Unit 06. Common Stock: Macroeocnomic Environment, Behavioral Finance & Technical Analysis

(Reading Chapters 11, 12)

Chapter 11. The Macroeconomic Environment for Investment Decisions

1. The logical progression of securities analysis
2. The economic environment
3. Measures of economic activity
4. Measures of inflation
5. The Federal Reserve
6. Fiscal policy
7. New challenges in fiscal policy

1. The Logical Progression of Security Analysis

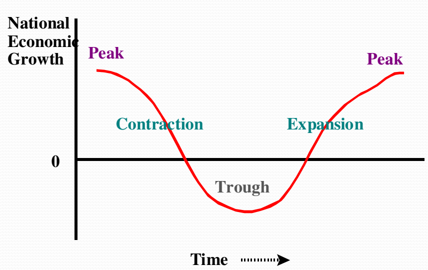
- Fundamental security analysis follows a logical progression from the general to the specific
  - The first step is to assess macroeconomic issues such as economic growth, employment, inflation, interest rate, and geopolitical environment.
  - The second step is to assess various sectors of the economy such as energy, health, and technology. Issues such as government regulation and taxation to specific sectors need to be addressed.
  - The third step is to consider the specific firm. Issues such as firm product mix, leadership, and strategy make a difference.

2. The Economic Environment

- Security prices respond to economic activity. During periods of prosperity, stock prices tend to rise. Conversely, stock prices will fall when investors anticipate recession and sluggish economic growth.
- The economy goes through stages of prosperity. These stages are referred to as the "business cycle" with four stages: peak, contraction, trough, and expansion.

2.1. The Business Cycle

Figure. The Business Cycle (Economic Cycle)



2.2. Historical Patterns of The Business Cycle

- Who decides the dates for business cycles?
  - Business Cycle Dating Committee, National Bureau of Economic Research
  - http://www.nber.org/cycles/recessions.html
- For the most up-o-date cycle information, go to
  - http://www.nber.org/cycles/cyclesmain.html
  - The most recent peak was in December 2007
  - The most recent trough was in June 2009
  - Dates can be revised later on when more data become available

3. Measures of Economic Activity

- Economic activity is measured by aggregate indicators such as the level of production and national output. The most commonly used one is perhaps the GDP – Gross Domestic Product.

3. 1. GDP

- Gross domestic product (GDP):
  - Total value of all final goods produced with domestic factors of production
- GDP is the summation of expenditures:
  - GDP = C + I + G + E, where
    - C=personal consumption
    - I=gross private domestic investment
    - G=government spending
    - E=net exports
- Fiscal and monetary policies can affect all four elements of GDP. For example:
  - Low interest increases personal consumption
  - High income tax reduces personal consumption but increases government spending.

3.1.1. U.S. GDP

- U.S. GDP data:
  - In 2010 U.S. GDP was 14,526.5 billions
- Where to get GDP information?
  - Bureau of Economic Analysis of the Dept. of Commerce at
  - http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=5&FirstYear=2010&LastYear=2011&Freq=Qtr

3.2. Index of Leading Economic Indicators

- While business cycle is a certainty, we do not know when a particular stage is going to happen, and how long it will last.
- Analysis's use various economic indicators to forecast changes.
- The most commonly used is the Index of Leading Economic Indicators.
  - An economic index intended to estimate future economic activity.
  - Calculated by the Conference Board, a non-governmental organization.
  - The value of this index has historically turned downward before a recession and upward before an expansion.
  - So the absolute level of index is not as important as changes in the index.

- The index has 10 components:
  - 1. Average weekly hours of manufacturing production workers
  - 2. Average weekly initial claims for unemployment insurance
  - 3. Manufacturers' new orders (consumer goods and materials)
  - 4. Time for deliveries
  - 5. Manufacturers' new orders of non-defense capital goods
  - 6. Building permits, new private housing units
  - 7. Stock prices (S&P 500 stock index)
  - 8. Money supply (M-2)
  - 9. Interest rate spread (difference between ten-year Treasury bond yields and short-term rates)
  - 10. Index of consumer expectations
- For details of the index see http://www.conference-board.org/pdf_free/economics/bci/BCI-Handbook.pdf.
- For current news releases, see http://www.conference-board.org/
- While the index has correctly forecast each of the 7 recessions during the 1959-2001 period, it also has forecast 5 recessions that did not occur.
- As the famous economist Paul Samuelson once said: "Economists have correctly predicted nine of the last five recessions". The index is informative but not 100% predictive.

3.3. Measures of Consumer Confidence

- When consumer confidence is trending up, the economy is growing and consumers spend money. When confidence is down, the rate of economic growth is slowing and consumers are likely to slow their spending.
- Two well-known indexes
  - Consumer Confidence Index
    - Published by the Conference Board monthly based on surveys of 5,000 households. http://www.conference-board.org/economics/consumerConfidence.cfm
  - Consumer Sentiment Index
    - Published by University of Michigan's Institute for Social Research. http://www.sca.isr.umich.edu/

4. Measures of Inflation

- Consumer price index (CPI)
  - A measure of the average price of consumer goods and services purchased by U.S. households.
  - Percentage change in CPI is inflation rate.
  - http://www.bls.gov/CPI/
- Producer price index (PPI)
  - A measure of average changes in prices received by domestic producers for their output.
  - http://www.bls.gov/ppi/ppicpippi.htm

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5. Monetary Policy: The Federal Reserve

- In addition to aggregate economic activity, investors are concerned with the monetary policy of the Federal Reserve (the Fed). http://www.federalreserve.gov/
- The federal reserve system is the central bank system of the United States. Created in 1913.
- One main purpose of the Fed is to manage the nation's money supply through monetary policy in order to achieve
  - maximum employment
  - stable prices
  - moderate long-term interest rates

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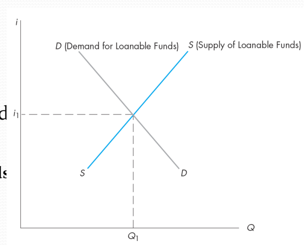
5.1. Determination of Interest Rates

- The impact of the Fed's monetary policy is felt through its effect on the rate of interest.
- The rate of interest is determined by the demand for and supply of loanable funds
  - **Increase in supply of funds lowers interest rates**
  - **Decrease in supply of funds increases interest rates**



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A specific interest rate may be determined by a series of risk premiums:

1. Risk free rate - Analysts generally believe it to range from 2%-4%.
2. A premium for expected inflation -Higher expected inflation rate, and a greater level of uncertainty about future inflation would lead to higher interest rate.
3. A premium for default risk -The higher the borrower's risk, the higher the interest rate.
4. A premium for liquidity/marketability - If a particular security is difficult to be converted to cash near it's original cost, then the interest rate would be higher.
5. A premium for term to maturity - The longer the term, the more the money is tight up. So usually a higher interested rate is needed to compensate for longer terms of maturity.

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5.2. Impact of The Federal Reserve on Interest Rates

- The Fed affects interest rates through its impact on the ability of the banking system to lend.
- The tools of monetary policy:
  - The reserve requirement:
    - Changing commercial banks' reserves
  - The discount rate:
    - Changing the rate the Fed charges banks to borrow reserves
  - The federal funds rate:
    - The rate banks charge each other for borrowing reserves
    - The Fed sets a target federal funds rate
    - The Fed use open market operations (the buying and selling of Treasury securities) as the most important tool.

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How Does Open Market Operations work?

- Expansion policy (loose policy) to stimulate economy.
  - To expand the money supply, the Fed buys government securities using cash.
  - More cash is deposited into commercial banks.
  - Banks have more funds to loan out to businesses and consumers.
  - Supply of funds increases, leading to lower market interest rates.
- Contractionary policy (tight policy) to slow down economy (usually to contain inflation)
  - To contract the money supply, the Fed sells government securities.
  - Cash flows back from commercial banks to the Fed.
  - Banks have less funds to loan out to businesses and consumers.
  - Supply of funds decreases, leading to higher market interest rates.
- There are short term and long term effects of these Fed policies. The details are more complicated by this gives a brief overview of how the Fed uses monetary tools.

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How Does Interest Rate Changes Affect Stock Prices?

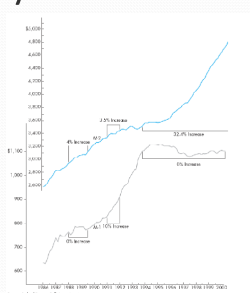
- A change in interest rates is transferred to stock prices.
  - Higher interest rate (tight monetary policy) leads to higher required rate of return. Using the Dividend growth model, one can see that stock prices will go down if the required rate of return is increased.
  - Lower interest rate (loose monetary policy) leads to lower required rate of return. As a result stock prices will go up.

Another Note on Money Supply

- There are different ways of measuring money supply
  - M-1 sum of cash, coin, and checking accounts
  - M-2 sum of cash, coin, checking accounts, plus savings accounts
- M-1 and M-2 do not always change in the same direction.
- M-2 is a broader definition because it is not affected by shifting funds between checking and savings accounts
- The Index of Leading Economic Indicators, discussed earlier, uses M2.

Money Supply

- Over time, the money supply needs to increase in order to accommodate economic growth.
- The rate of increases varies.
- The graph shows money supply (M1 and M2) 1986-2000 in billions of dollars.



6. Fiscal Policy

- Fiscal policy refers to the federal government's policy on taxation, spending, and debt management of the federal government.
- The fiscal policy can affect economic activity and the security market.
  - Taxation:
    - Corporate tax reduces corporate earnings – lower stock prices
    - Personal income taxes reduced disposable income and reduce demand for securities and reduce consumer spending.
    - Different tax treatment for specific securities can change prices of these securities.
  - Spending and debt management
    - Government purchases may increase a particular firm's earning capacity – increase the stock price for that firm.
    - Federal deficit spending increases demand for funds and thus increase interest rate – leading to decrease in stock prices.

7. New Challenges in Fiscal Policy

- In reaction to the financial crisis in 2007-2008 and the economic recession, the U.S. government has pursued a highly expansionary fiscal policy by driving interest rate to historical low, and employed additional measures to increase money supply to the economy.
- As a result the U.S. national debt is at historical level. For up-to-date numbers see http://www.brillig.com/debt_clock/
- I personally think that we have historically overused fiscal policy to create artificial booms. Economic downturns are nature's way of economic self-adjustment. Fiscal policy has its role to lesson the pain somewhat, but if overused, it will prevent the economy from self-adjusting, leading to more problems in the long-run.

A Personal Note

- While understanding the macroeconomic environment is important in understanding investment, I personally do not think individual investors should significantly alter their portfolio in anticipation of changes in economic activities. First, forecasts may or may not be accurate. In fact, supply shocks (such as war, bad weather) are often not really predictable. Second, even if one can accurately forecast events, the impact of these events and government's responses are very complicated and can affect the security market in very different ways. For example, when Lehman Brothers failed, until the last moment we do not know if the Fed was going to put together a rescue package or not. Individual investors could not predict whether the Fed was going to help Bear Stein or Lehman or AIG, or any other companies. Yet these policy interventions have important impact on the market.
- My personal philosophy has always been to use a long-term strategy of diversification while keeping enough liquidity for short-term purposes. With this type of strategy, no response often is the best response.

Chapter 12. Behavioral Finance and Technical Analysis

1. Behavioral finance
2. Technical analysis
3. Market indicators
4. Specific stock indicators
5. Technical analysis in an efficient market context
6. The Dogs of the Dow

1. Behavioral Finance

- The financial models such as CAPM are based on economics. These models assume that investors are rational, that they make unbiased forecasts, and that financial markets are competitive.
- These assumptions are sufficiently true in the aggregate to create efficient financial markets.
- However these assumptions may or may not be true for individuals at particular times.
- And there have been periods during which investors appear to behave irrationally.
- Behavioral Finance is a study of investor market behavior that derives from psychological principles of decision making, to explain why people buy or sell the stocks they do.

Key Concepts in Behavioral Finance

- Overconfidence:
  - Overconfident investors often believe they know more than other investors.
  - Overconfidence can lead to substantial losses when investors overestimate their ability to identify the next Microsoft or Amazon.
- Disposition effect:
  - People avoid realizing paper losses and seek to realize paper gains.
  - E.g., If someone buys a stock at $30 that then drops to $22 before risking to $28, most people do not want to sell until the stock gets to above $30.
  - The disposition effect manifests itself in lots of small gains being realized, and few small losses. In fact people act as if they are trying to maximized their taxes.
- The Ostrich effect:
  - When the market is declining, some investors stop watching. The philosophy is that if I don't know that bad things are happening, then maybe they are not happening?

Key Concepts in Behavioral Finance Continued

- The house money effect:
  - Investors who have experienced a gain or profit are often more willing to take more risk. Gamblers call this "playing with the house's money." Since they don't yet consider the money to be their own, they are willing to take more risk with it.
  - Such behavior is not optimal.
- Familiarity:
  - Investors tend to tilt their portfolios in favor of companies with which they are most familiar.
  - This leads to some investors to have a large share of their portfolio with their own employer. Think Enron employees.
  - Such behavior is very risk – you can lose both your job and your asset at the same time if the company fails.

Key Concepts in Behavioral Finance Continued

- Mental accounting (or mental budgeting)
  - Tendency to classify different activities into separate categories or accounts.
  - Not perceiving interconnections among investments can reduce an investor's risk-adjusted wealth.
- Cognitive dissonance
  - Refers to the tendency to selectively remember. One tends to remember the good investments and represses the bad ones.
  - If one does not remember the lessons of the history, on is doomed to repeat them. This applies to investment decisions as well.
- Herding
  - Following the herd, lacking independent thought
  - Speculative bubbles are often the result of such herding (e.g., housing bubble

2. Technical Analysis

- Overcoming these personal biases discussed in behavioral finance can improve investment performance.
- Both fundamental analysis and technical analysis, although with their own problems, can help individuals overcoming personal biases.
- Technical analysis
  - is to use historical price and volume data to forecast the direction of stock prices
  - employs a variety of figures and charts
- The indicators of technical analysis can be applied to:
  - the market – market indicators
  - to individual firms – specific stock indicators

3. Market Indicators

- Dow theory
- Barron's confidence index
- Investment advisory opinions
- Advances/declines

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3.1.The Dow Theory

- The Dow theory is a technical approach based on the Dow Jones averages.
- Developed from the work of Charles Dow. He identified three movements in security prices:
  - Primary: related to the security's intrinsic value.
  - Secondary: governed by current events that temporarily affect value and by the manipulation of stock prices
  - Tertiary: Daily price fluctuations that have no particular significance.
- Although Charles Dow believed in fundamental analysis, the Dow Theory has evolved into a primary technical approach.
  - Emphasizes movements in the industrial average and transportation average.
  - If both averages are rising -> bull market
  - If both averages are falling -> bear market
  - If after a period of rising, one average starts to fall -> bear market coming
  - If after a period of falling, one average starts to rise -> bull market coming

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3.2. Barron's Confidence Index

- Barron's confidence index is designed to identify investors' confidence in the level and direction of security prices.
  - Based on the difference in the yields paid by
    - high-quality debt and
    - low-quality debt.
- Increased spread is bearish.

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3.3. Advisory Opinion Theory

- The advisory opinion theory suggests that financial advisors are often wrong.
  - When most financial advisory services become bearish and forecast declining prices, it's time to buy.
  - When most financial advisory services become bullish and forecast rising prices, it's time to sell.
- This theory requires taking a contrary view of advisory opinions.

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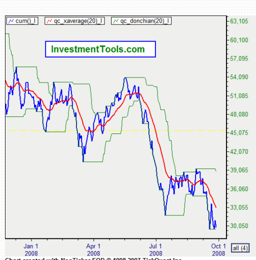
3.4. Advance-Declines Cumulative Series

- This is an indicator based on the cumulative net advances between the number of stocks that rose in price relative to the number of stocks declined.
- Increase in cumulative net advances is bullish.
- Decrease in cumulative net advances is bearish.
- The graph shows the New York Stock Exchange Advance-Decline Line (Blue line) from 1/1/2008 to 10/1/2008. Decrease trend indicates a bearish market.



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4. Specific Stock Indicators

- Now we will consider several techniques that may be applies either to the market as a whole or individual securities.
  - Point-and-Figure charts (X-O Charts)
  - Bar graphs
  - Candlestick
  - Moving averages
  - Volume
  - Short sales by specialist

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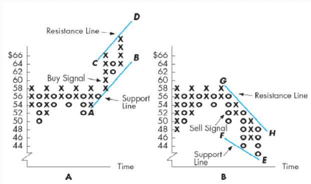
4.1. Point-and-Figure Charts (X-O Charts)

- This is a chart composed of Xs and Os to summarize price movements.
  - Based on demand and supply
  - Identifies price levels that support or resist price changes
  - Has time on the horizontal axis and dollar amount on the vertical axis.
  - Puts an X on the chart when the price of the stock rises by some amount, e.g., $1 or $2
  - Puts an O on the chart when the price of the stock declines by the same amount.



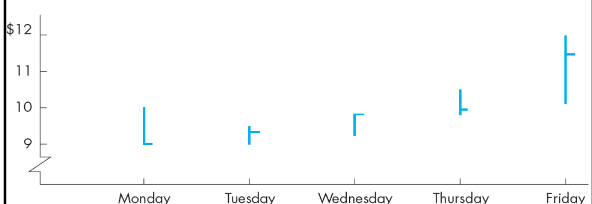
•Breaking support or resistance levels are buy and sell signals.

4.2. Bar Graphs

- Show similar patterns as point-and-figure charts, uses high, low, and closing prices of a security.
- Use support and resistance
- Give similar signals

Bar Graphs Continued

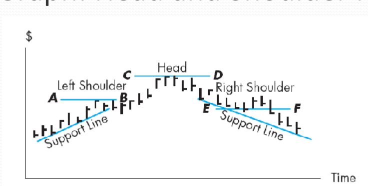
Price	Monday	Tuesday	Wednesday	Thursday	Friday
High	$10	$9.50	$9.88	$10.50	$12
Low	9	9	9.25	9.88	10.13
Close	9	9.37	9.87	10	11.50



Bar Graph Continued

- The bar graph is supposed to indicate future price movements in the stock by the pattern that emerges.
- Possible patterns
  - Head and shoulder: We will discuss this on the next slide.
  - Round top: bearish signal http://www.trending123.com/patterns/rounded_top.html
  - Descending triangles: bearish signal http://www.investopedia.com/terms/d/descendingtriangle.asp

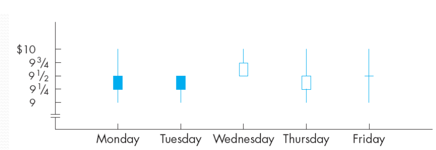
Bar Graph: Head and Shoulder Pattern



- The graph forms a pattern that resembles a head and shoulders.
- Shows a bearish pattern
- The same pattern upside down would show a bullish pattern.

4.3. Candlestick Graph

	Monday	Tuesday	Wednesday	Thursday	Friday
High	$10.00	$9.50	$10.00	$10.00	$10.00
Open	9.50	9.50	9.50	9.25	9.50
Close	9.25	9.25	9.75	9.50	9.50
Low	9.00	9.00	9.50	9.00	9.00

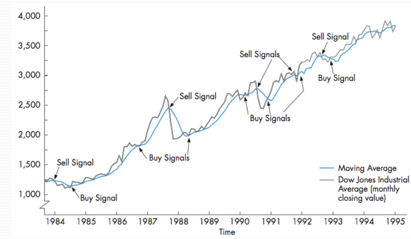


Sometimes the bar graphs are drawn as "candlesticks". See above. In candlestick graphs an open price is added.
If closing price < opening price, the candlestick is filled (solid blue).
Candlestick graphs can be used to construct head-and-shoulder patterns as well as other configurations in technical analysis.

4.4. Moving Averages

- Moving average is an average in which the most recent observation is added and the most distant observation is deleted before the average is computed.
- E.g. Suppose a stock's price at the end of each of the last 6 months is $40, $44, $50, $48, $50, and $52. The 4-month moving average in the fifth month is: ($44 + $50 + $48 + $50)/4, or $48. At the end of the sixth month, the 4-month moving average is ($50 + $48 + $50 + $52)/4, or $50.
- Moving averages may be 50, 100, or 200 days

Dow Jones Industrial Average and a Six-Month Moving Average



- Dow Industrial average and a six-month moving average.
- When the current price crosses the moving average, that is a buy or sell signal.

4.5. Other Technical Indicators

- Volume
  - Technical analysts also place emphasis on the volume of transactions and deviations from the normal volume of trading in a specific stock.
  - A large deviation is interpreted to mean a change in the demand for or supply of a stock.
- Short sales by specialists
  - As explained in Unit01, Chapter 03, specialists make a market in securities listed on the organized exchanges.
  - If specialists believe that the supply of the stock will increase and drive down a stock's price, they take short positions in the stock in anticipation of the price decline.
  - Short sales information must be reported to the SEC and the NYSE.
  - Technical analysts believe that if the specialists' proportion of total short sales rises to above 65%, it is a bearish indicator. If the ratio falls to 40%, it is interpreted as a bullish sign, indicative of rising future stock prices.
- Moving average convergence divergence (MACD)

5. Verification of Technical Analysis

- The majority of academic studies suggest that technical analysis does not lead to superior investment results.
  - This result is consistent with all forms of the efficient market hypothesis.
- There are some studies that support technical analysis.
  - Unfortunately the improvement in return require frequently trading, which involves transaction costs.
- Although the technical approach may lack verification, it is still used by some portfolio managers as a supplement to fundamental analysis to help the timing of purchase and sales.

6. The Dogs of the Dow

- The Dogs of the Dow is a mechanical strategy that is neither fundamental nor technical.
- The strategy:
  - Determine the ten Dow stocks with the highest dividend yield
  - Hold these stocks for one year, rank again
  - Sell the ones that are no longer in the ranking, purchase the ones that are in the new ranking.
  - Repeat the process
- "Small dogs" applies the same strategy to the five lowest priced Dow Dogs
- Does the strategy work?
  - There is evidence that this strategy had yielded higher average returns than buying all Dow stocks
  - However it also has higher standard deviation thus higher risk due to less diversification.
  - So the premium is there because of taking higher risk. When adjusting for risk, there is no advantage.