LECTURE 8: Technical And Fundamental Analysis, How The Pros Make Investment Decisions

I. Student Learning Objectives
   A. Forms of Securities Analysis
   B. What are Technical Indicators?
   C. An Examples of a Technical Indicator
   D. What are the Technical Analysis problem areas?
   E. What are the tools of Fundamental Analysis?
   F. What are the Fundamental Analysis problem areas?

II. Forms of Securities Analysis
   A. Technical Analysis: market timing and investment selection based on past pricing patterns.
   B. Fundamental Analysis: investment selection based on intrinsic value analysis.
   C. Principal Technical Indicators
      1. Price Patterns
         a. Trend lines
         b. Moving Average
      2. Investment Sentiment
         a. Contrary Opinion Theory
         b. Smart Money Indicators
      3. Market Momentum Indicators
         a. Advance/Decline Ratio
         b. Relative Strength Indicators

III. TECHNICAL INDICATOR - DOW THEORY
   A. Dow Theory: trends continue until reversed
      1. Primary movement
      2. Secondary movement
      3. Minor movements
      4. Support levels - price should not drop below
      5. Resistance levels - price should not rise above
IV. PROBLEM AREAS IN TECHNICAL ANALYSIS

A. Unequal access to [fundamental] information - lack of confirmatory analysis
B. Inadequate [fundamental] information - sales and expenses, competitor initiatives
C. Investor emotions and speculative bubbles
D. Problem of self-fulfilling prophecy
E. Do Technical Indicators Work?
   1. Measuring performance is difficult - models are proprietary
   2. Subjective forecasting - based on interpretation of recent data
   3. Charting and moving averages have some validity but not fool proof.
   4. Track records of technical analysts spotty

V. Fundamental Analysis

A. Important Analytical Tools
   1. Financial Ratio Analysis
      a. Liquidity (cash management)
      b. Asset Management (turnover)
      c. Leverage (asset financing)
      d. Profitability (cost control)
      e. DuPont System (macro-analysis of business)
   2. Regression Analysis
      a. Forecasting Revenues, Expenses, Profits
      b. Estimating Position on Long Run Cost Curves
      c. Build econometric models - measure performance

B. Objectives of Fundamental Analysis
   1. Forecasting earnings
      a. Sales
      b. Expenses
      c. Competition
      d. Management
   2. Analyst recommendations
      a. Price performance a function of E (EPS)
      b. Price performance affected by market, economy
VI. FUNDAMENTAL ANALYSIS PROBLEMS

A. Forecasting based on incomplete and ambiguous [accounting?] information.

B. Relationships among macroeconomic variables are unstable.

C. Economic conditions subject to unexpected moves and changes in momentum.

D. Investment analysts frequently biased:
   1. Optimistic reports based on management reports - does management *fib* on occasion?

E. Some Implications for investors
   1. Mixed track records of technical and fundamental analysts suggest caution.
   2. Market efficiency is not operative in the short run.
   3. Fundamental analysis execution often flawed but best guide.
   4. Investment advice is costly when wrong.

**BE SKEPTICAL OF A SYSTEM THAT CLAIMS IT CAN CONSISTENTLY BEAT THE MARKET!**
LECTURE 9: FIXED-INCOME SECURITIES: VALUATION AND RISKS

I. STUDENT LEARNING OBJECTIVES

A. Why buy bonds
B. The risks of investing in bonds
C. How bonds are priced
D. Bond pricing theorems
E. Assessing interest rate risk
F. Assessing credit risk
G. Risk and required returns

II. WHY INVEST IN BONDS?

A. Income
B. Capital gains potential
C. Paper versus real losses
D. Diversification
E. Tax advantages

III. INCOME

A. Bonds historically have produced higher current income than other investment instruments
B. Income from bonds is also more stable over time
C. Potential for Capital Gains
   1. Between 1987 and 1996 T-bonds had an CAAR of 14.5% compared to 15.6% for stocks
   2. In periods of falling interest rates, bonds can produce spectacular returns
D. Paper versus Real Losses
   1. Unlike stocks, bonds mature at a future date certain
   2. When bonds mature, the investor receives the face, or par, value
   3. This is true regardless of what the bond sold for prior to maturity
IV. DIVERSIFICATION
   A. Bond returns and stock returns have had a low degree of correlation historically
   B. Bonds can further diversify a portfolio of common stocks
   C. Correlation of Historical Returns between Bonds and:
      1. Small stocks  0.04 
      2. Large stocks  0.19 
   D. Tax Advantages
      1. The 1986 Tax Reform Act eliminated many tax sheltered investments
      2. Interest from municipal bonds remains exempt from federal income taxes

V. RISKS FROM BONDS
   A. Credit risk
   B. Interest rate risk
   C. Reinvestment risk
   D. Purchasing power risk
   E. Call risk
   F. Liquidity risk
   G. Foreign exchange risk

VI. CREDIT RISK
   A. Credit risk is the possibility that the investor will not receive interest or principal payments when due
   B. The credit risk of bonds varies widely
      1. Treasury bonds have no credit risk
      2. Some corporate bonds--called junk bonds--have much more credit risk

VII. INTEREST RATE RISK
   A. Bond prices move inversely with interest rates, rates risk
      1. The value of the bond declines
      2. Opportunity cost
   B. All bonds expose investors to interest rate risk, but some have more than others
VIII. REINVESTMENT RISK

A. Most bonds pay coupon interest
   1. Must reinvest these coupons
   2. If interest rates decline, the actual return will be less than the promised return

B. Interest rate risk and reinvestment risk tend to offset one another

C. Immunization techniques attempt to strike a balance between the two

IX. PURCHASING POWER RISK

A. Impact on cash flows of inflation

B. Must earn at least the rate of inflation to stay “even”

C. What if actual inflation exceeds the expected inflation?

D. Rising inflation means higher interest rates

X. CALL RISK

A. Many corporate and municipal bonds can be called back prior to maturity

B. Usually called when rates are low meaning the investor reinvests his or her money at lower rates

C. Some bonds offer call protection

XI. LIQUIDITY RISK

A. Some bonds trade in poor secondary markets
   1. Wide spread between bid and ask prices
   2. Difficult to sell prior to maturity

B. Liquidity risk is a problem for many small municipal bond issues

XII. FOREIGN EXCHANGE RISK

A. U.S. investors can invest in bonds denominated in foreign currencies (e.g., Japanese Yen or British Pound)

B. If the dollar strengthens against the other currency, the investor’s return--measured in dollars--falls
XIII. BASICS OF BOND PRICING

A. Step 1: Calculate cash flows
   1. Annual cash flows = Coupon rate x Face value
      6% x $1,000 = $60
   2. Face value returned when bond matures

B. Step 2: Find the present value of these cash flows discounted at the yield to maturity (promised rate of return), 7%
   1. Price of bond = PV of coupons + PV of face value
      2. = $60(7.0236) + $1,000(0.5083)
      3. = $929.76

C. Two Complications
   1. Semi-annual coupon payments
      a. Price = C/2(P/A, r/2, 2T) + F(P/F, r/2, 2T)
   2. Accrued interest
      a. All bonds trade on a price + accrued interest basis
      b. Accrued interest affects the price of a bond slightly
   3. Example: 10 year bond with a 6% coupon, 7% yield to maturity and a face value of $1,000
      a. Assuming annual coupons the price of the bond equals: $929.76
      b. Assuming semi-annual coupons, the price of the bond equals: $928.94
      c. Assuming semi-annual coupons, and 90 days until the next coupon payment (bond matures in 14 years and 9 months), the price of the bond equals: $945.05

D. Yield to Maturity
   1. Yield to maturity is the rate at which a bond’s cash flows are discounted
   2. Also called the promised rate of return
   3. Changes as market interest rates change
   4. Yield to maturity and coupon rate
      a. If P(b) < F, then YTM > CR (discount bond)
      b. If P(b) = F, then YTM = CR
      c. If P(b) > F, then YTM < CR (premium bond)

E. Current yield = Coupon divided by price

F. Yield to call

G. Actual Return & Yield to Maturity
1. If you buy a bond and hold it until maturity, will your actual return equal the bond’s yield to maturity?

2. No, unless you can reinvest the coupons at the yield to maturity
   a. If reinvestment rate is less than YTM, actual return will be less than YTM
   b. If reinvestment rate is greater than YTM, actual return will be greater than YTM

XIV. FIVE BOND PRICING THEOREMS

A. Bond prices move inversely to changes in interest rates
B. The longer the maturity of a bond, the more price sensitive the bond
C. The price sensitivity of bonds increases as maturity increases, but at a decreasing rate
D. Bonds with lower coupons are more price sensitive
E. Yield decreases have a greater impact on bond prices than similar yield increases

XV. ASSESSING INTEREST RATE RISK

A. Interest rate risk is defined as the price sensitivity of a bond
B. Which bond is more price sensitive?
   1. Bond A: 10% coupon, 10 year maturity
   2. Bond B: 5% coupon, 5 year maturity
C. We can’t say without some sort of summary measure of interest rate risk
D. Duration is used to measure interest rate - price sensitivity.

XVI. DURATION

A. Duration measures the amount of time before the investor receives the “average” dollar from a bond
B. Duration is a function of a bond’s coupon rate, time to maturity and yield to maturity; duration:
   1. Duration increases as the coupon rate decreases
   2. Duration increases as the time to maturity increases
   3. Duration decreases as yield to maturity increases
C. The longer the duration of a bond, the more sensitive its price to a given change in interest rates.

XVII. CREDIT RISK

A. Defined as the risk of not receiving promised cash flows in a timely fashion
B. Different bonds expose investors to differ amounts of credit risk
C. Bond ratings are one tool investors use to assess credit risk
1. Most publicly traded bonds are rated
2. Major rating organizations are S&P and Moody’s

D. Bond Ratings
1. Bonds rated AAA or Aaa are high quality
2. Bonds rated BBB (Baa) or above are considered to be investment grade
3. Bonds rated below BBB (Baa) are classified as speculative grade; also called junk bonds
LECTURE 10: MANAGING BOND PORTFOLIOS

I. STUDENT LEARNING OBJECTIVES
   A. Volatility in bond prices
   B. Interest rate term structure and bonds
   C. Active bond management strategies
   D. Passive bond portfolio management
   E. Interest rate swaps

II. A HISTORY OF BOND MARKET VOLATILITY
   A. From 1948 to 1972 the range of interest rate changes averaged 0.6% in any year.
   B. Inflation in the 70’s drove interest rates up and bond prices down changes averaged over 1.8% per year. (Oil shocks)
   C. Volatile interest rates made bond returns volatile - approaching that of the stock market, and in the early 1980’s even exceeded stock volatility.
   D. Impact of bond volatility on investors
      1. Bond volatility affects potential for profits from anticipated changes
      2. Active bond portfolio management more important in light of volatility - especially since volatility increases potential for losses.
      3. Volatility makes it difficult to predict the annual rate of return making strategies to minimize interest rate risk more important

III. MANAGING BOND PORTFOLIOS
   A. Bond portfolio composition depends on the relationship between yield and maturity: the term structure of interest rates.
   B. Adjustments to the average duration of a bond portfolio alters the portfolio’s sensitivity to changes in interest rates.
   C. Volatility in bond portfolio values may also be attenuated by immunization and hedging strategies.

IV. THE YIELD CURVE: MATURITY VERSUS YIELD
   A. Slope of the yield curve
      1. Upward sloping yield curve (classic) indicates short-term rates are lower than long-term rates.
      2. Changes in the yield curve and its shape reflect changes in relationship of rates and term to maturity.
B. Implied Forward Rates
   1. The *Spot Rates* are today’s prevailing rates.
   2. The *Forward Rate* is the expected rate at some point in the future.
   3. If forward rates are implied in the current spot rates, then knowing the spot rates allows calculating the forward rates.
   4. Knowing the spot one year rate and the spot two year rate allows calculation of the expected one year forward rate a year from now.
   5. Finding implied forward rate \( t \rightarrow n \):
      a. The rate for a loan made at the end of time \( t \) maturing at time \( n \).

C. Locking in Forward Rates
   1. Computing forward rates from spot rates implies that investors can lock in future rates of return.
   2. To lock in a rate one year in the future:
      a. Sell short the one-year bond today.
      b. Purchase a multiple of a longer comparable risk bonds today.
      c. The net cash outlay must be zero.

V. THEORIES OF THE YIELD CURVE
   A. Pure Expectations Theory:
      1. Forward rates are unbiased estimates of expected future spot rates.
   B. Liquidity Preference Theory:
      1. Reflects investor's bias toward short-term bonds.
      2. Investors will only hold long-term bonds in exchange for a liquidity premium.
      3. LPT implies an upward-sloping yield curve.
   C. Market Segmentation Theory:
      1. Argues that forward rates are unrelated to future spot rates because bonds of varying maturities are not substitutes.
      2. MST implies the slope and shape reveal nothing about future interest rates.
   D. Yield curves are typically upward sloping
   E. There is some evidence supporting all three theories of the yield curve
VI. MANAGING BOND PORTFOLIOS

A. Actively managed bond portfolios require the investor to estimate:
   1. interest rate trends (rising, falling)
   2. interest rate volatility
   3. yield spreads
   4. foreign exchange rates (for transactions denominated in a foreign currency)

B. Interest Rate Expectations Strategies
   1. As interest rate rise, bond prices fall
      a. short maturity bonds (or bills) are preferred.
   2. As interest rate fall, bond prices rise
      a. long maturity bonds preferred.

C. Duration measures the relative price sensitivity of bonds to interest rate changes.

D. Adjustments in duration of portfolio based on expectations of interest rate trends.

E. Swapping high-coupon bonds short-maturity bonds for low-coupon long-maturity bonds.

F. Riding the Yield Curve
   1. Strategy based on interest rate expectations
      a. Upward-sloping yield curve not expected to change in shape nor slope.
      b. Yields will fall as bonds “ride the yield curve” downward, increasing the return.
         (1) Return = coupon yield plus capital gain
         (2) Change in bond prices induce positive returns.
         (3) Magnitude of gains a function of convexity.
      c. Changes in shape and slope over time provides profit opportunities if correctly anticipated.
      d. Changes in slope: curve gets flatter or steeper (convexity).

G. Yield Spread Strategies
   1. Risk premiums vary between quality levels of bonds over time
   2. Change the composition of a bond portfolio based on expected changes in yield spreads

H. Foreign Exchange Strategies
   1. Based on expected changes in foreign interest and/or exchange rates
   2. If no change is expected, may switch to foreign bonds for higher yields
   3. Strategies can be complex since interest rates are a major determinant of foreign exchange rates
VII. INDIVIDUAL BOND SELECTION STRATEGIES

A. Seek undervalued bonds with either:
   1. Higher yield than similar bonds, or
   2. A bond whose credit rating is likely to improve

B. Passively Managing Bond Portfolios
   1. Passive Strategies Seek To Control The Risk Of A Bond Portfolio:
      a. Indexing strategies to replicate the performance of broad market indexes.
      b. Immunization strategies to reduce the risks from fluctuations in interest rates.

C. Indexing Bond Portfolios
   1. Recognize the difficulty of an actively managed portfolio consistently outperforming the overall market
   2. Indexing reduces transaction costs and management expenses
   3. Indexing does not guarantee funds availability at specific times
   4. Tracking error is a way of assessing how well an index fund replicates the benchmark

D. Immunization Strategies
   1. Seek to reduce interest rate risk and reinvestment risk
   2. Selection of strategy based on the risk requiring protection
      a. Horizon date immunization
      b. Cash flow matching
      c. Net worth immunization

E. Horizon Date Immunization
   1. To ensure sufficient funds at a point in time to meet a single liability, set the bond portfolio duration to the horizon date.
   2. Adjustments may be needed if interest rates change enough to affect the duration

F. Cash Flow Matching
   1. To fund a series of obligations over time, extend target date immunization by purchasing a series of bonds with durations equal to each horizon date, or
   2. Construct a dedicated portfolio to generate sufficient cash flow in each period to match the obligations

G. Net Worth Immunization
   1. Designed to narrow gap between duration of assets and liabilities and reduce interest rate risk
   2. Depository institutions' assets often have longer durations than their liabilities.
Lecture 14: Fundamentals of Common Stock Valuation

I. Student Learning Objectives
   A. What is Intrinsic Value
   B. How is intrinsic value determined
   C. Why is intrinsic value important?
   D. What are the types of valuation models?
   E. General rules for fundamental analysis
   F. How to conduct fundamental analysis

II. Intrinsic Value
   A. Fundamental economic value
      1. The exchange value (price) of a security
      2. Rationally reflects all relevant publicly available information and, perhaps, privately available information
   B. How is intrinsic value determined?
      1. Dividend Discount Models
      2. Earnings Multiple (P/E ratio)
      3. Capital Asset Pricing Model (CAPM)

III. Why Is Intrinsic Value Important?
   A. In a fair and orderly market, securities must trade at their true (intrinsic) values.
   B. When securities do not trade at their I.V. levels, then arbitrage opportunities are present.
   C. Arbitrage activities drive prices back to their intrinsic levels.
      1. If under-priced: arbitrageurs buy - driving prices up
         a. If over-priced: arbitrageurs sell - driving prices down
IV. TYPES OF VALUATION MODELS

A. Dividend Discount Model: Intrinsic value as present value of future dividends

\[ V_{S_0} = \sum_{t=1}^{\infty} \frac{Div_0(1+g)^t}{1+E(R_s)^t} \]

1. No Growth: if no growth, \( g = 0 \)
2. Constant Growth: \( g > 0 \) but less than \( E(R_s) \)
3. Variable Growth: \( g \) varies over \( t \).

B. Earnings Discount Model (EDM)

\[ V_{S_0} = \frac{EPS_1}{E(R_s)^t} + \frac{EPS_1}{E(R_s)^t} \left[ \frac{g - E(R_s)(b)}{E(R_s) - g} \right] \]

No growth * Growth rate multiplier

\( b \) = retention rate, \( g \) = dividend growth rate

1. Estimating intrinsic value using the present value of future earnings (EPS\(_1\))
2. valuation sensitive to earnings retention rate (b)
3. Dividend payout ratio (1 - b)
   a. Portion of earnings paid as dividends or dividends per share / earnings per share
4. Retention ratio (b)
   a. Portion of earnings retained in the company or retained earnings / earnings per share

C. Capital Asset Pricing Model (CAPM)

1. Utilizing the covariance of asset and market returns to estimate required rates of return.
2. Security Beta a measure of relative risk.

D. Return on equity (ROE)

1. Return on investment of stockholder or net profits after taxes / stockholder equity

E. Implications for growth companies

1. Growth company has net present value of growth opportunities (PVGO) greater than zero or PVGO > 0
2. Implication 1
   a. Expansion does not equal growth, return of the increased asset must exceed the required return to be a growth company
3. Implication 2
a. Overall returns equal to required returns are not enough, it must exceed the required return

4. Implication 3
   a. A positive overall rate of return less than the required rate is a negative growth company

5. Implication 4
   a. Retaining profits (b>0) does not alone constitute growth

6. Implication 5
   a. If no investments can be found with ROE greater than shareholder expected returns E(RS), then it can maximize value by increasing dividends rather than financing expansion

V. GENERAL RULES FOR FUNDAMENTAL ANALYSIS

A. Undervalued
   1. When the market price is below the intrinsic value, buy the stock

B. Overvalued
   1. When the market price exceeds the intrinsic value, sell the stock or don’t buy it

C. Growth company and growth stock
   1. A growth company undertakes positive NPV projects that increase stock value
   2. A growth stock is currently undervalued enough to drive its return higher than other stocks of the same risk level
   3. These may not occur together

VI. FUNDAMENTAL ANALYSIS

A. Step 1 Estimate Growth, g
   1. Estimate historical growth trend for dividends per share
   2. Estimate historical growth trend for earnings per share
   3. Earnings model growth definition (ROE)

B. Step 2: Estimate Expected Returns
   1. Using the CAPM
   2. \( R_{s,t} = \alpha + \beta R_{m,t} \) (estimation of Beta)
   3. \( E(R_S) \) (expected return for stock) = \( E(R_f) + \beta[(E(R_M) - E(R_f)] \)

C. Step 3: Estimate DIV₁ or DIV₀(1+g)
   1. Assuming other market participants agree with our assessment (homogenous expectations) then the stock price will converge on the intrinsic value
   2. DDM model is very sensitive to estimates of the growth rate
   3. Yield spread from market portfolio rate and the risk free rate is also difficult to estimate
D. Variable-Growth Rate Model
   1. ERS = Dividend yield + growth rate
      a. For constant growth rate, but growth cannot exceed the required return forever
      b. Two phase growth pattern variable growth and constant growth
   2. Step 1: Determine the value for the non constant-growth phase
      a. Present value of stream of income
   3. Step 2: Determine value for the constant-growth phase
   4. Step 3: Calculate the intrinsic value of the two phase non constant-growth stock
   5. General Formula for Variable-Growth Rate Model (If it applies…)
      \[
      V_{s0} = \sum_{t=1}^{T} \frac{DIV_0(1+g_n)^t}{(1+ER_n)^t} + \frac{DIV_0(1+g_n)(1+g_c)}{ER_c - g_c} \left[ \frac{1}{(1+ER_n)^T} \right]
      \]

VII. MARKET PRICE PER SHARE / BOOK VALUE PER SHARE
   A. Low MV/BV considered good potential investments
   B. This ratio alone cannot distinguish growth stocks from ordinary stocks
   C. Market value may not represent liquidation value

VIII. PRICE/EARNINGS RATIO (P/E)
   A. Market price per share / earnings per share
   B. Comparison of low P/E stocks and high P/E stocks
   C. Determining value from P/E
      1. \[ V_{s0} = (PE \text{ ratio}) \times (EPS_1) \]

IX. ALTERNATIVE USES FOR P/E
   A. Calculate the years of growth required to justify current P/E ratio
   B. Value companies that do not pay dividends by using forecasted earnings

X. IMPLICATIONS OF FUNDAMENTAL ANALYSIS
   A. Determine intrinsic value by DDM or EM, P/E
   B. Compare with market price MV/BV and P/E
APPENDIX A: Sources of Investment Information

I. Student Learning Objectives
   A. Sources of Statistical Data
   B. Information in Newspapers and Periodicals
   C. Investment Advisory Services
   D. Computer-based Information Sources
   E. Internet Sources

II. Sources of Statistical Data
   A. Government Publications
      1. Survey of Current Business
      2. Federal Reserve Bulletin
      3. Monthly Energy Review
   B. International Publications
      1. The Economist
      2. United Nations Fact Books
      3. OECD Publications
   C. Non-Government Sources
      1. Mutual Fund Fact Books
      2. Morningstar
      3. Weisenberger
      4. Forbes Magazine (summaries)
   D. Stocks, Bonds, Bills, and Inflation
      1. Ibbotson Associates
      2. Wall Street Journal
      3. Standard & Poor Statistical Summaries

III. Newspapers and Periodicals
   A. Ticker Symbols
   B. Stock and Bond Quotations
   C. Mutual Fund NAVs
   D. Market Summaries (key indices)
E. Research Summaries (Barron’s)

IV. Investment Advisory Services

A. Newsletters
B. Moody’s, Standard & Poor
C. Value Line
D. Brokerage Firms (research departments)
E. Mutual Fund Rating Services
F. Investment Annuals (Quarterly)

V. COMPUTER-BASED INFORMATION SOURCES

A. Traditional Computer Databases
   1. ISSM Tapes (bid-ask spreads, volume, price)
   2. CRSP Tapes (price, volume)
B. PC Services
   1. Compustat® PC-Plus (expensive)
C. Commercial Online Services
   1. WSJ Interactive Edition
   2. Primate Software
   3. The Internet

VI. Internet information sources

A. General News and Information
   1. Business Week: (http://www.businessweek.com/)
   2. CNN Financial Network: (http://www.cnnfn.com/)
   3. Financial Times: (http://www.usa.ft.com/)
   4. Los Angeles Times: (http://www.latimes.com/)
   5. MSNBC: (http://www.msnbc.com/)
   7. The Times of London: (http://www.the-times.co.uk/)
   9. Reuters: (http://www.reuters.com/)
   10. USA Today: (http://www.usatoday.com/)

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9. Reebok: (http://www.reebok.com/)

C. Financial Markets
1. American Stock Exchange: (http://www.amex.com/)
2. Chicago Board of Trade: (http://www.cbot.com/)
3. Chicago Board Options Exchange: (http://www.cboe.com/)
4. Chicago Mercantile Exchange: (http://www.cme.com/)
5. London Stock Exchange: (http://www.londonstockex.co.uk/)
7. New York Stock Exchange: (http://www.nyse.com/)
9. Tokyo Stock Exchange: (http://www.tse.or.jp/)

D. Investment-Oriented Sites
2. Fidelity Investments: (http://www.fidelity.com/)
3. Fred database (economic data): (http://www.stls.frb.org/fred
5. Microsoft Investor: (http://www.investor.msn.com/)
6. Morningstar: (http://www.morningstar.net/)
7. Standard & Poor's: (http://www.stockinfo.standardpoor.com/)
8. Vanguard: (http://www.vanguard.com/)

E. Penn State Data Sources (Financial Data and Articles)
2. Lexis-Nexis (http://web.lexis-nexis.com/universe)
LECTURE 11: ECONOMIC AND INDUSTRY ANALYSIS

I. STUDENT LEARNING OBJECTIVES
   A. Importance of Economic and Industry Analyses
   B. Investment Decisions and Business Cycle
   C. Making Economic Forecasts
   D. Classification of Industries
   E. Components of Industry Analysis
   F. Techniques of Industry Analysis

II. ECONOMIC AND INDUSTRY ANALYSIS
   A. Stock prices are positively correlated with general economic performance
   B. Performance among industries varies
   C. Intrinsic value is derived from:
      1. Dividends,
      2. Growth rate, and
      3. Investor’s required rate of return
      4. All the above: A function of the outlook for economic or industry performance.

III. BUSINESS CYCLES AND INVESTMENTS: FACTORS TO CONSIDER
   A. Business cycle:
      1. recurrent sequences of expansions and contractions around long term economic growth
      2. Stock prices may lead economic cycles
      3. Inflation inversely affects stock prices
      4. Industries vary in business cycle response
   B. Business Cycles and Interest Rates
      1. Interest rate behavior related to business cycles
      2. Yield spread: difference in yield between two securities
      3. typically widens prior to downturns
      4. typically narrows prior to upturns
      5. What happens depends on risk perceptions
   C. Investment timing for economic cycles
   D. Capital investment vs. investor buy/sell
IV. ECONOMIC FORECASTING

A. Identifying:
   1. Turning points in the business cycle
   2. Continuation of current trend

B. Growth rates of variables
   1. GDP, inflation, unemployment, personal income

C. Forecasting done with two methods:
   1. Qualitative
   2. Quantitative

D. Inflation and interest rates

E. Qualitative forecasting
   1. Subjective analysis of economic data
   2. Index of leading indicators
      a. combination of 10 measures
   3. Anticipation surveys
      a. surveys that try to measure future behavior

F. Quantitative forecasting
   1. Econometric models
      a. mathematical and statistical techniques
   2. Time Series forecasting
      a. specialized statistical packages; e.g. TSP
   3. Models useful in predicting:
      a. direction,
      b. duration, and
      c. magnitude with precision
      d. Accuracy depends on quality of input and validity of assumptions
   4. Implications of Quantitative Forecasting
      a. Forecasting is difficult
      b. Accuracy varies with amount of data
      c. Effects of random events
      d. Use forecasts carefully
V. INDUSTRY ANALYSIS

A. Classifying industries
   1. Cyclical industry - performance is positively related to economic activity
   2. Defensive industry - performance is insensitive to economic activity
   3. Growth industry - characterized by rapid growth in sales, independent of the business cycle

B. Standard Industry Classification (SIC)
   1. 2 to 4 digits

C. Components of Industry Analysis
   1. Competitive Structure
   2. Permanence
   3. Vulnerability to external shocks
   4. Regulatory and tax conditions
   5. Labor conditions
   6. History of revenue, earnings, and dividends
   7. Financial Issues
   8. Industry stock price valuation

D. Industry Life Cycle Theory:
   1. Birth (heavy R&D, large losses - low revenues)
   2. Growth (building market share and economies of scale)
   3. Mature growth (maximum profitability)
   4. Stabilization (increase in unit sales may be achieved by decreasing prices)
   5. Decline (demand shifts lead to declining sales and profitability - losses)

E. Analyzing Industry Data
   1. End use analysis
      a. identify demand for industry’s products
      b. estimates of future demand
      c. identification of substitutes
   2. Ratio analysis
      a. examining data over time
      b. identifying favorable/unfavorable trends
   3. Regression analysis
      a. determining the relationship between variables
LECTURE 12: COMPANY ANALYSIS: QUALITATIVE ISSUES

I. STUDENT LEARNING OBJECTIVES
   A. Elements of Company Analysis
   B. A company’s Competitive Position
   C. Nature of Management
   D. Evaluating Quality of Management Skills

II. ELEMENTS OF COMPANY ANALYSIS
   A. Description of business and properties
   B. Historical Financial Performance data
   C. Details about senior management

III. COMPETITIVE POSITION
   A. Sales Revenue (growth)
   B. Profitability (trend)
   C. Product line (turnover, age)
      1. Output rate of new products
      2. Product innovation strategies
      3. R&D budgets
   D. Operating efficiency
      1. Output / Input ratio
      2. Position on cost curve
   E. Pricing Strategy
      1. Low price
      2. High quality - price
   F. Patents and technology

IV. NATURE OF MANAGEMENT
   A. Organizational performance
      1. Effective application of company resources
      2. Efficient accomplishment of company goals
B. Management functions
   1. Planning - setting goals/resources
   2. Organizing - assigning tasks/resources
   3. Leading - motivating achievement
   4. Controlling - monitoring performance

V. EVALUATING MANAGEMENT QUALITY

A. Age and experience of management

B. Strategic planning
   1. Understanding of the global environment
   2. Adaptability to external changes

C. Marketing strategy
   1. Track record of the competitive position
   2. Sustainable growth
   3. Public image

D. Finance Strategy - adequate and appropriate

E. Employee/union relations

F. Effectiveness of board of directors
LECTURE 13: COMPANY ANALYSIS: QUANTITATIVE ISSUES

I. STUDENT LEARNING OBJECTIVES

A. Importance of quantitative analysis
B. Relationship between financial ratios and market value
C. Evaluating financial statements
D. Conducting company analysis with ratios
E. Business risk and operating leverage
F. Estimating earnings and expected return

II. QUANTITATIVE ANALYSIS

A. Importance of QA
   1. Understanding a company’s risks
   2. Financial, operating, and business risks

B. Financial Ratio Analysis
   1. Past financial ratios
   2. With industry, competitors, and

C. Regression analysis
   1. Forecast Revenues, Expenses, Net Income
   2. Estimate fair market value (price)
   3. Estimate ROE

D. DuPont System Analysis: ROE = NPM * TATO * Equity Multiplier
   1. Net Profit Margin (ratio #1)
      a. Percentage of sales that become net profits
   2. Total Asset Turnover (ratio #2)
      a. Sales Dollars per dollar of asset investment
   3. Equity Kicker (or Multiplier) (ratio #3)
      a. Proportion of total assets that is equity
   4. Essence of DuPont Analysis
      a. ROE a function of cost control, sales activity, and capital structure strategy
III. REVIEW OF FINANCIAL STATEMENTS (SEE SUPPLEMENTAL NOTES)

A. Balance Sheet
   1. Snapshot of company’s assets, Liabilities and Equity.

B. Income statement
   1. Sales, expenses, and taxes incurred to operate
   2. Earnings per share
      a. Net income / number of shares outstanding

C. Cash flow statement
   1. Sources and uses of funds

D. Are financial statements reliable?
   1. G.A.A.P. vs Cleverly Rigged Accounting Ploys

E. Liquidity ratios
   1. Measure ability to pay maturing obligations
   2. Current ratio
      a. Current assets / current liabilities
   3. Quick ratio
      a. Current assets less inventories / current liabilities

F. Activity ratios
   1. Measure effectiveness of asset management
   2. Average collection period (in days)
      a. Average receivables / Sales per day
   3. Inventory turnover (times per year)
      a. Sales / average inventory
   4. Total asset turnover
      a. Sales / average total assets
   5. Fixed asset turnover
      a. Sales / average net fixed assets
G. Leverage ratios
   1. Measure extent to which firm uses debt to finance asset investment (risk attribute)
   2. Debt-equity ratio
      a. Total long-term debt / total equity
   3. Total debt - total assets ratio
      a. Current liabilities + long-term debt / total assets
   4. Times interest earned
      a. EBIT / interest charges
   5. Fixed charge coverage ratio
      a. (EBIT + Lease Exp.) / (Int. Exp. + Lease Exp.)

H. Profitability ratios
   1. Measure profits relative to sales
   2. Gross profit margin ( % )
      a. Gross profit / sales
   3. Operating Profit Margin
      a. Operating profits / sales
      b. (Sales - COGS - operating expenses) / sales
   4. Net profit margin
      a. Net profit after taxes / sales
   5. Return on total capital
      a. Net income + interest expense / Total long-term capital
   6. Return on stockholders’ equity (ROE)
      a. Net income after taxes / common stock equity

I. Business risk: Sales risk and operating leverage
   1. Operating leverage: effect of fixed costs on operating profits
   2. Coefficient of variation (CV): relates operating risk to operating profits
IV. ESTIMATING EARNINGS AND FAIR MARKET VALUE FOR EQUITY

A. Five Steps
   1. Estimate next year’s sales revenues
   2. Estimate next year’s expenses
   3. Earnings = Revenue - Expenses
   4. Estimate next year’s dividend per share
      a. = Earnings Per Share * dividend payout ratio
   5. Estimate the fair market value of stock given next year’s earnings, dividend, ROE, and growth rate for dividends Using Gordon Growth model or P/E Model

B. Implications for investors
   1. Fundamental analysis assumes company performance and stock performance are correlated
   2. Forecasting EPS and P/E helps predict expected returns