onwards, can be calculated using the Gordon Growth Model as follows:

$$TV_{2020} = \frac{D_{2021}}{r - g}$$

where D2021 is the dividend in 2021, r is the required rate of return, and g is the growth rate of dividends. Given that the dividend in 2020 is \$6.00 and it will grow at 4% thereafter, the dividend in 2021 (D2021) will be \$6.00 x (1 + 4%) = \$6.24. Substituting the values into the Gordon Growth Model gives us:

$$TV_{2020} = \frac{\$6.24}{0.10 - 0.04} = \$104$$

The present value of the dividends for 2018, 2019, and the terminal value at the end of 2020, discounted back to 2017, is calculated as follows:

$$PV_{2017} = \$3.00 \times (1.1)^1 + \$4.00 \times (1.1)^2 + \frac{(\$104 + \$6.00)}{(1.1)^3} = \$88.68$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3675 An analyst forecasted the dividend policy of Bicom Group, as shown in exhibit 1.

Exhibit 1: Bicom Group – Expected Dividend Policy

Year	Dividend
2018	\$4.00
2019	Nil
2020	Nil
2021	\$5.00
2022	Nil
2023	\$8.00
After 2023	Dividends will grow at a rate of 2%

Assuming the required rate of return for equity investors to be 8%, the share price of Bicom Group in 2017 is *closest* to:

A. \$99.08.

B. \$98.12.

C. \$93.08.

The correct answer is **B.**

To determine the share price of Bicom Group in 2017, we need to calculate the present value of all future dividends, including the terminal value of the stock in 2023 when dividends start growing at a constant rate.

The Gordon Growth Model (also known as the Dividend Discount Model for a perpetuity) is used to calculate the terminal value in 2023, and the present value formula is applied to discount all future dividends and the terminal value back to 2017.

The formula for the terminal value in 2023, when the dividends start growing at a constant rate, is given by:

$$\text{Terminal Value}_{2023} = \frac{D_{2024}}{r - g}$$

Where D2024 is the dividend in 2024, r is the required rate of return, and g is the growth rate of dividends. Substituting the given values:

$$\text{Terminal Value}_{2023} = \frac{\$8 \times (1 + 2\%)}{8\% - 2\%} = \frac{\$8.16}{0.06} = \$136$$

The present value of future dividends and the terminal value in 2017 is calculated using the formula:

$$\text{Present Value} = \frac{D_{2018}}{(1 + r)^1} + \frac{D_{2021}}{(1 + r)^4} + \frac{D_{2023} + \text{Terminal Value}_{2023}}{(1 + r)^6}$$

Substituting the given values and the calculated terminal value:

$$\text{Present Value} = \frac{\$4}{(1.08)^1} + \frac{\$5}{(1.08)^4} + \frac{\$8 + \$136}{(1.08)^6} = \$98.12$$

Therefore, the share price of Bicom Group in 2017 is closest to $98.12.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3676 An analyst forecasted the dividend policy of AlterOrg LifeScience, as shown in exhibit 1.

Exhibit 1: AlterOrg – Expected Dividend Polic

Year	Dividend
2018	$2.50
2018-2021	Dividends will grow at a rate of 8%
After 2021	Dividends will grow at a rate of 5%
Required rate of return for equity holders	9%

AlterOrg LifeScience's stock price in 2017 is *closest* to:

A. $57.63.

B. $67.63.

C. $77.63.

The correct answer is **B.**

To determine the stock price of AlterOrg LifeScience in 2017, we need to calculate the present value of expected dividends and the present value of the stock price in 2021, discounted back to 2017. The dividends for the years 2018 to 2021 grow at an 8% rate, and after 2021, they grow at a 5% rate. The required rate of return for equity holders is 9%.

The expected dividend for 2021 can be calculated using the formula for the future value of a single sum:

$$\text{Expected Dividend}_{2021} = \$2.50 \times (1 + 0.08)^3 = \$3.15$$

After 2021, the dividends are expected to grow at a rate of 5%. The stock price in 2021 can be calculated using the Gordon Growth Model, which is given by:

$$\text{Stock Price}_{2021} = \frac{\text{Expected Dividend}_{2022}}{(\text{Required Rate of Return} - \text{Growth Rate})} = \frac{\$3.15 \times (1 + 0.05)}{0.09 - 0.05} = \$82.69$$

To find the stock price in 2017, we discount the dividends from 2018 to 2021 and the stock price in 2021 back to 2017 using the required rate of return of 9%:

$$\text{Stock Price}_{2017} = \frac{\$2.50}{(1.09)} + \frac{\$2.50 \times (1.08)}{(1.09)^2} + \frac{\$2.50 \times (1.08)^2}{(1.09)^3} + \frac{\$2.50 \times (1.08)^3}{(1.09)^4} + \frac{\$82.69}{(1.09)^4} = \$67.63$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3677 An extract from an equity research report on Alcalyn Info-Services Limited is presented below:

"The company operates in the highly competitive landscape of IT Services. However, the sector is expected to witness a wave of consolidation in the next 3-4 years. The dividends of Alcalyn Info-Services Limited are expected to grow at a rate of 4% for the next four years. Currently, the average return demanded by equity investors of IT services hovers around 12%, which is expected to come down to 9% as the sector matures and sees a wave of consolidation. The company expects the earnings to grow at a rate of 8% when the industry consolidates and the competition decreases."

If the company paid a dividend of $4.50 this year, the current stock price of the company according to the analyst's expectations is *closest* to:

A. $390.03

B. $376.03

C. $355.03

The correct answer is **B.**

To determine the current stock price of Alcalyn Info-Services Limited based on the analyst's expectations, we need to calculate the present value of the expected dividends for the next four years, as well as the present value of the expected stock price at the end of the fourth year.

This approach is grounded in the Dividend Discount Model (DDM), which is a method used to estimate the value of a company's stock based on the theory that its stock is worth the sum of all its future dividend payments, discounted back to their present value. Here, we also account for the expected growth in dividends and the eventual growth in earnings, which impacts the stock price.

The dividends for the next four years are expected to grow at a rate of 4% annually. Starting with a dividend of $4.50 this year, the dividends for the next four years can be calculated as follows:

- Dividend paid next year = $4.50*(1.04) = $4.68
- Dividend (2nd year) = $4.68*1.04 = $4.87
- Dividend (3rd year) = $4.87*1.04 = $5.06
- Dividend (4th year) = $5.06*1.04 = $5.26

$$\text{Expected Stock Price}_{4\text{th year}} = \frac{5.26 \times (1 + 0.08)}{0.09 - 0.08} = \$568.08$$

To find the current stock price, we discount these future cash flows back to their present value

using the current required rate of return of 12%:

$$\text{Current Stock Price} = \frac{4.68}{(1+0.12)} + \frac{4.87}{(1+0.12)^2} + \frac{5.06}{(1+0.12)^3} + \frac{5.26}{(1+0.12)^4} + \frac{568.08}{(1+0.12)^4} = \$376.03$$

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3678 The expected dividend policy of a consumer product manufacturer is given in exhibit 1.

Exhibit 1: Consumer Product Manufacturer – Expected Dividend Policy

Year	Expected dividend growth rate
2018-2020	8%
Post 2020	4%

Given that the company plans to pay a dividend of $3.00 in 2018, and the return required by the equity investors is 10%, the company's stock price in 2017 is *closest* to:

A. $53.50.

B. $43.62.

C. $63.42.

The correct answer is **A.**

Note that for the 2018-2020 period, we will be using the following formula:

$$V_0 = \sum_{t=1}^{\infty} \frac{D_0(1+g)^t}{(1+r)^t}$$

Where:

V_0 = value of a share of stock today, at $t = 0$

D_t = expected dividend in year t, assumed to be paid at the end of the year.

r = required rate of return on the stock.

g = dividend growth rate.

For the "post-2020" period, we will use the following formula:

$$V_0 = \frac{D_1}{r - g}$$

Thus, the stock price in 2017 is given by:

$$V_{2017} = \frac{3.00}{1.1^1} + \frac{3.00(1.08)}{1.1^2} + \frac{3.00(1.08)^2}{1.1^3} + (1.1)^{-3}\left[\frac{3.00(1.08)(1.08)(1.04)}{0.10 - 0.04}\right] = \$53.50$$

Note that we have to discount the "post-2020" by three years since we are calculating its present value at the year 2020, whereas we need the present value in the year 2017.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (h) Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3679 An equity analyst tracks two similar companies, both of which manufacture consumer products. Company A has grown inorganically by acquiring small firms at market prices (that are significantly higher than average historical prices). Company B has grown gradually by making its factories operationally efficient. Both companies are considered to be market leaders in their industry. The company *most* likely to have a higher price-to-book multiple is:

A. Company A.

B. Company B.

C. either Company A or Company B.

The correct answer is **A.**

Company A, which has grown inorganically by acquiring small firms at market prices significantly higher than average historical prices, is more likely to have a higher price-to-book multiple. This is primarily due to the nature of inorganic growth strategies, which often involve paying a premium for acquisitions. This premium is then reflected in the acquiring company's book value, leading to an increase in the price-to-book ratio.

The price-to-book multiple is a financial valuation metric used to compare a company's current market price to its book value. A higher multiple suggests that the market values the company more than its book value, often due to expectations of future growth or the acquisition of valuable assets through mergers and acquisitions.

In the case of Company A, the strategy of acquiring small firms at prices above their historical averages can lead to a significant increase in the company's assets and perceived market value, thus elevating its price-to-book multiple.

B is incorrect. Suggesting that Company B, which has grown gradually by making its factories operationally efficient, would have a higher price-to-book multiple overlooks the impact of acquisition premiums on the price-to-book ratio.

While operational efficiency can improve profitability and potentially enhance shareholder value over time, it does not have the immediate and direct impact on the book value that acquisitions do.

Therefore, Company B's approach to growth, although potentially beneficial for long-term value creation, is less likely to result in a higher price-to-book multiple compared to Company A's strategy of inorganic growth through acquisitions.

C is incorrect. The acquisition premiums paid are immediately reflected in the book value, whereas operational efficiencies, though beneficial, have a more gradual and less direct impact on the company's financial metrics.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (j) Explain the rationale for using price multiples to value equity, how the price to earnings multiple relates to fundamentals, and the use of multiples based on comparables.

Q.3680 A recent survey in a popular financial magazine indicates that investors are willing to take higher risk because of the recent price surge in cryptocurrencies. The study *most* likely point towards a/an:

A. increase in the price-to-earnings ratio of all stocks.

B. decrease in the price-to-earnings ratio of all stocks.

C. increase in the equity risk premium demanded by investors.

The correct answer is **A.**

The recent survey indicating that investors are willing to take higher risks due to the surge in cryptocurrency prices most likely points towards an increase in the price-to-earnings (P/E) ratio of all stocks. The P/E ratio is a key financial metric used to evaluate the valuation of a company's shares, calculated as the market value per share divided by the earnings per share.

An increase in investor risk appetite generally leads to higher stock prices as investors are more willing to invest in equities, driving up the P/E ratios. This phenomenon can be attributed to the decreased equity risk premium demanded by investors. The equity risk premium is the extra return over the risk-free rate that investors require to compensate them for the risk of investing in stocks.

When investors are more willing to take risks, they demand a lower premium for holding risky assets, which in turn lowers the required return on equity. This lower required return makes stocks more attractive, pushing their prices up and, consequently, increasing the P/E ratios.

B is incorrect. A higher risk appetite among investors typically results in higher stock prices as investors are more inclined to buy equities, thus increasing the P/E ratios. The decrease in the equity risk premium demanded by investors leads to a lower required return on equity, making stocks more appealing and driving up their prices and P/E ratios.

C is incorrect. When investors are willing to take on more risk, as indicated by the survey, they generally demand a lower equity risk premium, not higher. This is because their increased risk tolerance means they require less additional return to compensate for the risk of investing in equities. As a result, the required return on equity decreases, making stocks more attractive and likely leading to an increase in stock prices and P/E ratios, not an increase in the equity risk premium.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (j) Explain the rationale for using price multiples to value equity, how the price to earnings multiple relates to fundamentals, and the use of multiples based on comparables.

Q.3681 An equity trader intends to follow a momentum-based trading strategy. The trader is *most likely* to select stocks based on:

A. discounted cash flow valuation approaches.

B. asset-based valuation approaches.

C. price multiples valuation approaches.

The correct answer is **C.**

A momentum trading strategy involves trading stocks that are experiencing significant price movements, either upward or downward, with the aim of capitalizing on the continuation of these trends. Traders employing this strategy are less concerned with the intrinsic value of the stocks and more focused on their price movements and patterns.

Therefore, they rely on valuation approaches that can quickly and effectively gauge a stock's market performance relative to its peers or the market as a whole. Price multiples valuation approaches, such as Price-to-Earnings (P/E) ratio, Price-to-Sales (P/S) ratio, and Price-to-Book (P/B) ratio, are particularly useful for this purpose.

These methods allow traders to assess whether a stock is overvalued or undervalued based on its current price relative to key financial metrics, making it easier to identify stocks with strong momentum.

A is incorrect. Discounted cash flow (DCF) valuation approaches are primarily used to estimate the intrinsic value of a stock by forecasting its future cash flows and discounting them back to their present value.

This method requires in-depth financial analysis and is more suited to long-term investment strategies focused on fundamental value rather than short-term price movements. Therefore, it is not typically used in momentum-based trading strategies, which prioritize immediate price trends over fundamental value.

B is incorrect. Asset-based valuation approaches determine a company's value by assessing the net asset value of its tangible and intangible assets. This method is often used for companies in the process of liquidation or for those with significant physical assets.

Like the DCF approach, asset-based valuation is more concerned with the underlying value of a company rather than its current market price movements. As such, it does not align with the objectives of a momentum trading strategy, which seeks to exploit short-term price trends rather than evaluate a company's asset base.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (b) Describe major categories of equity valuation models.

Q.3682 An equity analyst is comparing the price multiples of two companies – Quartic Ltd. and Recon Inc. While examining the balance sheet of the two companies, the analyst finds out that Quartic capitalizes its advertisement costs while Recon expenses out its advertisement costs. Assuming that both companies are similar in all other aspects, Quartic Ltd. is *most* likely to have:

A. a higher price-to-earnings ratio than Recon Inc.

B. a lower price-to-earnings ratio than Recon Inc.

C. the same price-to-earnings ratio as Recon Inc.

The correct answer is **B.**

Quartic Ltd., by capitalizing its advertisement costs, essentially spreads these costs over several periods rather than expensing them in the period they are incurred. This accounting treatment can lead to higher reported earnings in the short term since the expense recognition is delayed.

Consequently, if we assume that the market price of Quartic's shares remains relatively stable, a higher earnings figure would result in a lower price-to-earnings (P/E) ratio. The P/E ratio is calculated by dividing the market price per share by the earnings per share (EPS).

If the EPS increases due to higher reported earnings (as a result of capitalizing advertisement costs), and the market price per share remains constant, the P/E ratio will decrease.

A is incorrect. This option overlooks the impact of capitalizing advertisement costs on reported earnings. By capitalizing these costs, Quartic is likely to report higher earnings in the short term compared to Recon Inc., which expenses its advertisement costs immediately. Higher earnings, with a stable market price, lead to a lower P/E ratio, not a higher one.

C is incorrect. The difference in accounting treatment for advertisement costs (capitalization vs. expensing) will likely result in different reported earnings between the two companies. Since the P/E ratio is sensitive to earnings figures, it is improbable that Quartic Ltd. and Recon Inc. would have identical P/E ratios if their earnings are affected differently by their respective accounting treatments of advertisement costs.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (j) Explain the rationale for using price multiples to value equity, how the price to earnings multiple relates to fundamentals, and the use of multiples based on comparables.

Q.3683 An equity analyst is comparing the price multiples of two companies – Welsh Inc. and Far-East Corp. While examining the balance sheet of both companies, the analyst observes that Welsh follows the straight-line method of depreciation while Far-East depreciates its assets using the double-declining balance method.
Assuming that both companies are similar in all other aspects, which company is *most* likely to report a higher price-to-earnings ratio in the early years of both companies' lives?

A. Welsh Inc.

B. Far-East Corp

C. The depreciation method will not affect the price-to-earnings ratio

The correct answer is **B.**

The double-declining balance method of depreciation results in a faster rate of depreciation compared to the straight-line method. This results in higher tax savings in the early years of a company's life, which in turn increases earnings. The higher earnings will lead to a higher price-to-earnings (P/E) ratio.

Since Far East depreciates its assets using the double-declining balance method, it is most likely to report a higher P/E ratio in the early years compared to Welsh, which follows the straight-line method of depreciation.

A is incorrect. Welsh uses the straight-line method of depreciation, which results in a slower rate of depreciation compared to the double-declining balance method. This results in lower tax savings in the early years of a company's life, which in turn decreases earnings. The lower earnings will lead to a lower P/E ratio compared to Far-East, which uses the double-declining balance method.

C is incorrect. Depreciation is a non-cash expense that reduces taxable income, and it directly affects earnings. A faster rate of depreciation, as seen in the double-declining balance method, results in higher tax savings in the early years, which increases earnings. An increase in earnings will result in a higher P/E ratio. Hence, the depreciation method will impact the P/E ratio.

CFA Level I, Topic 6 - Equity, Learning Module 8: Equity Valuation: Concepts & Basic Tools. LOS (g): Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.3684 According to the Management Discussion & Analysis of a publicly-traded company, the firm’s dividends are expected to grow at a rate of 4% for the next ten years. If the return-on-equity ratio of the company is likely to improve in the next ten years, then the price-to-earnings ratio of the company will most likely:

A. remain unchanged.

B. increase.

C. decrease.

The correct answer is **B.**

The price-to-earnings (P/E) ratio of a company is a key financial metric used by investors to evaluate the value of a company's shares. It is calculated by dividing the market value per share by the earnings per share (EPS).

The P/E ratio can be influenced by several factors, including the company's growth prospects, dividend policy, and return on equity (ROE). In the scenario where a company's dividends are expected to grow at a rate of 4% for the next ten years and its ROE is likely to improve, the P/E ratio of the company is most likely to increase.

Improvements in ROE indicate that the company is generating more profit from its equity financing, which is a sign of financial health and efficiency. An increasing ROE suggests that the company is using its investments effectively to generate earnings growth.

This improvement in profitability often leads to higher investor expectations for future earnings growth, which can increase demand for the company's shares. As demand for the shares increases, so does the market value per share, which can lead to a higher P/E ratio if the increase in the market value per share outpaces the growth in earnings per share.

A is incorrect. Suggesting that the P/E ratio will remain unchanged overlooks the impact that an improving ROE and dividend growth can have on investor expectations and demand for the company's shares.

An improving ROE, coupled with a steady growth in dividends, generally fosters a positive outlook on the company's future earnings potential, which can influence the P/E ratio upwards as investors are willing to pay more for the company's earnings.

C is incorrect. An improving ROE signals better use of equity to generate profits, and a steady dividend growth rate can attract investors looking for reliable income, both of which can drive up the price investors are willing to pay for the company's earnings.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (k) Calculate and interpret the following multiples: price to earnings, price to an estimate of operating cash flow, price to sales, and price to book value.

Q.3686 Portions of the balance sheet of Proctor Corp. and Gator Inc. is given in exhibit 1.

Exhibit 1: Balance sheet comparatives - Proctor Corp. vs Gator Inc.

	Proctor Corp.	Gator Inc.
Fixed Assets	$10,000	$7,000
Inventories	$25,800	$27,000
Current investments	$20,000	$30,000
Prepaid Expenses	$5,000	$1,000
Total assets	$60,800	$65,000
Long term borrowings	$10,000	$8,875
Short term borrowings	$17,500	$20,000
Paid-up capital	$1,000	$1,500
Reserves and surplus	$10,000	$15,000
Accounts payables	$22,300	$19,625
Total liabilities & Equity	$60,800	$65,000

Both companies have similar growth rates and equal dividend payout ratios, but Gator Inc. currently trades at a higher P/E ratio. Which of the following is the most likely reason for the shares of the Proctor Corp. to trade at a lower price-to-earnings ratio?

A. Proctor Corp.’s current investments are lower than Gator Inc.’s.

B. The debt to equity ratio of Proctor Corp. is higher than Gator Inc.'s

C. Proctor Corp. accounts payable turnover ratio is lower than Gator Inc.

The correct answer is **B.**

The debt-to-equity ratio of both the companies:

	Debt	Equity	D/E
Proctor Corp.	$27,500	$11,000	2.50
Gator Inc.	$28,875	$16,500	1.75

Proctor Corp. is more leveraged as compared to Gator Inc. Hence, it most likely that Proctor’s equity investors will demand a higher return. Therefore, a higher cost of equity will make the price-to-earnings ratio of Proctor Corp. lower than Gator Inc.’s.

Additional explanation on the debt-to-equity ratio

$$\text{D/E} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

Further information:

What is total debt comprised of? Interest-bearing liabilities.

In this case, we have long-term borrowings and short-term borrowings as our debts.

Thus, total debt for Proctor Corp. = $10,000 + $17,500 = $27,500

and total debt for Gator Inc. = $8,875 + $20,000 = $28,875

What about shareholders' equity?

Recall that:

Assets = Liabilities + Shareholders' equity

A little algebraic manipulation gives us precisely the definition of shareholders equity:

Shareholders equity = Assets - Liabilities

For Proctor Corp., S. equity = Assets - long-term borrowings - short-term borrowings - payables

=60,800 - 10,000 - 17,500 - 22,300 = 11,000

Similarly,

Gator Inc. S. equity = 65,000 - 8,875 - 20,000 - 19,625 = 16,500

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (j) Explain the rationale for using price multiples to value equity, how the price to earnings multiple relates to fundamentals, and the use of multiples based on comparables.

Q.3687 Exhibit 1 shows a limited amount of financial information that a private equity analyst has been able to gather from four private companies.

Exhibit 1: Financial Information

	Total Assets	Debt-to-Equity Ratio	Earnings
AAA	$250 million	3.5	$234,000
BBB	$195 million	1.2	$120,000
CCC	$300 million	2.0	$250,000
DDD	$280 million	0.35	$225,000

If the analyst wants to carry out a relative valuation of the four companies in exhibit 1, then the most appropriate ratio would be the:

A. price-to-earnings ratio.

B. EV/EBITDA ratio.

C. price-to-book ratio.

The correct answer is **B.**

The most appropriate ratio for carrying out a relative valuation of the four companies, given their diverse capital structures as indicated by their varying debt-to-equity ratios, is the EV/EBITDA ratio. The EV/EBITDA ratio, or Enterprise Value to Earnings Before Interest, Taxes, Depreciation, and Amortization, is a widely used valuation metric that compares the value of a company, including debt and equity, to its cash earnings excluding non-cash expenses.

It is particularly useful in situations where companies have different financing structures or tax situations, as it allows for a more apples-to-apples comparison by neutralizing the effects of financing and accounting decisions. This makes the EV/EBITDA ratio a more accurate measure of a company's underlying operational performance and its value relative to peers.

A is incorrect. It is significantly affected by the capital structure of a company. The P/E ratio measures the market price per share divided by the earnings per share (EPS), which can be heavily influenced by the company's debt levels and interest expenses. Since the companies in Exhibit 1 have varying debt-to-equity ratios, using the P/E ratio for relative valuation could lead to misleading comparisons due to the different impacts of leverage on each company's earnings.

C is incorrect. The price-to-book (P/B) ratio, which compares a company's market value to its book value, is also not the most suitable metric for this analysis. The P/B ratio can be influenced by the accounting methods used for asset valuation, depreciation, and other factors that may not accurately reflect the current market value of a company's assets or its operational performance.

The P/B ratio does not account for the companies' earnings capabilities or their debt levels, making it less relevant for comparing companies with diverse capital structures.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (l) Describe enterprise value multiples and their use in estimating equity value.

Q.3688 A trader is trying to find short-selling opportunities using price multiples. The P/E multiple of a few stocks is given in exhibit 1:

Exhibit 1: P/E Multiples vs. Industry Average

Company	P/E Multiple
AAA	2.3
BBB	3.4
CCC	6.3
DDD	2.2
Industry Average	2.2

The equity trader concludes that the shares of CCC are the most overvalued. However, to

confirm his hypothesis, he tries to study the fundamental factors which may have driven up the company’s P/E ratio. None of the underlying factors based on trailing earnings, such as the payout ratio, justify such a massive valuation. To further confirm whether the company is currently overvalued, the trader must *most* likely:

A. perform a discounted cash flow (DCF) valuation.

B. compare the forward price-to-earnings ratio of all firms.

C. perform an asset-based valuation.

The correct answer is **B.**

To accurately assess whether CCC is overvalued, the equity trader should compare the forward price-to-earnings (P/E) ratios of all firms within the same industry. The forward P/E ratio is a valuation metric that uses projected earnings over the next 12 months, rather than historical earnings.

This approach provides a more current perspective on the company's valuation, taking into account expected growth rates, future earnings potential, and market sentiment. By comparing forward P/E ratios, the trader can better understand if CCC's high current P/E ratio is justified by its future earnings prospects or if it indeed indicates overvaluation relative to its peers.

A is incorrect. DCF analysis requires detailed financial information and assumptions about future growth rates, discount rates, and terminal values, which can be time-consuming and complex. While DCF is a valuable tool for valuation, it might not be the most straightforward approach for quickly assessing overvaluation based on price multiples.

C is incorrect. An asset-based valuation focuses on a company's net asset value, calculating the total value of its assets minus the total value of its liabilities. This method is more relevant for companies with significant tangible assets and in certain industries like real estate or investment companies.

For an equity trader looking to assess overvaluation through price multiples, an asset-based valuation might not provide the most relevant insights. It does not directly address the issue of the company's earnings potential and growth prospects, which are critical factors influencing P/E ratios and overall market valuation.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (f) Explain advantages and disadvantages of each category of valuation model.

Q.3689 The owner of a software company intends to sell his medium-sized business. However, if the owner is not willing to sell its proprietary software codes to the acquirer, then the *most* appropriate metric to value the company would be a/an:

A. price-to-sales multiple valuation.

B. asset-based valuation.

C. discounted cash flow (DCF) valuation.

The correct answer is **B.**

When the owner of a software company is unwilling to sell its proprietary software codes to the acquirer, the most appropriate metric to value the company would be an asset-based valuation. This approach focuses on the company's assets, both tangible and intangible, excluding the proprietary software codes in this scenario.

Asset-based valuation is particularly suitable in situations where the company's primary value drivers, such as proprietary technology or software codes, are not part of the sale. This method assesses the value of the company based on the net asset value, which is the difference between the total assets and total liabilities.

It provides a clear picture of the company's worth from a purely asset-centric perspective, making it the most appropriate choice under these circumstances.

A is incorrect. Price-to-sales multiple valuation relies on comparing the company's sales or revenue to its market value, which can be significantly influenced by proprietary software codes in a software company. This method might not accurately reflect the company's value without including the proprietary codes, as these codes are often a critical driver of sales and profitability in the software industry.

Therefore, using a price-to-sales multiple without considering the value contributed by the proprietary software codes could lead to an inaccurate valuation.

C is incorrect.

The exclusion of proprietary software codes from the sale could significantly impact the company's future cash flows, making it challenging to accurately forecast these cash flows without considering the value and contribution of the software codes. Additionally, the DCF method requires assumptions about future growth rates and discount rates, which could introduce a high level of uncertainty in the valuation without the proprietary codes.

Therefore, an asset-based valuation is more appropriate in this context.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (e) Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.

Q.3690 The sole owner of a digital marketing company that started its operations a few years ago intends to sell his business. If he is willing to sell all of the proprietary software codes to the acquirer, then the most appropriate metric to value the company would be the:

A. price-to-earnings ratio.

B. price-to-sales ratio.

C. price-to-book value ratio.

The correct answer is **B.**

The most appropriate metric to value a digital marketing company that is willing to sell all of its proprietary software codes to the acquirer is the price-to-sales ratio. This decision is based on several factors that are unique to the nature of the business and its assets.

The price-to-sales ratio is a valuation ratio that compares a company's stock price to its revenues, providing an indication of the value placed on each dollar of a company's sales or revenues. This metric is particularly useful for valuing companies that may not yet be profitable or have significant intangible assets, such as proprietary software codes, which can be difficult to value accurately using other metrics.

A is incorrect. The price-to-earnings ratio, which compares a company's stock price to its earnings per share, is not the most appropriate metric in this scenario. For a digital marketing company that started its operations a few years ago, it is possible that the company has not yet achieved stable or significant earnings.

Startups and young companies often reinvest their earnings into the business to fuel growth, which can result in low or negative earnings in the initial years. Therefore, using the price-to-earnings ratio could undervalue the company or fail to provide a meaningful valuation metric due to the lack of substantial earnings.

C is incorrect. The price-to-book value ratio, which compares a company's stock price to its book value per share, is also not suitable for valuing a company that intends to sell all of its proprietary software codes.

The book value primarily reflects the net asset value of a company as recorded on its balance sheet, which includes tangible assets and certain intangible assets. However, proprietary software codes, while potentially highly valuable, may not be fully captured or accurately valued on the balance sheet.

Intangible assets like software codes can have significant value based on their potential to generate future revenue, but this value may not be reflected in the book value. As a result, the price-to-book value ratio may not provide a comprehensive valuation of the company, especially when the proprietary software codes are a key asset.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (k) Calculate and interpret the following multiples: price to earnings, price to an estimate of operating cash flow, price to sales, and price to book value.

Q.3691 The trailing and forward price multiples of the shares of few companies are furnished in the table below:

Company	Sector	Trailing P/E Multiple	Forward P/E Multiple
A	Telecom	4.34	1.30
B	Oil and Gas	3.20	4.25
C	Consumer Staples	3.25	3.30
D	Banking	2.30	3.28
E	Social Media	3.23	3.90

If only the price multiples are considered, then the company which appears to be the most undervalued is Company:

A. A.

B. D.

C. E.

The correct answer is **A.**

When evaluating the valuation of companies based on price multiples, both trailing and forward Price-to-Earnings (P/E) ratios are significant indicators. The trailing P/E ratio is based on past earnings, while the forward P/E ratio is based on projected future earnings.

Generally, a lower P/E ratio may indicate that the company is undervalued relative to its earnings. In this context, Company A, with a forward P/E ratio of 1.30, appears to be the most undervalued among the options provided. This is because investors are paying the least amount for each dollar of Company A's future earnings compared to the other companies listed, suggesting that Company A's stock might be undervalued.

B is incorrect. Company D, with a forward P/E ratio of 3.28, is not the most undervalued company based on the information provided. While Company D's forward P/E ratio is relatively low, indicating some level of undervaluation, it is not the lowest among the options.

The forward P/E ratio is a forward-looking metric that helps investors gauge the market's expectations for a company's future earnings growth. Since Company A has a lower forward P/E ratio (1.30) compared to Company D, Company A is considered more undervalued than Company D when only price multiples are considered.

C is incorrect. Company E, with a forward P/E ratio of 3.90, is not the most undervalued based on the forward P/E ratios provided. The forward P/E ratio is an essential tool for investors to evaluate a company's stock price relative to its expected future earnings. A higher forward P/E ratio may indicate that the market has higher expectations for a company's future earnings growth.

However, when assessing undervaluation solely based on price multiples, a lower forward P/E ratio is preferable. Since Company A has a significantly lower forward P/E ratio (1.30) compared to Company E, it is considered more undervalued than Company E in this context.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (k) Calculate and interpret the following multiples: price to earnings, price to an estimate of operating cash flow, price to sales, and price to book value.

Q.3766 The following data is available on a company:

- Comprehensive income – $ 150 million
- Other Comprehensive Income – $ 40 million
- Common Shares Outstanding – 30 million
- Stock Price Per Share - $ 40

On a net income basis, the Company's P/E is closest to:

A. 10.91

B. 8

C. 3.667

The correct answer is **A.**

To determine the Price to Earnings (P/E) ratio on a net income basis for the company, we first need to calculate the Net Income and Earnings Per Share (EPS). Net Income is derived by subtracting Other Comprehensive Income from Comprehensive Income. In this case, the Net Income is calculated as follows:

$$\text{Net Income} = \text{Comprehensive Income} - \text{Other Comprehensive Income}$$

$$= 150 \text{ Million} - 40 \text{ Million} = \$110 \text{ Million}$$

$$\text{Earnings Per Share (EPS)} = \frac{\text{Net Income}}{\text{Common Shares Outstanding}}$$

$$= \$110 \text{ Million}/30 \text{ Million} = \$3.667$$

$$P/E = \frac{\text{Stock Price}}{\text{EPS}}$$

$$= \frac{\$40}{3.667} = 10.91$$

B is incorrect. This is because it represents comprehensive P/E and not net P/E

$$\text{Comprehensive Income Per Share} = \frac{\text{Comprehensive Income}}{\text{Common Shares Outstanding}}$$

$$= \frac{\$150 \text{ Million}}{30 \text{ Million}} = \$5$$

$$\frac{P}{E} = \frac{\text{Stock Price}}{\text{Comprehensive Income Per Share}} = \frac{\$40}{\$5} = 8$$

C is incorrect. This is because it represents the basic EPS and not the P/E.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (k) Calculate and interpret the following multiples: price to earnings, price to an estimate of operating cash flow, price to sales, and price to book value.

Q.3873 The most recent annual dividend declared by Creed Inc. to all shareholders is $0.78 per share. The stock is currently trading at $28 per share. Analysts expect the dividend to grow at 4 percent per year and the required rate of return on the market is 8%. The intrinsic value of the stock is *closest to:*

A. 27.59

B. 19.5

C. 20.28

The correct answer is **C.**

According to the Gordon growth model:

$$V_0 = \frac{D_1}{r - g} = \frac{D_0(1 + g)}{r - g} = \frac{0.78(1.04)}{0.08 - 0.04} = \$20.28 \text{ per share}$$

Note that we do not use the current price of the stock in calculating the stock's intrinsic value. Our goal here is to find the intrinsic value and to then decide if the stock is under or overvalued.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (g) Calculate the intrinsic value of a non-callable, non-convertible preferred stock.

Q.3875 A company has recently announced an annual dividend on its stock of $0.78. Analysts believe the dividends are expected to grow at an annual rate of 4% for 5 years and then 2% thereafter. If the required rate of return on equity is 8 percent, then the intrinsic value of the share of stock is closest to:

A. 3.49

B. 16.13

C. 14.49

The correct answer is **C.**

Step 1: Find PV of income in the high-growth period

$$PV = \frac{0.78(1.04)}{1.08} + \frac{0.78(1.04)^2}{1.08^2} + \frac{0.78(1.04)^3}{1.08^3} + \frac{0.78(1.04)^4}{1.08^4} + \frac{0.78(1.04)^5}{1.08^5} = \$3.49$$

Step 2: Find PV of income in the stable-growth period

$$\text{PV at time 5} = V_n = \frac{D_{n+1}}{r - g_l} = \frac{0.78 \times 1.04^5 \times 1.02}{0.08 - 0.02} = \$16.13$$

$$\text{PV at time 0} = \frac{16.13}{1.08^5} = \$11$$

Step 3: Sum up the PVs of the high growth and stable-growth periods

$$= \$3.49 + \$11 = \$14.49$$

We can use the financial calculator to arrive at the above answer. First, we calculate the future selling price using Gordon's Growth Model formula.

$$V_o = \frac{D_1}{r - g} = \frac{D_o\,(1 + g)}{r - g}$$

$$= \frac{0.78 \times (1 + 0.04)^5 \times (1 + 0.02)}{0.08 - 0.02} = 16.1328$$

Then we use the CF function of the financial calculator to solve. We will add the above-calculated future selling price (16.1328) to the last cash flow (CF5)

$$[CF0 = 0,\ CF1 = 0.78 \times 1.04,\ CF2 = 0.78 \times (1.04^2),\ CF3 = 0.78 \times (1.04^3),\ CF4 = 0.78 \times (1.04^4)$$

Press "CPT" "NPV," input "I" as 8, then finally press "CPT" to get the NPV as 14.49.

CFA Level 1, Topic 6 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS (g) Calculate the intrinsic value of a non-callable, non-convertible preferred stock.
