Common Stock Valuation

Chapter 10
Charles P. Jones, Investments: Analysis and Management,
Tenth Edition, John Wiley & Sons

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Fundamental Analysis

- Present value approach
  - Capitalization of expected income
  - Intrinsic value based on the discounted value of the expected stream of cash flows
- Multiple of earnings approach
  - Valuation relative to a financial performance measure
  - Justified P/E ratio

Present Value Approach

- Intrinsic value of a security is

$$\textit{Value of security} = \sum_{t=1}^{n} \frac{\textit{Cash Flows}}{(1 + k)^t}$$

- Estimated intrinsic value compared to the current market price
  - What if market price is different than estimated intrinsic value?

Required Inputs

- Discount rate
  - Required rate of return: minimum expected rate to induce purchase
  - The opportunity cost of dollars used for investment
- Expected cash flows
  - Stream of dividends or other cash payouts over the life of the investment

Required Inputs

- Expected cash flows
  - Dividends paid out of earnings
    - Earnings important in valuing stocks
  - Retained earnings enhance future earnings and ultimately dividends
    - Retained earnings imply growth and future dividends
    - Produces similar results as current dividends in valuation of common shares

Dividend Discount Model

- Current value of a share of stock is the discounted value of all future dividends

$$P_{cs} = \frac{D_1}{(1+k_{cs})^1} + \frac{D_2}{(1+k_{cs})^2} + \ldots + \frac{D_\infty}{(1+k_{cs})^\infty}$$

$$= \sum_{t=1}^{\infty} \frac{D_t}{(1+k_{cs})^t}$$

Dividend Discount Model

- Problems:
  - Need infinite stream of dividends
  - Dividend stream is uncertain
    - Must estimate future dividends
  - Dividends may be expected to grow over time
    - Must model expected growth rate of dividends and need not be constant

Dividend Discount Model

- Assume no growth in dividends
  - Fixed dollar amount of dividends reduces the security to a perpetuity

$$P_0 = \frac{D_0}{k_{cs}}$$

  - Similar to preferred stock because dividend remains unchanged

Dividend Discount Model

- Assume a constant growth in dividends
  - Dividends expected to grow at a constant rate, g, over time

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

  - D_1 is the expected dividend at end of the first period
  - $D_1 = D_0 \times (1+g)$

Dividend Discount Model

- Implications of constant growth
  - Stock prices grow at the same rate as the dividends
  - Stock total returns grow at the required rate of return
    - Growth rate in price plus growth rate in dividends equals k, the required rate of return
  - A lower required return or a higher expected growth in dividends raises prices

Dividend Discount Model

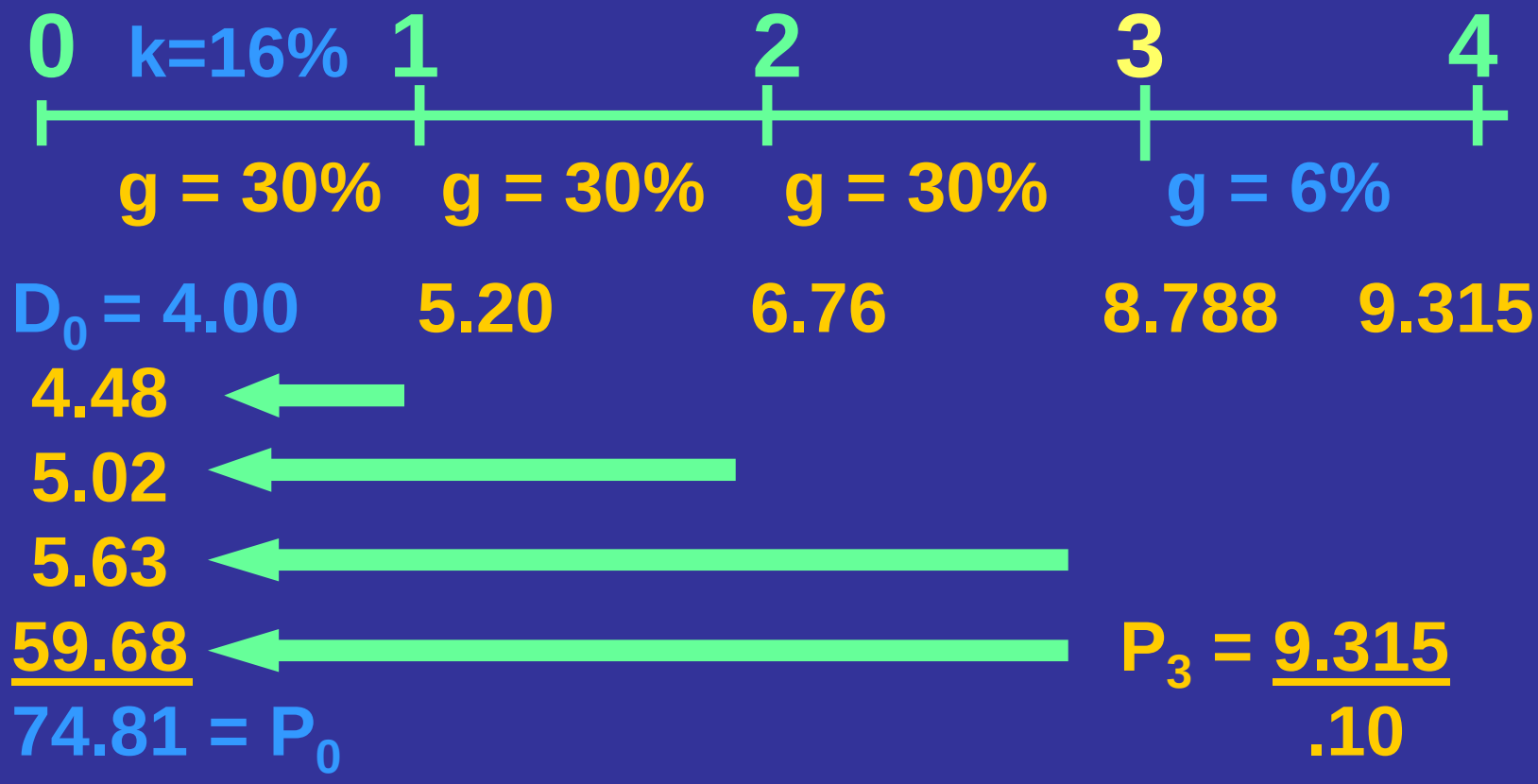
- Multiple growth rates: two or more expected growth rates in dividends
  - Ultimately, growth rate must equal that of the economy as a whole
  - Assume growth at a rapid rate for n periods followed by steady growth

$$P_0 = \sum_{t=1}^{n} \frac{D_0(1+g_1)^t}{(1+k)^t} + \frac{D_n(1+g_c)}{k-g} \frac{1}{(1+k)^n}$$

Dividend Discount Model

- Multiple growth rates
  - First present value covers the period of super-normal (or sub-normal) growth
  - Second present value covers the period of stable growth
    - Expected price uses constant-growth model as of the end of super- (sub-) normal period
    - Value at n must be discounted to time period zero

Example: Valuing equity with growth of 30% for 3 years, then a long-run constant growth of 6%



What About Capital Gains?

- Is the dividend discount model only capable of handling dividends?
  - Capital gains are also important
- Price received in future reflects expectations of dividends from that point forward
  - Discounting dividends or a combination of dividends and price produces same results

Other Discounted Cash Flows

- Free Cash Flow to Equity (FCFE): What *could* shareholders be paid?
  - FCFE = Net Inc. + Depreciation – Change in Noncash Working Capital – Capital Expend. – Debt Repayments + Debt Issuance
- Free Cash Flow to the Firm (FCFF): What cash is available before any financing considerations?
  - FCFF = EBIT (1-tax rate) + Depreciation – Change in Noncash Working Capital – Capital Expend.
- Use per share measures instead of dividends

Intrinsic Value

- "Fair" value based on the capitalization of income process
  - The objective of fundamental analysis
- If intrinsic value >(<) current market price, hold or purchase (avoid or sell) because the asset is undervalued (overvalued)
  - Decision will always involve estimates

P/E Ratio or Earnings Multiplier Approach

- Alternative approach often used by security analysts
- P/E ratio is the strength with which investors value earnings as expressed in stock price
  - Divide the current market price of the stock by the latest 12-month earnings
  - Price paid for each $1 of earnings

P/E Ratio Approach

- To estimate share value

$$P_o = \text{estimated earnings} \times \text{justified P/E ratio} = E_1 \times P_o/E_1$$

- P/E ratio can be derived from

$$P_o = \frac{D_1}{k - g} \text{ or } P_o/E_1 = \frac{D_1/E_1}{k - g}$$

  - Indicates the factors that affect the estimated P/E ratio

P/E Ratio Approach

- The higher the payout ratio, the higher the justified P/E
  - Payout ratio is the proportion of earnings that are paid out as dividends
- The higher the expected growth rate, g, the higher the justified P/E
- The higher the required rate of return, k, the lower the justified P/E

Understanding the P/E Ratio

- Can firms increase payout ratio to increase market price?
  - Will future growth prospects be affected?
- Does rapid growth affect the riskiness of earnings?
  - Will the required return be affected?
  - Are some growth factors more desirable than others?
- P/E ratios reflect expected growth and risk

P/E Ratios and Interest Rates

- A P/E ratio reflects investor optimism and pessimism
  - Related to the required rate of return
- As interest rates increase, required rates of return on all securities generally increase
- P/E ratios and interest rates are indirectly related

Which Approach Is Best?

- Best estimate is probably the present value of the (estimated) dividends
  - Can future dividends be estimated with accuracy?
  - Investors like to focus on capital gains not dividends
- P/E multiplier remains popular for its ease in use and the objections to the dividend discount model

Which Approach Is Best?

- Complementary approaches?
  - P/E ratio can be derived from the constant-growth version of the dividend discount model
  - Dividends are paid out of earnings
  - Using both increases the likelihood of obtaining reasonable results
- Dealing with uncertain future is always subject to error

Other Multiples

- Price-to-book value ratio
  - Ratio of share price to stockholder equity as measured on the balance sheet
  - Price paid for each $1 of equity
- Price-to-sales ratio
  - Ratio of a company's total market value (price times number of shares) divided by sales
  - Market valuation of a firm's revenues