Equity Analysis FN 451

-Role of an equity analyst

Fundamental analysis:

- Approach of fundamental analysis & assets allocation

-Economic, industry and firm analysis and financial forecast

Valuation Technique:

- Fundamental of assets valuation

- Dividend discount model

- Discounted cash flow model

- Market multiples

- Workshop: Equity research report writing and analyst presentation technique

- Banking sector analysis

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Market multiples

Course lecturer: Sirinattha Techasiriwan

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Basic types of market multiples

Commonly used ratios:

Price-earnings ratio (P/E) = stock price/EPS

Price-book value ratio (P/BV) = stock price/BVPS

P/Cash flow ratio (P/CF) = stock price/cash flow per share*

Enterprise value/Earnings before interest tax depreciation & amortization (EV/EBITDA) = EV / EBITDA per share

* Either net cash flow from operation or gross cash flow can be applied.

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Industry specific multiples

Industry specific multiples:

Price-sales ratio

Market cap/Market share

Market cap/number of subscribers

Market cap/branch outlets

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Trailing or Forward looking

The price multiple comparison can be applied to the historical performance (**trailing**) or forecasted **(forward, leading**) performance.

⇨Discuss advantages and disadvantages. Which choice do your prefer?

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Fundamental or Comparable

Fundamental: A multiple based on some valuation model and therefore are not dependent on the current market prices of other companies.

Comparable: A multiple based on comparisons of price multiple of different firms based on current market price. **A comparison of stock's price multiple to benchmark value**, such as **index**, industry **group of firms**, or **peer group** of firms within the industry.

⇨ Which benchmark value do your prefer?

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Multiples based on Comparable

Law of one price. The economic rationale underlying the method of comparables is the law of one price—the economic principle that two **identical** assets should sell at the same price.

- If we find that an asset is **undervalued** relative to a **comparison assets**, we may expect the asset to outperform the comparison assets on a relative basis.

- **However, what if the comparison assets not efficiently priced?**

The stock may not be undervalued—it could be fairly valued or even overvalued on an absolute basis.

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Multiples based on Fundamental

Intrinsic price multiple (**Warranted multiple** based on fundamental):

A price multiple can be **related to fundamentals through a DCF model (DDM, FCF model).**

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Multiples based on Fundamental: P/E

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Multiples based on fundamentals: P/E

Considering the Gordon growth valuation model for stable firm:

Forward P/E or leading P/E (i.e. if E is next year's earnings):

$$P_0 = \frac{D_1}{(k-g)} \Rightarrow \frac{P}{E_1} = \frac{D_1/E_1}{(k-g)} \Rightarrow \frac{P_0}{E_1} = \frac{\text{Payout ratio}_1}{(k-g)}$$

Payout ratio = the expected dividend payout ratio

g = the expected constant growth rate of dividend

K = the required rate of return on the stock

Trailing P/E (i.e. If E is this year's earnings):

$$\frac{P_0}{E_0} = \frac{D_0(1+g)/E_0}{r-g} = \frac{(1-b)(1+g)}{r-g}$$

b = retention ratio

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Factors affect P/E

EPS growth

Payout ratio

Risk (Financial leverage, Operating leverage, Size)

Accounting issues:
- EPS is based on the complex rules of **accrual accounting**.
- There are several accounting issues, as well as adjustments analysts can make to obtain more meaningful price–earnings ratios.

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PEG ratios

PEG ratios: The stock's P/E divided by the expected earnings growth rate.

- Stocks with lower PEGs are more attractive than stocks with higher PEGs, all else equal.

- The PEG ratio is useful, but must be used with care for several reasons:
  - The ratio assumes a **linear relationship** between P/E ratios and growth. The model for P/E in terms of DDM shows that in theory the relationship is not linear.
  - The ratio does not factor in **differences in risk**, a very important component of P/E ratios.
  - The ratio does not account for **differences in the duration of growth**. It may not capture differences in growth in long-term growth prospects.

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Example: P/E based on fundamentals

⇨ Company A has a dividend payout policy of **50%**. Analysts expect company A's sustainable dividend growth of **5%**. What is the firm's fundamental P/E ratio at a required rate of return of 11%? What is your recommendation for company if its stocks are traded at a P/E ratio of 8x?

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Example: P/E based on fundamentals

⟹ Company A has a dividend payout policy of **50%**. Analysts expect company A's sustainable dividend growth of **5%**. What is the firm's fundamental P/E ratio at a required rate of return of 11%? What is your recommendation for company if its stocks are traded at a P/E ratio of 8x?

⟹ Company A has a dividend payout policy of **60%**. Analysts expect company A's sustainable dividend growth of **5%**. What is the firm's fundamental P/E ratio at a required rate of return of 11%? What is your recommendation for company if its stocks are traded at a P/E ratio of 8x?

⟹ Company A has a dividend payout policy of **60%**. Analysts expect company A's sustainable dividend growth of **4%**. What is the firm's fundamental P/E ratio at a required rate of return of 11%? What is your recommendation for company if its stocks are traded at a P/E ratio of 8x?

Important note: Higher payout ratio usually be at the expense of lower growth.

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P/E and Payback period

A payback period is the amount of time it takes for a company to accumulate enough in earnings to equal the amount of the original investment.

P/E tells number of years it would take for the company to accumulate earnings equal to its share price without earnings growth (flat EPS).

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P/E and Payback period

⇨ Analysts expect company A to report a constant earnings per share of Bt2 every year. You purchase company's shares at Bt12/share. Company A's dividend payout ratio is 50%. Its cost of capital is 8.33%.

- How long does it takes for Company A to accumulate enough in earnings to equal your investment cost?

- What is the P/E ratio that you pay for company A?

- How long is your payback period if you decide to hold Company A for 15 years?

- What is company's A fair value 15 years from now?

- How long is your payback period if you decide to sell Company A three years from now?

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Example: P/E and yield

⟹Company A has earnings yield is 10%. The company dividend payout policy is 50%.

1) Find company's A P/E ratio base on its current earnings yield.

2) What is company A's fundamental P/E with a required rate of return of 10% and zero growth?

3) What is company A's fundamental P/E with a required rate of return of 10% and a 5% sustainable growth?

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P/E and yield

$$\text{Earnings yield (\%)} = \frac{\text{EPS}}{\text{share price}}$$

$$\text{Dividend yield (\%)} = \frac{\text{DPS}}{\text{share price}}$$

⇨ Company A's P/E ratio is 10x. Dividend payout ratio is 50%.

- What is Company A's earnings yield?
- What is Company A's dividend yield?

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The Fed Model

- The Federal Reserve Board uses one such valuation model that relates the inverse of the **S&P 500** P/E, the **earnings yield**, to the yield to maturity on 10-year Treasury Bonds. Where the Fed uses expected earnings for the next 12 months.

- The Fed's model asserts that the market is overvalued when the stock market's current earnings yield is less than the 10-year Treasury bond yield.
- **The intuition is that when Treasury bonds yield more than the earnings yield on the stock market, which is riskier than bonds, stocks are an unattractive investment.**

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Example: The Fed Model

(ThaiBMA Government Bond Yield Curve)

⇨ SET current P/E ratio is 19x. Given Thailand government bond yield curve, do you think the market is already expensive? Why?

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Important notes on “P/E ratios”

- The components of earnings that are on-going or recurrent are most important in determining intrinsic value.

  However, earnings often have volatile components, or **cyclicality** making the analyst’s task difficult.

- Management can exercise its discretion within allowable accounting practices to distort earnings per share as an accurate reflection of economic performance.

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Important notes on “P/E ratios”

Determining the earnings figure to be used in the denominator, however, is **not as straightforward.** Two issues are:

- **The time horizon** over which earnings are measured; and
- **Adjustments to accounting earnings** that the analyst may make so that P/Es are comparable across companies.

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Cyclicality of P/E's

- For a cyclical company, trailing earnings per share are often depressed or negative at the bottom of the cycle and unusually high at the top of the cycle.

- Empirically, P/Es for cyclical companies are often highly volatile over a cycle without any change in business prospects: **high P/Es on depressed EPS at the bottom of the cycle and low P/Es on unusually high EPS at the top of the cycle.**

- A countercyclical property of P/Es known as the **Molodovsky effect**. Named after Nicholas Molodovsky who wrote on this in the 1950s.

Normalized P/E's: Nomalized EPS can be used to create a normalized P/E.

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Multiples based on Fundamental: P/BV

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Computation of book value

- The computation of book value is as follows:

  (Shareholders' equity) minus (the total value of equity claims that are senior to common stock) = Common shareholders' equity

  (Common shareholders' equity)/(number of common stock shares outstanding) = **book value per share**

- **Possible senior claims to common stock** include the value of preferred stock and dividends in arrears on preferred stock.

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Multiples based on fundamentals: P/BV

$$\frac{P}{BV} = \frac{\text{Market capitalization of the stock}}{\text{The book value of equity}} = \frac{\text{Share price}}{\text{BV/share}}$$

The market value of an asset reflects its earning power and expected cash flows.

The book value of equity is the difference between the book value of assets and the book value of liabilities, which reflects historical cost.

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Market value versus Book value

⇨What will be the level of P/BV given the following scenarios:

1) Earning power of the asset has increased since its acquisition. ☐

2) Earning power of the asset has declined since its acquisition. ☐.

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Multiples based on fundamentals: P/BV

Considering the Gordon growth valuation model for stable firm:

$$P_0 = \frac{D_1}{(k-g_1)}$$,and $$ROE_0 = \frac{EPS_0}{BV_0}$$

$$P_0 = \frac{BV_0 * ROE_0 * \text{Payout ratio}_0 * (1+g_1)}{(k-g_1)}$$

$$\frac{P_0}{BV_0} = \frac{ROE_0 * \text{Payout ratio}_0 * (1+g_1)}{(k-g_1)}$$

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Multiples based on fundamentals: P/BV

If the return on equity is based upon expected earnings in the next time period:

$$\frac{P_0}{BV_0} = \frac{ROE_0 * \text{Payout ratio}_0 * (1+g_1)}{(k-g_1)}$$

$$\frac{P_0}{BV_0} = \frac{ROE_1 * \text{Payout ratio}_0}{(k-g_1)}, \text{ and } g = (1-\text{Payout ratio})*ROE$$

$$\frac{P_0}{BV_0} = \frac{(ROE_0 - g_1)}{(k-g_1)}$$

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Factors affect P/BV

Strong direct relationship with the return on equity.

Direct relationship with the expected growth.

Direct relationship with the payout ratio.

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P/BV: Key considerations

Key consideration:

Book value may not carry much meaning for service firms which do not have significant fixed assets, but rely more on people.

Negative book value.

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Occasional adjustments to book value

- **Tangible book value per share--**subtracting reported intangible assets from the balance sheet from common shareholders' equity. However, **from the viewpoint of financial theory, the general exclusion of intangibles is not warranted.** As mentioned earlier, the non-inclusion in book value of any asset that may generate income can weaken book value as a reflection of actual value.
- **Other adjustments for comparability-** one company may be using FIFO and a peer company may be using LIFO, which in an inflationary environment will generally understate inventory values.

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Example: P/BV based on fundamentals

⟹ BBL's total equity at end-2011 was Bt243,815mn. Its total number of shares is 1,908.8mn. Analysts expect BBL's sustainable ROE of 12% and earnings growth of **10%**. What is BBL's fundamental P/BV ratio at a required rate of return of 11%? What is BBL intrinsic value base on P/BV approach?

⟹ Analysts expect BBL's sustainable ROE of 12% and earnings growth of **8%**. What is BBL's fundamental P/BV ratio at a required rate of return of 11%? What is BBL intrinsic value base on P/BV approach?

⟹ Analysts expect BBL's sustainable ROE of 12% and earnings growth of **5%**. What is BBL's fundamental P/BV ratio at a required rate of return of 11%? What is BBL intrinsic value base on P/BV approach?

⇨ BBL's current share price is Bt211/share, which reflects a P/BV of 1.5x. Do you think BBL is worth investing at this current share price? Why?

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Multiples based on Fundamental: Price/Cash flow

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Rationales for Price/Cash flow

- Cash flow is less subject to manipulation by management than earnings. Cash flow from operations, precisely defined, **can be manipulated only through "real" activities**, such as the sale of receivables.
- Using price to cash flow rather than P/E addresses the issue of **differences in accounting conservatism** between companies (differences in the quality of earnings).

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Price to cash flow (P/CF)

P/Cash flow (P/CF) = stock price/cash flow per share

- P/Cash Flow: P/OCF, P/GCF, P/FCFE, EV/EBITDA are typical used.

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Four common cash flow measures – in Practice & Theory

- In practice, analysts often use "**gross cash flow**", simple approximations to cash flow from operations in calculating cash flow in price-to-cash flow. A representative approximation specifies cash flow per share as **EPS plus per-share depreciation, amortization, and depletion**. We call this the **"earnings-plus-non-cash charges"** definition or cash flow (CF) or gross cash flow (GCF).

- In theory, below are more technically accurate cash flow concepts:
  - **cash flow from operations (CFO)**
  - **free cash flow to equity (FCFE)**, and
  - **EBITDA**, an estimate of pre-interest, pre-tax operating cash flow.

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Factors affect P/CF

Factors affect P/CF:

Growth

Payout ratio

Risk (Financial leverage, Operating leverage, Size)

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EV / EBITDA

Enterprise value (EV) or Firm value is what it would cost to acquire the firm.

Enterprise value (EV) = Firm value

= market value of common stock

+ market value of debt

- cash and short-term investments*

*** Cash and short-term investments are subtracted because an acquirer's cost to acquire a firm would be decreased by the amount of target's liquid assets**.

EBITDA (Earnings before interest tax depreciation & amortization)

EBITDA = EBIT + Depreciation + Amortization

EBIT = Net sales – operating expenses

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Detailed calculation of EBITDA

Enterprise value (EV)

= common equity at market value

+ preferred equity at market value

+ minority interest at market value (if any)

+ debt at market value

+ unfunded pension liabilities and other debt-deemed provisions

- associate company at market value (if any)

- cash and cash equivalents (such as short-term investments)

* Cash and short-term investments are subtracted because an acquirer's cost to acquire a firm would be decreased by the amount of target's liquid assets.

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When to apply EV/EBITDA?

EV / EBITDA comparison is appropriate when comparing the **values of firms** that have **differences in capital structure.**

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Factors affect EV / EBITDA

Factors affect EV / EBITDA:

EBITDA growth

Risk (Operating leverage, Size)

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Industry specific multiples: Price/Sales

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Rationales & Drawbacks for Price/Sales ratios

Rationales:

- P/S has been viewed as appropriate for valuing the stock of **mature or cyclical companies**.
- **Sales are generally more stable** than EPS, which reflects operating and financial leverage.
- Sales are generally less subject to distortion or manipulation than other fundamentals such as EPS or book value.

Drawbacks:

- A business may show high growth in sales, although the business is **not operating profitably** as judged by earnings and cash flow from operations.
- The P/S ratio does not reflect **differences in cost structures** and leverages across companies.

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Justified P/S ratio by fundamental

- terms of the Gordon growth model, we can state P/S as

$$\frac{P_0}{S_0} = \frac{(E_0 / S_0)(1-b)(1+g)}{r-g}$$

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Asset-based model

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Asset-based model

Asset-based model: Analysts often consider asset-based model values as floor or minimum values.

According to asset-based model, fair value of equity
= Market or fair value of assets
- Market or fair value of liabilities

Determination of market value:
- Inflation-adjusted depreciated book value
- Estimated replacement value

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Example:
Asset-based model estimation

CPF: Statements of financial position

Bt mn	**2010**	**2011**
Cash & cash equivalent	7,761	24,341
Account receivables	15,385	15,692
Inventories	33,863	33,747
Other current assets	1,962	2,721
Total current assets	**58,971**	**76,501**
Investments	16,339	25,558
Fixed assets	48,014	54,988
Other assets	2,768	2,857
Total assets	**126,092**	**159,904**
Account payables	9,707	11,733
Other current liabilities	13,079	11,441
Total current liabilities	**22,786**	**23,174**
Total debts	14,659	26,363
Other liabilities	27,703	43,848
Total liabilities	**65,148**	**93,385**
Paid-up capital	7,520	7,520
Share premium	16,436	16,436
Retained earnings	34,582	40,594
Others	-682	-953
Total shareholders' equity attribute	**57,856**	**63,597**
Minority interest	3,088	2,922
Total shareholders' equity	**60,944**	**66,519**

⇨ Calculate the value of CPF's net assets on a per share basis given the following information:

- Inventory value depreciated by 5% due to the recent declines in meet prices.

- Investments value appreciated by 25% mainly from its investment overseas.

- Fixed assets value appreciated by 3%.

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