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EARNINGS AND ANALYSTS' FORECASTS

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Price of a security

- Price of a security = the present value of all future cash flows (Gordon and Shapiro, 1956)

$$P_0 = \frac{DIV_1}{(1+r)^1} + \frac{DIV_2}{(1+r)^2} + \frac{DIV_3}{(1+r)^3} + \ldots$$

- With constant growht (Williams, 1938)

$$P_0 = \frac{DIV_1}{(r-g)}$$

Earnings and dividends

- The underlying source of value for a share of common stock are earnings, not dividends (Miller and Modigliani, 1961)
  - Earnings provide cash flows necessary for paying dividends
- However, the dividend discount model can be framed by recasting dividends in terms of earnings and book values (or in terms of free cash flows available to shareholders)

Earnings and dividends

- If all equity effects flow through the income statement, then

  $DIV_1 = NI_1 + BVE_0 - BVE_1$

- Substituting this into the dividend discount model (see proof: Palepu et al., 2000)

  $P_0 = BVE + E(PV(\text{future abnormal eanings}))$

  – Abn. Earnings = NI adjusted for capital charge (discount rate multiplied by the beginning BVE)

- Thus

$$P_0 = BVE_0 + \frac{NI_1 - rBVE_0}{(1+r)^1} + \frac{NI_2 - rBVE_1}{(1+r)^2} + \frac{NI_3 - rBVE_2}{(1+r)^3} + \ldots$$

Eanings based valuation model

- Investors should pay more for the company's eqyity than it's book value only if the firm can earn more on its book value than just the required rate of equity
- I.e. the firm should be able to earn 'abnormal earnings'
- Further: Firm's stock value reflects the cost of its book equity plus the NPV of future growth opportunities, i.e. cumulative abnormal earnings

Accounting Earnings

- Usually ignore unrealized gains and losses in the market values of assets and liabilities (however: IAS, IFRS)
- Allows the interest expenses to be deducted from the earnings, but not the expenses from the eqyity funds

Reported earnings

- Reported figures reflect a series of arbitrary choises of accounting methods
  - Also accounting principles varies
    - For example depreciation, valuation of inventories, accounts of merging firms, expensing vs. capitalizing R&D etc.
- Management can influence earnings substantially!
  - Smoothing, or increased if options

Analysts

- Sell side analysts
  - Full service investments banks
  - Provide investors with forecasts of earnings and recommendations
  - Brokerage houses earn commissions based on the amount of trading, recommendations usually ”free” for customers
- Buy side analysts
  - E.g. retirement funds

Time series earnings forecasts

- Early evidence: earnings follow random walk (Little 1962)
- Later: ARIMA models
  - Models a value in time series as a linear combination of past values and past errors, or shocks, and can be adjusted for seasonality (quarterly earnings)
- Present consensus: sophisticated models better than RW only in short periods (next quarter), no model better than others
  - Requires a lot of data

Time series earnings forecasts

- It is possible to generate more accurate annual forecast model than RW
- Other information than time series needed
  - Quarterly earnings
  - Stock price (especially if earnings variability high)
  - Financial statement data (book rate of return)

Time series earnings forecasts

- Analysts' better than even the best time series models (Rozeff 1978) in short run
  - Analysts are better at distinguishing among permanent, transitory and price-irrelevant earnings shocks
- Superiority follows from
  - Contemporaneous information advantage
  - Timing advantage (only for quarterly earnings, not yearly (Fried and Givoly, 1982)
- However, analysts' forecasts can be improved by pooling them with time-series models (Newbold, Zumwalt and Kannan 1987)
- Management forecasts are not better (Bartley and Cameron 1991)

Seven major issues

- There are seven major research issues regarding analysts' and their forecasts during the last two decades
  1. Decision processes
  2. Expertise and Distributional characteristics
  3. Information content
  4. Market and analyst efficiency
  5. Incentives and behavior
  6. Regulatory environment
  7. Research design
- ”The financial analyst forecasting literature: A taxonomy with suggestions for further research” by Sundaresh, Rock and Shane, 2008, in the International Journal of Forecasting

1. Decision processes

- What information affects the development of analysts‘ earnings forecasts and recommendations?
- What information affects analyst following and portfolio choices?
- What environmental, classification and reporting quality factors affect analysts' forecasts and recommendations?
- How do analysts transform information into target prices and stock recommendations?
- What is the role of earnings components in analysts‘ decision processes?

2. Expertise and Distributional characteristics

- What is the nature of analyst expertise?
- What characteristics make forecasts useful?
- Do analysts herd?
- What attributes of analyst and investor information are associated with dispersion in analysts' earnings forecasts?

3. Information content

- How informative are analysts' short-term earnings forecasts?
- How informative are analysts' annual earnings growth forecasts?
- Do forecasts of earnings components provide information incremental to forecasts of earnings?
- How informative are the various components of analyst research reports?

4. Market and analysts’ efficiency

- Do analysts' forecasts and recommendations efficiently reflect the information in earnings?
- Do analysts' forecasts and recommendations efficiently reflect information from sources other than earnings?
- Do stock prices efficiently reflect the information in analysts' forecasts and recommendations, and other information in analyst research reports?
- Do analysts' earnings forecasts explain inefficiencies in stock prices with respect to publicly available information?

5. Incentives and behavior

- How do incentives impact analysts' effort and decisions to follow firms?
- Do incentives create systematic optimism/pessimism in analysts' forecasts and recommendations?
- How do management incentives impact communications with analysts, analysts' forecasts, and analysts‘ recommendations?
- How does the market consider analysts' incentives in setting prices?
- Do economic incentives or behavioral (psychological) biases create an underreaction in analysts‘ forecasts?

6. Regulatory environment

- How do new regulations affect the information environment and the characteristics of analysts‘ forecasts?
- How do differences in regulations across countries affect the information environment and the characteristics of analysts' forecasts?

7. Research design

- How might statistical validity issues threaten inferences about the behavior of analysts' forecasts and recommendations?
- How might construct or internal validity issues threaten inferences about the behavior of analysts‘ forecasts and recommendations?