Top-down Approach

- Analyze economy-stock market ⇒ industries ⇒ individual companies
  - Need to understand economic factors that affect stock prices initially
  - Use valuation models applied to the overall market and consider how to forecast market changes
  - Stock market’s likely direction is of extreme importance to investors

Economy and the Stock Market

- Direct relationship between the two
- Economic business cycle
  - Recurring pattern of aggregate economic expansion and contraction
  - Cycles have a common framework
    - trough ⇒ peak ⇒ trough
  - Can only be neatly categorized by length and turning points in hindsight

Business Cycle

- National Bureau Economic Research
  - Monitors economic indicators
  - Dates business cycle when possible
- Composite indexes of general economic activity
  - Series of leading, coincident, and lagging indicators of economic activity to assess the status of the business cycle

Stock Market and Business Cycle

- Stock prices lead the economy
  - Historically, the most sensitive indicator
  - Stock prices consistently turn before the economy
- How reliable is the relationship?
  - The ability of the market to predict recoveries is much better than its ability to predict recessions
Macroeconomic Forecasts of the Economy

- How good are available forecasts?
  - Prominent forecasters have similar predictions and differences in accuracy are very small
  - Investors can use any such forecasts
- Does monetary activity forecast economic activity?
  - Changes due to shifts in supply or demand
  - Actions of Federal Reserve important

Understanding the Stock Market

- Market measured by index or average
- Most indexes designed for particular market segment (ex. blue chips)
- Most popular indexes
  - Dow-Jones Industrial Average
  - S&P 500 Composite Stock Index
  - Favored by most institutional investors and money managers

Uses of Market Measures

- Shows how stocks in general are doing at any time
  - Gives a feel for the market
- Shows where in the cycle the market is and sheds light on the future
  - Aids investors in evaluating downside
- Helps judge overall performance
- Used to calculate betas

Determinants of Stock Prices

- Exogenous or predetermined variables
  - Potential output of economy ($Y^*$)
  - Productivity, resources, investment opportunities
  - Corporate tax rate ($t_x$)
  - Government spending ($G$)
  - Nominal money supply ($M$)
  - Three policy variables subject to governmental decisions

Determinants of Stock Prices

- $G$ and $M$ affect stock prices by
  - Affecting total aggregate spending ($Y$), which together with the tax rate ($t_Y$) affects corporate earnings
- Total aggregate spending, together with economy's potential output ($Y^*$) and past changes in prices, determine current changes in the price level ($P$)

Determinants of Stock Prices

- Corporate earnings and expected inflation affects expected real earnings
- Interest rates and required rates of return also affected by expected inflation
- Stock prices affected by earnings, rates
  - If economy is prospering, earnings and stock prices will be expected to rise
Determinants of Stock Prices
- From constant growth version of Dividend Discount Model
  \[ P_0 = \frac{D_1}{r-g} \]
- Inverse relationship between interest rates (required rates of return) and stock prices is not linear
  - Determinants of interest rates also affect investor expectations about future

Valuing the Market
- To apply fundamental analysis to the market, estimates are needed of
  - Stream of shareholder benefits
  - Earnings or dividends
  - Required return or earnings multiple
- Steps in estimating earnings stream
  - Estimate GDP, corporate sales, corporate earnings before taxes, and finally corporate earnings after taxes

Valuing the Market
- The earnings multiplier
  - More volatile than earnings component
    - Difficult to predict
    - Cannot simply extrapolate from past P/E ratios, because changes can and do occur
    - 1928-95 average for S&P 500: 14
    - P/E ratios tend to be high when inflation and interest rates are low
- Put earnings estimate and multiplier together

Forecasting Changes in the Market
- Difficult to consistently forecast the stock market, especially short term
  - EMH states that future cannot be predicted based on past information
  - Although market timing difficult, some situations suggest strong action
- Investors tend to lose more by missing a bull market than by dodging a bear market

Using the Business Cycle to Make Forecasts
- Leading relationship exists between stock market prices and economy
  - Can the market be predicted by the stage of the business cycle?
- Consider business cycle turning points well in advance, before they occur
  - Stock total returns could be negative (positive) when business cycle peaks (bottoms)

Using the Business Cycle to Make Market Forecast
- If investors can recognize the bottoming of the economy before it occurs, a market rise can be predicted
  - Switch into stocks, out of cash
  - As economy recovers, stock prices may level off or even decline
  - Based on past, the market P/E usually rises just before the end of the slump
Using Key Variables to Make Market Forecasts

• Best known market indicator is the price/earnings ratio
  – Other indicators: dividend yield, earnings yield

• Problems with key market indicators:
  – When are they signaling a change?
  – How reliable is the signal?
  – How quickly will the predicted change occur?

Conclusions

• Market forecasts are not easy, and are subject to error
  – Investors should count on the unexpected occurring

• Intelligent and useful forecasts of the market can be made at certain times, at least as to the likely direction of the market

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Industry Analysis

• Second step in the fundamental analysis of common stocks
  – Industries promising the most opportunity in the future should be considered

• Concepts of industry analysis related to valuation principles

• Continual analysis due to inconsistent industry performance over time

Industry Performance Over Time

• Potential value of industry analysis seen by assessing the performance of different industries over time
  – S&P’s monthly stock price index over a long time period shows industries perform differently over time

  – Stock performance affected by industry

• Industries in decline should be avoided
Industry Performance Over Time

• Consistency of industry performance
  – Maintaining positions in growth industries leads to better returns than otherwise

• Can industry performance be predicted reliably on the basis past success?
  – Rankings inconsistent over time
  – Industries with recent poor performance should not be ignored

What is an Industry?

• Are industry classifications clear-cut?
• Industries cannot be casually identified and classified
  – Diversified lines of business cause classification problems
  – Industries continue to become more mixed in their activities and less identifiable with a product or service

Classifying Industries

• Standard Industrial Classification (SIC)
  – Based on census data and on the basis of what is produced
  – SIC codes have 11 divisions, A through K
  – Each division has several major industry groups, designated by a two-digit code
    • Larger the number of SIC digits, the more specific the breakdown

• Other Classifications: S&P, Value Line

Analyzing Industries

• By stage in their life cycle
  – Helps determine the health and future prospects of the industry

• Pioneering stage
  – Rapid growth in demand
  – Opportunities may attract other firms and venture capitalists
  – Difficult identify likely survivors

• Expansion stage
  – Survivors from the pioneering stage are identifiable
  – Firm operations more stable, dependable
  – Considerable investment funds attracted
  – Financial policies firmly established
  – Dividends often become payable
    • Attractive to a wide group of investors

• Stabilization or maturity stage
  – Growth begins to moderate
  – Marketplace is full of competitors
  – Costs are stable rather than decreasing

• Limitations of life cycle approach
  – A generalization that may not always apply
  – Tends to focus on sales, market share, and investment in the industry
Analyzing Industries

- Implications for stock prices
  - Function of expected returns and risk
- Pioneering stage offers the highest potential returns, greatest risk
- Investors interested in capital gains should avoid maturity stage
- Expansion stage of most interest to investors
  - Growth is rapid, but orderly

Qualitative Aspects

- Historical Performance
  - Historical record of sales and earnings growth and price performance should be considered
  - Although past cannot be simply extrapolated into the future, does provide context
- Competitive conditions in industry
  - Competition determines an industry’s ability to sustain above-average returns

Porter’s Competitive Factors

- Influences on return on investment
  - Threat of new entrants
  - Bargaining power of buyers
  - Rivalry between existing competitors
  - Substitute products or services
  - Bargaining power of suppliers
- Industry profitability is a function of industry structure

Analyzing Industries

- Governmental effects
  - Regulations and policies have significant effects on industries
- Structural changes in how economy creates wealth
  - U.S. continues to move from an industrial to an information/communication society
  - Structural shifts can occur even within relatively new industries

Evaluating Future Industry Prospects

- To forecast long-term industry performance investors should ask:
  - Which industries are obvious candidates for growth and prosperity?
  - Which industries appear likely to have difficulties as the U.S. moves from industrial to an information-based economy?

Picking Industries for Next Year

- Which industries are likely to show improving earnings?
  - Estimate expected earnings and earnings multiple for an industry
  - Earning estimates notoriously inaccurate
- Which industries are likely to show improving P/E ratios?
  - Investors tend to pay too much for favored companies in an industry
Picking Industries for Next Year

• Likely direction of interest rates and which industries most affected by a significant rate change should be considered
• Industries most affected by possible political events, new technology, inflation should also be considered

Business Cycle Analysis

• Analysis of industries by their operating ability in relation to the economy as a whole
  – Some industries move closely with the business cycle, others not
• Growth industries
  – Earnings expected to be significantly above the average of all industries
  • Growth stocks suffer less during a recession

Business Cycle Analysis

• Defensive industries
  – Least affected by recessions and economic adversity
• Cyclical industries
  – Most affected by recessions and economic adversity
  – “Bought to be sold”
  – Counter-cyclical industries exist as well

Business Cycle Analysis

• Interest-sensitive industries
  – Particularly sensitive to expectations about changes in interest rates
• Carefully analysis of business cycle and likely movements in interest rates help make better buy/sell decisions
• Industry knowledge is valuable in selecting or avoiding industries

Company Analysis

Chapter 15
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Fundamental Analysis

• Last step in top-down approach is company analysis
• Goal: estimate share’s intrinsic value
  – Constant growth version of dividend discount model
    \[ \text{Intrinsic value} = P_0 = \frac{D_1}{k - g} \]
  – Value justified by fundamentals

• Earnings multiple could also be used
  – \( P_0 = \text{estimated EPS} \times \text{justified P/E ratio} \)
• Stock is under- (over-) valued if intrinsic value is larger (smaller) than current market price
• Focus on earnings and P/E ratio
  – Dividends paid from earnings
  – Close correlation between earnings and stock price changes

Accounting Aspects of Earnings

• How is EPS derived and what does EPS represent?
• Financial statements provide majority of financial information about firms
• Analysis implies comparison over time or with other firms in the same industry
• Focus on how statements used, not made

Basic Financial Statements

• Balance Sheet
  – Items listed in order of liquidity or in order of payment
  – Assets
    • Cash vs. non-cash assets
      – Non-cash assets may be worth more or less than carried on books
    • Depreciation methods for fixed assets
    • Inventory evaluation choices
  – Liabilities
  – Equity
    • Residual
    • Adjusts when the value of assets change
    • Linked to Income Statement
  – Picture at one point in time

• Income Statement
  – Sales or revenues
    • Product costs
      • Gross profit
    • Period Costs
      • EBIT
    • Interest
    • EBT
  – Taxes
    • Net Income available to owners
  – Dividends
    • Addition to Retained Earnings
  – EPS and DPS
The Financial Statements

- **Earnings per share**
  - EPS = Net Inc./average number of shares outstanding
  - Net Inc. before adjustments in accounting treatment or one-time events
- **Certifying statements**
  - Auditors do not guarantee the accuracy of earnings but only that statements are fair financial representation

Problems with Reported Earnings

- EPS for a company is not a precise figure that is readily comparable over time or between companies
  - Alternative accounting treatments used to prepare statements
  - Difficult to gauge the ‘true’ performance of a company with any one method
  - Investors must be aware of these problems

Analyzing a Company’s Profitability

- Important to determine whether a company’s profitability is increasing or decreasing and why
- Return on equity (ROE) emphasized because it is a key component in finding earnings and dividend growth
  - EPS = ROE \times \text{Book value per share}

Du Pont Analysis

- Share prices depend partly on ROE
- Management can influence ROE
- Decomposing ROE into its components allows analysts to identify adverse impacts on ROE and to predict future trends
- Highlights expense control, asset utilization, and debt utilization

Du Pont Analysis

- ROE depends on the product of:
  1) Profit margin on sales: EBIT/Sales
  2) Total asset turnover: Sales/Total Assets
  3) Interest burden: Pre-tax Income/EBIT
  4) Tax burden: Net Income/Pre-tax Income
  5) Financial leverage: Total Assets/Equity
  - ROE = ROE \times \text{Asset turnover} \times \text{Interest burden} \times \text{Tax burden} \times \text{leverage}

Obtaining Estimates of Earnings

- Expected EPS is of the most value
- Stock price is a function of future earnings and the P/E ratio
  - Investors estimate expected growth in dividends or earnings by using quarterly and annual EPS forecasts
- Estimating internal growth rate
  - EPS_t = EPS_0 (1 + g)
Estimating an Internal Growth Rate
- Future expected growth rate matters in estimating earnings, dividends
  - \( g = \text{ROE} \times (1 - \text{Payout ratio}) \)
  - Only reliable if company’s current ROE remains stable
  - Estimate is dependent on the data period
- What matters is the future growth rate, not the historical growth rate

Forecasts of EPS
- Security analysts’ forecast of earnings
  - Consensus forecast superior to individual
- Time series forecast
  - Use historical data to make earnings forecasts
- Evidence favors analysts over statistical models in predicting what actual reported earnings will be
  - Analysts are still frequently wrong

Earnings Surprises
- What is the role of expectations in selecting stocks?
  - Old information will be incorporated into stock prices if market is efficient
  - Unexpected information implies revision
- Stock prices affected by
  - Level and growth in earnings
  - Market’s expectation of earnings

Using Earnings Estimates
- The surprise element in earnings reports is what really matters
- There is a lag in adjustment of stock prices to earnings surprises
- One earnings surprise leads to another
  - Watch revisions in analyst estimates
- Stocks with revisions of 5% or more - up or down - often show above or below - average performance

The P/E Ratio
- Measures how much investors currently are willing to pay per dollar of earnings
  - Summary evaluation of firm’s prospects
  - A relative price measure of a stock
- A function of expected dividend payout ratio, required rate of return, expected growth rate in dividends
  \[
  \frac{P}{E} = \frac{(D_{1}/E_{1})}{(k - g)}
  \]

Dividend Payout Ratio
- Dividend levels usually maintained
  - Decreased only if no other alternative
  - Not increased unless can be supported
  - Adjust with a lag to earnings
- The higher the expected payout ratio, the higher the P/E ratio
  - Growth rate will probably decline, adversely affecting the P/E ratio
### Required Rate of Return

- A function of riskless rate and risk premium
  \[ k = RF + \text{Risk premium} \]
- Constant growth version of dividend discount model can be rearranged so that
  \[ k = \left( \frac{D_1}{P_0} \right) + g \]
  - Growth forecasts are readily available

### Required Rate of Return

- Risk premium for a stock a composite of business, financial, and other risks
- If the risk premium rises (falls), then \( k \) will rise (fall) and \( P_0 \) will fall (rise)
- If \( RF \) rises (falls), then \( k \) will rise (fall) and \( P_0 \) will fall (rise)
- Discount rates and P/E ratios move inversely to each other

### Expected Growth Rate

- Function of return on equity and the retention rate
  \[ g = \text{ROE} \times (1 - \text{Payout ratio}) \]
  - The higher the \( g \), the higher the P/E ratio
- P/E ratio depends on
  - Confidence that investors have in expected growth
  - Reasons for earnings growth

### Fundamental Security Analysis in Practice

- Regardless of detail and complexity, analysts and investors seek an estimate of earnings and a justified P/E ratio to determine intrinsic value
- Security analysis always involves predicting an uncertain future and mistakes will be made and outlooks will differ