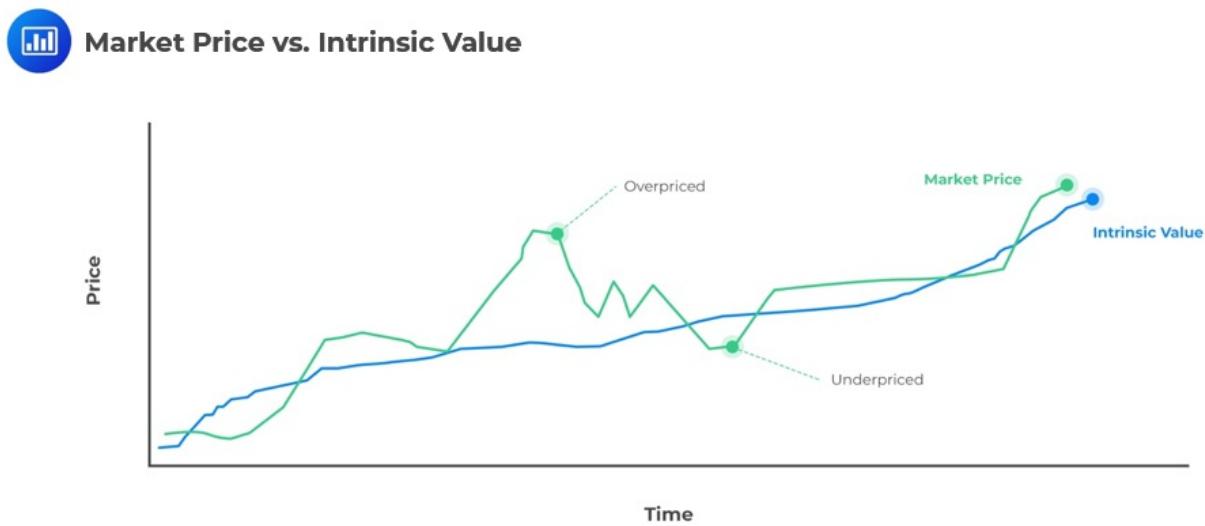


## **Learning Module 8: Equity Valuation: Concepts & Basic Tools**

**LOS 8a: evaluate whether security, given its current market price and a value estimate, is overvalued, fairly valued, or undervalued by the market**

When a security's current market price is approximately equal to its value estimate, the security is considered to be fairly valued. Conversely, when the market price exceeds the value estimate, the security is overvalued, and so the security is undervalued when the market price is lower than its estimated value.



Of course, there are many uncertainties in calculating an estimated valuation for a company. So while market prices should be treated with skepticism, they should also be treated with respect because an identified mispricing may reveal an error in the analyst's valuation and not the market's valuation.

## Question

A share of Apple stock is currently selling for \$117. An analyst calculates a share of Apple to be worth approximately \$115 to \$130.

The analyst thinks that Apple's stock is currently:

- A. Overvalued.
- B. Fairly valued.
- C. Undervalued.

## Solution

The correct answer is **B**.

Based on the analyst's calculation that a share of Apple is worth approximately \$115 to \$130, and considering that the current market price is \$117, the stock is within the analyst's valuation range. Therefore, the stock can be considered fairly valued.

## **LOS 8b: describe major categories of equity valuation models**

There are three major categories of equity valuation models: present value models, multiplier models, and asset-based valuation models.

### **Present Value Models/Discounted Cash Flow Models**

These models estimate intrinsic value based on expected future benefits, usually based on expected dividends (dividend discount model) or expected free cash flows (free-cash-flow-to-equity models).

### **Multiplier Models/Market Multiple Models**

These models are based on share price multiples or enterprise value multiples. Share price multiples usually calculate the intrinsic value based on the absolute or relative multiples of trailing or projected earnings or sales. Instead of using the share price in the numerator, enterprise value multiples use the company's enterprise value (*Market capitalization + Market value of debt and preferred shares - Cash equivalents*) and typically divide it by EBITDA (*EV/EBITDA*) or total revenue (*EV/Sales*).

### **Asset-Based Valuation Models**

These models estimate intrinsic value based on the estimated value of a company's assets minus its liabilities, often through adjustments to its book value. In theory, the value of a business should be equal to the sum of the value of the business's assets.

## **Question**

At the beginning of 2016, stocks in the air transport industry had a trailing price-to-earnings ratio of approximately 12. An analyst believes that Fly2U, a publicly-traded air transport company, is undervalued primarily because its shares are trading at only 8 times trailing earnings.

The analyst is primarily using what type of model to estimate Fly2U's share value?

- A. Multiplier.
- B. Asset-based.
- C. Present value.

## **Solution**

The correct answer is **A**.

The analyst in this scenario is primarily using a valuation model based on the price-to-earnings (P/E) ratio. The P/E ratio is a multiplier that relates a company's stock price to its earnings per share. In this case, the analyst is comparing Fly2U's P/E ratio (8 times trailing earnings) to the industry average (12 times trailing earnings) to argue that Fly2U may be undervalued.

## **LOS 8c: describe regular cash dividends, extra dividends, stock dividends, stock splits, reverse stock splits, and share repurchases**

According to the dividend discount model (DDM), the value of an investment should be equal to the present value of the expected future benefits. For common shares, these benefits come in the form of dividends and the expected capital gain on the sale of the stock. Therefore, to understand the model, the candidate must understand all aspects of dividends.

### **Dividends**

A dividend is a distribution paid to shareholders based on the number of shares owned. The distribution can take one of several forms:

#### **Cash dividend**

A company pays regular cash dividends whenever it distributes a share of its profits in cash to its shareholders based on a regular dividend payment schedule. For example, the company may opt to pay shareholders a dividend every quarter, semiannually, or annually. Thus, the company could issue an annual dividend of, say, \$0.50 per share. In such a scenario, an investor who owns 100,000 common shares would receive \$50,000.

Consistent cash dividend payouts send a positive signal to the markets, indicating that the company is growing and should continue to grow and pay dividends in the future.

#### **Extra dividend**

A company may also issue a dividend outside of the usual schedule to supplement the regular cash dividend with an extra payment. This is called an **extra dividend** or **special dividend**.

#### **Stock dividend**

Stock dividends refer to all dividend payments that are not in the form of cash. In these instances, a company chooses to distribute profits in the form of additional shares instead of

using cash. For example, when a company declares a 10% stock dividend, every shareholder receives an additional 10 shares for every 100 shares they already own.

When a company pays stock dividends, the total number of shares outstanding will increase but share value remains the same. In addition, a shareholder's proportionate ownership in the company will remain the same. Likewise, his total cost basis will be unchanged since he did not purchase the additional shares; they were rather "given" to him. His cost per share will, however, be reduced. Therefore, stock dividends are not relevant for valuation.

## **Stock split**

In a stock split, a company gives its shareholders X number of shares for every Y number of shares that are owned. For example, in a two-for-one stock split, shareholders receive one additional share for every share previously owned. Thus, if a company had 20 million shares outstanding before the stock split, it will have 40 million shares outstanding after a 2-for-1 stock split.

## **Reverse stock split**

A reverse stock split is the opposite of a stock split. In a reverse stock split, a company reduces the number of shares outstanding by a set multiple. For example, if a company announces a 1-for-4 reverse stock split, shareholders will receive 1 share for every 4 they own. Thus, an investor with 10,000 old shares will end up with just 2,500 new shares.

A reverse stock split results in an increase in the price per share but does not affect a company's market value or shareholders' total cost basis. For example, the same investor owning 10,000 shares at \$1 will now have 2,500 shares worth \$4. However, his investment in dollar terms remains \$10,000.

## **Share repurchase**

In a share repurchase, the company uses cash to buy back its own shares. Once repurchased, the shares do not participate in subsequent voting or dividend issues. The shares are also not

considered when computing the earnings per share.

A share repurchase is viewed as equivalent to the payment of cash dividends of equal value in terms of the effect on shareholder's wealth, all other things being equal. It sends the message that the share may be undervalued. It can also be preferred to cash dividends when tax rates on dividends exceed tax rates on capital gains.

## Question

A business worth \$20,000,000 made \$1,000,000 in profits in 2018. The business has 10 partners, each with a 10% stake. The company's policy is to pay out 40% of profits every year to the owners. In 2019, one of the owners decided to cash out although the profitability of the business remained constant. The remaining partners ended up buying out the partner. The amount received by each partner in 2019 is *closest* to:

- A. \$23,333
- B. \$40,000
- C. \$44,444

The correct answer is C.

Since the buyout is executed using out-of-pocket cash, the value of the business remains the same.

Instead of receiving \$40,000 ( $= 1,000,000 \times 40\% \div 10$ ), the remaining 9 owners will receive \$44,444 ( $= 1,000,000 \times 40\% \div 9$ ) even though the business did not grow. What did grow is the percentage of ownership of each remaining partner; from 10% to 11.11% ( $= 20,000,000/9 \div 20,000,000$ ).

## **LOS 8d: describe dividend payment chronology**

Dividend chronology describes the timeline for a series of events that take place after a company decides to pay dividends to its shareholders. Included in this chronology are the declaration date, ex-dividend date, record date, and payment date in that time order.

### **Declaration Date**

The declaration date is the day on which a company issues a statement declaring its intent to pay a dividend. On said date, the company also announces the holder-of-record date and the payment date. A holder-of-record is the name of the person who is the registered owner of a security and who has the rights to the dividend.

### **Ex-Dividend Date**

The ex-dividend date, otherwise known as the ex-date, is the first business day on which a share will trade without its dividend. As a result, investors who owned shares before the ex-dividend date will receive a dividend once it is paid. In contrast, investors who acquire shares on or after the ex-dividend date will not have the benefit of receiving the dividend.

### **Holder-of-Record Date**

The holder-of-record date, or just simply the record date, as determined by a company, is the business day on which a shareholder that is listed in the company's records is deemed to have ownership of the company's shares for the purpose of deciding who can and who cannot receive a dividend when paid.

The record date is typically one or two business days after the ex-dividend date.

### **Payment Date**

The payment date, or payable date, is the date on which a company mails or transfers dividend payments to its shareholders on record. The payment date does not have to be a business day; it can occur on a weekend or holiday.

## **Question**

If an investor purchases shares on the company's ex-dividend date, which of the following statements is accurate?

- A. The investor will receive the dividend when it is paid by the company.
- B. The investor will not receive the dividend when it is paid by the company.
- C. The investor will receive a portion of the dividend when paid by the company.

## **Solution**

The correct answer is **B**.

When an investor purchases shares on the ex-dividend date or later, they are not entitled to receive the upcoming dividend payment. The dividend is typically paid to shareholders of record, meaning those who own the shares on or before the record date. Purchasing shares on the ex-dividend date or afterward means the investor will not be on the company's records as a shareholder entitled to receive the dividend.

## **LOS 8e: explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models**

Present value models are based on a fundamental tenet of economics stating that individuals defer consumption to reap future benefits. Therefore, the value of an investment today should be worth the present value of expected future benefits, defined as dividends or free cash flow.

### **Dividend Discount Model**

The dividend discount model looks at cash flows from the investor's perspective. Cash is received from distributions during the holding period and the final sale price upon liquidation of the security.

$$V_0 = \sum_{t=1}^n \frac{D_t}{(1+r)^t} + \frac{P_n}{(1+r)^n}$$

$V_0$  = present value of a share of the stock today

$D_t$  = expected dividend in year  $t$

$r$  = required rate of return on the stock

The first part of the equation is simply the sum of the next dividend payments that will occur at some point in the future, each discounted back at the required rate of return so that we arrive at a present value today.

The second part of the equation is the discounted terminal stock value or the expected selling price at the end of the investment horizon.

### **Free-cash-flow-to-equity Models**

Instead of measuring expected dividends, the free-cash-flow-to-equity (FCFE) model is based on

the company's expected dividend-paying capacity. The calculation of FCFE starts with the cash flows from operations (CFO):

$$\text{CFO} = \text{Net income} + \text{Noncash expenses} - \text{Working capital}$$

Then, we can come up with the free-cash-flow-to-equity (FCFE) calculation:

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

Where *Net borrowing* is simply *Borrowings* minus *Repayments*.

## Question

The following is taken from an analyst's valuation of CBA, Inc:

Current Price	\$8.50
Expected Year 1 Dividend	\$1.00
Expected Year 2 Dividend	\$1.15
Expected Sale Price (End of Year 2)	\$8.75

The analyst's required return is 8%. Based on the analyst's estimates and using the dividend discount model, the stock price of CBA, Inc. is currently:

- A. Overvalued.
- B. Fairly valued.
- C. Undervalued.

## Solution

The correct answer is **C**.

Based on the given inputs, the stock's estimated value is equal to year 1 cash flows ( $\$1.00/1.08 = \$0.93$ ) plus year 2 cash flows  $((\$8.75 + \$1.15)/1.08^2 = \$8.49)$ , or approximately \$9.41. Because the stock's estimated value exceeds its current price, the stock is undervalued.

## **LOS 8f: calculate the intrinsic value of a non-callable, non-convertible preferred stock**

The intrinsic value of a non-callable, non-convertible preferred stock can be calculated in much the same way as a share of common stock, except the expected sales price is replaced by the par value of the preferred shares.

$$V_0 = \sum_{t=1}^n \frac{D_t}{(1+r)^t} + \frac{F}{(1+r)^n}$$

Where:

$V_0$  = present value of a share of stock today

$D_t$  = expected dividend in year  $t$

$r$  = required return on the stock

$F$  = par value of the preferred stock

$n$  = years to maturity

## Question

ABC's 5% dividend-paying preferred shares have a par value of \$100. The required rate of return on preferred shares with the same rating is 7% as of the valuation date. The preferred shares will mature in ten years.

All else being equal, if the preferred shares instead matured in 15 years, how would the intrinsic value of ABC's preferred shares change?

- A. The longer maturity would increase current valuation.
- B. The longer maturity would decrease current valuation.
- C. The longer maturity would not change current valuation.

## Solution

The correct answer is **B**.

The intrinsic value of preferred shares is influenced by the time to maturity and the required rate of return. When the dividend rate of preferred shares is lower than the required rate of return, the value of the shares will be below par value.

In this case, as the maturity of the preferred shares increases from 10 years to 15 years, it extends the period over which investors will receive dividends at a rate lower than the required return. This longer period of receiving lower-than-required returns decreases the present value of future cash flows associated with the preferred shares.

**LOS 8g: 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**

## **Gordon (Constant) Growth Dividend Discount Model**

As the name implies, the Gordon (constant) growth dividend discount model assumes dividends grow indefinitely at a constant rate.

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

Where:

$D_1$  = expected dividends **in year 1**

Note that this is of the utmost importance in your calculation. If you are given the dividend today, you would multiply  $D_0$  by  $(1+r)$  to have the dividend in one year.

$r$  = required rate of return

$g$  = growth rate

Analysts may use the following equation to estimate a company's sustainable growth rate:

$g = b \times ROE$

$b$  = earnings retention rate or  $(1 - \text{dividend payout ratio})$

$ROE$  = return on equity

## **Multistage Dividend Discount Model**

The two-stage dividend discount model is a bit more complicated than the Gordon model as it involves using both a short-term and a long-term growth rate to estimate a company's current value. The two-stage DDM assumes that the company will pay dividends that grow at a constant

rate at some point, but dividends are currently growing at an elevated and unsustainable rate. The intrinsic value of a share of stock using this model can be estimated as follows:

$$V_0 = \sum_{t=1}^n \frac{D_0(1 + g_S)^t}{(1 + r)^t} + \frac{V_n}{(1 + r)^n}$$

Where:

$$V_n = \frac{D_{n+1}}{r - g_L}$$

$$D_{n+1} = D_0(1 + g_S)^n (1 + g_L)$$

$g_S$  = short-term growth rate lasting for n-years.

$g_L$  = long-term (sustainable) growth rate into perpetuity.

The above equation implies that the long-term dividend is the dividend today, multiplied by one plus the short-term dividend for a number of periods n, then multiplied by one plus the long-term growth rate.

While several equations are involved, the two-stage DDM calculation boils down to the sum of the discounted short-term dividends and the discounted long-term dividends. The short-term dividends have to be rolled back to the present ( $t = 0$ ), while the value of the long-term dividends must first be calculated at the time of transition from short-term to long-term ( $t = n$ ).

The number of stages used in valuation should not be solely based on the company's age, as many long-established companies can experience periods of above-average or below-average growth.

## Question

Using the Gordon (constant) growth dividend discount model and assuming that  $r > g > 1\%$ , what would be the effect of a 1% decrease in both the required rate of return and the constant growth rate on the stock's current valuation? Assume there is no change to current dividend payment ( $D_0$ ).

- A. Current valuation would increase.
- B. Current valuation would decrease.
- C. Current valuation would remain unchanged.

## Solution

The correct answer is **B**.

If both the required rate of return and growth rate are decreased by the same amount, the denominator should remain unchanged. However, to calculate the current value, the current dividend must be rolled ahead one year by multiplying  $D_0$  by  $(1+g)$ . While the current dividend payment is unchanged in this instance,  $D_1$  will decrease slightly when  $g$  is decreased by 1% thus making the current valuation lower than it was previously.

## **LOS 8h: identify characteristics of companies for which the constant growth or a multistage dividend discount model is appropriate**

The Gordon (constant) growth dividend discount model is particularly useful for valuing the equity of dividend-paying companies that are insensitive to the business cycle and in a mature growth phase.

On the other hand, multistage models are often used to model rapidly growing companies. The multistage DDM can be extended beyond two stages to however many stages are deemed appropriate. For instance, the valuation of a fairly young company may benefit from a three-stage DDM.

## Question

Corporation	Sensitivity	3yr Growth Rate	Long-term Growth Rate
A	Defensive	5.0%	2.0%
B	Cyclical	3.0%	3.0%
C	Defensive	6.0%	6.0%

Which one of the corporations above would *most likely* be the best fit for a valuation using the Gordon (constant) growth dividend-discount model?

- A. Corporation A.
- B. Corporation B.
- C. Corporation C.

## Solution

The correct answer is **C**.

Due to its insensitivity to the business cycle and a short-term growth rate that corresponds to its long-term growth rate, Corporation C would probably be the most appropriate candidate for valuation using the Gordon (constant) growth DDM.

A multistage model would likely be appropriate for Corporation A due to the significant variance between short-term and long-term growth rates.

A constant growth model valuation may also be appropriate for Corporation B, but accuracy is less likely due to the cyclical nature of its business.

## **LOS 8i: 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**

The use of price multipliers to earnings, book value, and sales have all shown to have significant predictive value in determining relative future returns, implying that price multiples can be an effective tool for the valuation of companies. In addition, calculating the “justified value” (the value justified by fundamentals or a set of cash flow predictions) of certain multiples offers an alternative way of estimating intrinsic value.

### **Justified Price/Earnings Multiple**

Assuming a constant rate of growth, the justified forward price-to-earnings ratio can be found using the following equation:

$$\frac{P_0}{E_1} = \text{justified forward P/E}$$

$$\frac{P_0}{E_1} = \frac{p}{r - g}$$

$p$  = payout ratio

$r$  = required rate of return

$g$  = expected growth rate of dividends

The justified forward P/E is inversely related to the required rate of return and positively related to the growth rate. However, this relationship may not be true because a higher payout ratio may imply a slower growth rate due to the company retaining a lower proportion of earnings for reinvestment. These estimates may be highly sensitive to small changes in assumptions, so it may be useful to conduct a sensitivity analysis.

### **The Method of Comparables**

The economic rationale underlying the method of comparables is the law of one price: identical assets should sell for the same price. Thus, if an appropriate benchmark multiplier representative of a peer group or industry can be set, an analyst can determine the current relative value of a given company.

However, it is not always easy to determine comparable companies or industries due to other business lines and differing company sizes. For instance, it would be relatively hard to find a comparable company to Apple – one that sells over 200 million smartphones per year and millions of computers and tablets throughout the world.

## **Question**

All else equal, a decrease in which of the following will cause an increase in the justified forward P/E multiple?

- A. Growth rate.
- B. Payout ratio.
- C. Required rate of return.

## **Solution**

The correct answer is **C**.

Due to the inverse relationship between the required rate of return and the justified P/E, a decrease in the required return will justify a higher forward P/E. This should make sense intuitively since investors are willing to pay a higher price for assets as they relax their return requirements.

## **LOS 8j: 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**

The concept of price multiples refers to ratios that compare a company's share price with a financial metric, allowing for an assessment of the stock's relative value. These ratios are commonly used by practitioners for screening purposes, identifying stocks for potential purchase or sale based on specified threshold values. Additionally, price multiples are useful for evaluating a group or sector of stocks, with lower ratios often indicating more attractively valued securities.

Key price multiples utilized by security analysts include:

- **Price-to-Earnings Ratio (P/E):** This is the ratio of the stock price to earnings per share (EPS). The P/E ratio is widely cited by the media and used by analysts and investors. Historical research has shown that stocks with low P/E ratios have been associated with higher future returns.
- **Price-to-Book Ratio (P/B):** This ratio compares the stock price to the book value per share. There is substantial evidence indicating that lower P/B ratios are correlated with higher future returns.
- **Price-to-Sales Ratio (P/S):** This ratio is calculated as the stock price divided by sales per share. Research has demonstrated that a low P/S multiple is an effective predictor of future returns.
- **Price-to-Cash-Flow Ratio (P/CF):** This ratio compares the stock price to a per-share measure of cash flow, such as free cash flow (FCF) or operating cash flow (OCF).

One criticism of price multiples is that they do not account for future prospects if based on trailing or current values. To address this, practitioners often forecast fundamental values or use forward price multiples, which can provide a more forward-looking perspective.

In addition to these traditional price multiples, analysts should be familiar with industry-specific ratios and other metrics used to analyze business performance and financial condition based on financial statement data.

## **Linking Price Multiples, Present Value Models and Fundamentals**

Price multiples can be linked to fundamental analysis through discounted cash flow models, such as the Gordon growth model. For example, the justified forward P/E ratio can be derived using the following relationship:

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

By dividing both sides of the equation by the forecast for next year's earnings,  $E_1$ , we obtain the justified forward P/E:

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

This equation indicates that the P/E ratio is inversely related to the required rate of return and positively related to the growth rate. However, the relationship between the P/E ratio and the payout ratio ( $p$ ) may not be straightforward, as a higher payout ratio can imply a slower growth rate due to lower earnings retention for reinvestment.

## Question

Which one of the following statements is *most* accurate?

- A. A high price-to-book ratio usually implies the company is in financial turmoil.
- B. A low price-to-earnings ratio can imply the company is undervalued or has higher potential future returns, but it does not necessarily mean high growth prospects.
- C. If a company's price-to-sales ratio increases from its value one year prior, the price-to-earnings ratio must have also increased if the net income/sales ratio remains constant.

## Solution

The correct answer is **B**.

A low P/E ratio is generally associated with undervaluation, indicating that the stock may be priced lower relative to its earnings. However, it does not always imply high growth prospects, as it could also indicate other factors such as market pessimism or potential risks.

**A is incorrect.** A high P/B ratio typically indicates that the market values the company's assets highly, which is not necessarily a sign of financial turmoil. In fact, a low P/B ratio is more often associated with companies that may be experiencing financial distress.

**C is incorrect.** While it is true that an increase in P/S ratio could lead to an increase in P/E ratio if the net income/sales ratio remains constant, the relationship is not direct. Changes in profit margins or other factors can cause these ratios to move independently of each other.

## **LOS 8k: describe enterprise value multiples and their use in estimating equity value**

Enterprise value (EV), often viewed as the cost of a takeover, is most frequently determined as market capitalization plus the market value of preferred stock plus the market value of debt minus cash equivalents and short-term investments.

### **EV/EBITDA**

EBITDA (earnings before interest, taxes, depreciation, and amortization) can be viewed as a source of funds to pay off the financial stakeholders in the company (lenders, shareholders, the government, etc.). EV/EBITDA is arguably the most common EV multiple. The EV/EBITDA ratio for S&P 500 companies has averaged 13 over the past few years. As a general guideline, an EV/EBITDA value below 10 is commonly interpreted as healthy by analysts. Since EBITDA is usually positive even when net income is negative, EV/EBITDA can be calculated when a price-to-earnings (P/E) multiple may not be available.

### **EV/Operating income**

EV/Operating income can also be used as an alternative to EV/EBITDA. Analysts may have difficulty finding the market value of a company's debt, in which case the value may have to be estimated based on comparable bond values.

## Question

A junior analyst made a number of mistakes when performing an analysis of Confuzzled, Inc., a soft drink manufacturer as of year-end 2018. The analyst accidentally used the company's 2017 book value of debt (\$200 million) instead of the 2018 book value of debt (\$150 million) when calculating relevant financial ratios. The analyst also overstated the company's marketable securities by \$20 million and understated EBITDA by \$25 million. All else equal, the correction of which one of these errors on its own will cause a decrease in the analyst's calculation for Confuzzled's EV/EBITDA multiple?

- A. EBITDA.
- B. Cash equivalents.
- C. Book value of debt.

## Solution

The correct answer is A.

Correctly increasing EBITDA by \$25 million would, in fact, decrease the calculated EV/EBITDA for Confuzzled, Inc.

**B is incorrect.** In correcting the marketable securities error, cash equivalents would be reduced by \$20 million causing a corresponding increase in enterprise value and, therefore, an increase in the EV/EBITDA multiple.

**C is incorrect.** The book value of debt should not be used in calculating enterprise value. Thus, the correction should have no effect on the EV/EBITDA multiple.

## **LOS 8l: describe asset-based valuation models and their use in estimating equity value**

An asset-based valuation of a company uses estimates of the market or fair value of the company's assets and liabilities and, thus, is most appropriate for companies with a high proportion of current assets and current liabilities and few/insignificant intangible assets. Asset-based valuations are frequently used in combination with multiplier models to value private companies or to supplement the valuation of public companies.

Not all companies own assets for which the fair value can be easily determined, and market values can differ significantly from carrying values. Furthermore, asset valuations may be of limited use in a hyper-inflationary environment.

## Question

Which of the following famous investing approaches made the most use of asset-based valuation?

- A. Ben Graham's "Net-Net" or "Cigar Butt" approach of finding companies selling for less than their net working capital.
- B. Joel Greenblatt's "Magic Formula" approach, which screens for stocks with low P/E ratios that also achieve high returns on invested capital.
- C. Charlie Munger's/Warren Buffett's investment approach targeting great companies at good prices. This approach focuses heavily on companies with sustainable moats (competitive advantages) generally achieved with a valuable brand (intangible) and competent management.

## Solution

The correct answer is A.

Since Ben Graham's approach focuses solely on current assets and liabilities, asset-based valuation is a core part of the strategy.

**B is incorrect.** Joel Greenblatt's "Magic Formula" is based on a multiplier valuation because of its use of the P/E ratio.

**C is incorrect.** While Warren Buffett made a number of "Cigar Butt" investments in his day, the investment approach that he is best known for (thanks in large part to Charlie Munger) strays from asset-based valuation towards valuations that take valuable intangibles into account.

## **LOS 8l: describe asset-based valuation models and their use in estimating equity value**

An asset-based valuation of a company uses estimates of the market or fair value of the company's assets and liabilities and, thus, is most appropriate for companies with a high proportion of current assets and current liabilities and few/insignificant intangible assets. Asset-based valuations are frequently used in combination with multiplier models to value private companies or to supplement the valuation of public companies.

Not all companies own assets for which the fair value can be easily determined, and market values can differ significantly from carrying values. Furthermore, asset valuations may be of limited use in a hyper-inflationary environment.

## Question

Which of the following famous investing approaches made the most use of asset-based valuation?

- A. Ben Graham's "Net-Net" or "Cigar Butt" approach of finding companies selling for less than their net working capital.
- B. Joel Greenblatt's "Magic Formula" approach, which screens for stocks with low P/E ratios that also achieve high returns on invested capital.
- C. Charlie Munger's/Warren Buffett's investment approach targeting great companies at good prices. This approach focuses heavily on companies with sustainable moats (competitive advantages) generally achieved with a valuable brand (intangible) and competent management.

## Solution

The correct answer is A.

Since Ben Graham's approach focuses solely on current assets and liabilities, asset-based valuation is a core part of the strategy.

**B is incorrect.** Joel Greenblatt's "Magic Formula" is based on a multiplier valuation because of its use of the P/E ratio.

**C is incorrect.** While Warren Buffett made a number of "Cigar Butt" investments in his day, the investment approach that he is best known for (thanks in large part to Charlie Munger) strays from asset-based valuation towards valuations that take valuable intangibles into account.

## **LOS 8m: explain the advantages and disadvantages of each category of the valuation model**

### **Free Cash Flow to Equity (FCFE) Model**

- **Advantages:** aims to calculate a company's capacity to pay future dividends, going beyond simply discounting expected dividends. This approach may provide a more useful valuation, especially when the company does not pay dividends or dividends are sporadic.
- **Disadvantages:** calculation is more complicated than a standard dividend discount model, and more assumptions must be made.

### **Gordon (Constant) Growth Dividend Discount Model**

- **Advantages:** useful in valuing defensive companies at a mature life-cycle stage. The calculation is intuitive and simple.
- **Disadvantages:** while a single growth rate makes the calculation easy, it isn't always very practical for valuing complex companies in uncertain economic environments.

### **Multistage Dividend Discount Model**

- **Advantages:** allows for more flexibility than the constant growth model as an analyst can include however many growth rates may be appropriate for a given company's valuation. This is particularly useful in the valuation of companies at an early stage in their life-cycle.
- **Disadvantages:** calculation isn't as clean and simple as the constant growth model. While the model allows for flexibility, it is oftentimes difficult to project multiple separate growth rates in a company's future.

## Multiplier Models

- **Advantages:** can take comparable companies into account and may prove particularly useful in valuing companies with negative earnings. Limits the amount of projection necessary and ties the valuation into historical data. Price multiples have shown to be fairly good predictors of future performance.
- **Disadvantages:** a comparable company analysis may be skewed by mispricing across the given industry or peer group.

## Asset-Based Valuation Models

- **Advantages:** simple calculation and no projections necessary, particularly useful in valuing firms that are heavy in current assets and light in intangibles. Also useful in supplementing other valuation methods.
- **Disadvantages:** not usually the best stand-alone option for valuing firms as going concerns. The model doesn't take into account current or expected cash flows, earnings, or growth rates.

## Question

Which of the following models would be the most helpful in valuing a Silicon Valley startup firm?

- A. Multiplier model.
- B. Asset-based model.
- C. Multistage dividend discount model.

## Solution

The correct answer is A.

Multiplier models are particularly useful in valuing companies with negative earnings, which is often the case for startup companies. Also, there should be many comparable startups in the same geographical location raising capital, which makes the valuation easier.

**B is incorrect.** A startup firm usually does not have many tangible assets.

**C is incorrect.** While the multistage dividend discount model can include different growth rates, a startup company is rarely paying dividends. Therefore, this model would not be of any help.