# Investment Analysis

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Investment Analysis

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  - Stock Valuations
- Technical Analysis
  - Chart Patterns
  - Moving Averages
  - Advanced Technical Analysis
- Behavioral Analysis
- Stock picking

Business Cycle
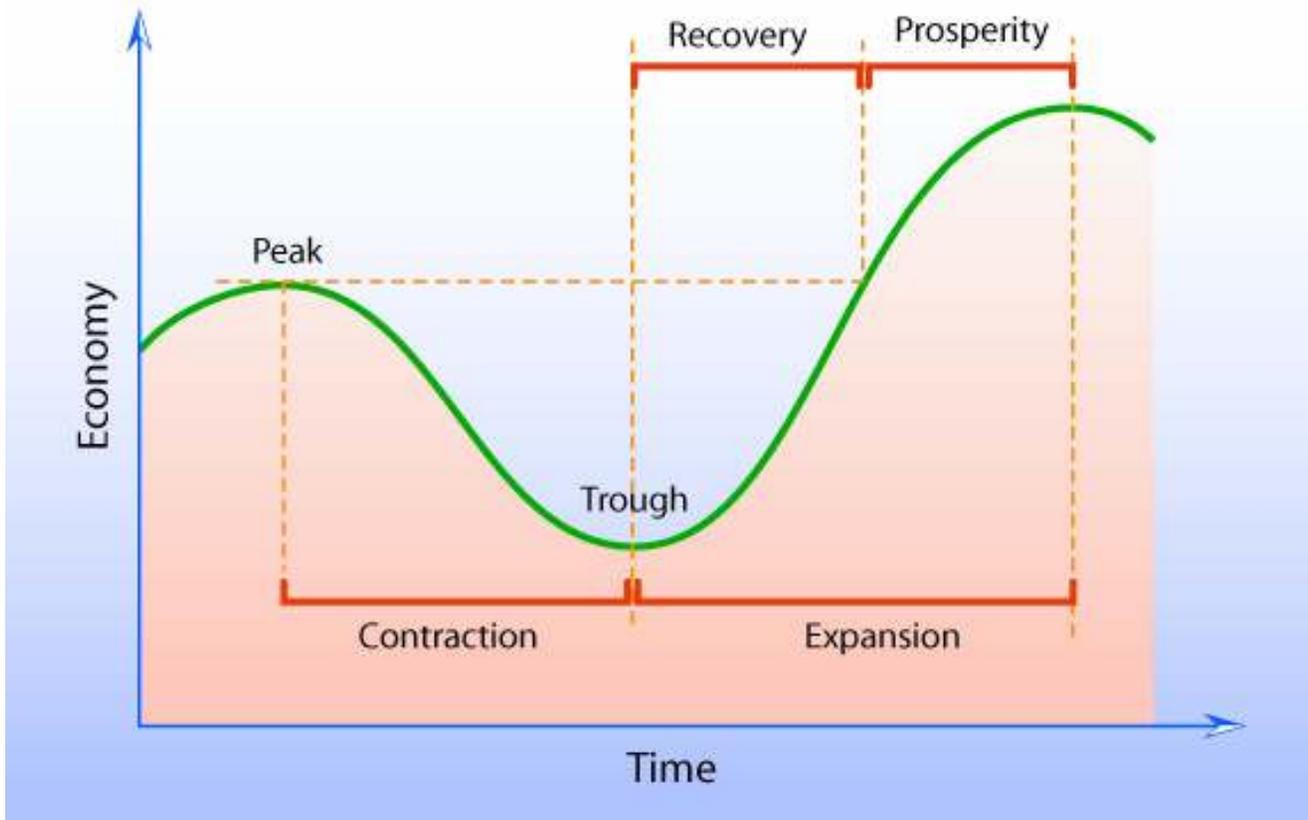
Economic Analysis

- ## Business Cycle
  - The movement in aggregate economic activity as measured by the gross domestic product (GDP)
  - GDP = consumption + investment + (government spending) + (exports − imports)

Monetary & Fiscal Policies

- **Fiscal Policies**
  - ☐ The size of the government deficit and the methods it uses to finance it
    - Taxes
    - Government Spending
- **Monetary Policies**
  - ☐ concerned with the amount of money in circulation and, consequently, interest rates and inflation.
    - Interest rates, if set by the Government
    - Incomes policies which aim at imposing non-monetary controls on inflation
    - Bank regulations which affect the money multiplier
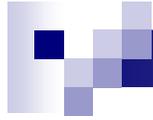
Economic Indicators

- Anything that can be used to predict future financial or economic trends

Economic Indicators

- ## Leading
  - Signal future events
  - Example: bond yields indicates future for stock mkt

- ## Lagging
  - Follows an event – confirm trends
  - Example: unemployment

- ## Coincident
  - These indicators occur at approximately the same time as the conditions they signify
  - Example: personal income

The Leading Economic Indicators

- Gross Domestic Product
- Consumer Price Index
- Producer Price Index
- Employment Indicators
- Retail Sales Indicator
- The Institute for Supply Management index (former NAPM Index)
- Consumer Confidence Index
- Beige Book
- http://www.briefing.com/Investor/Public/Calendars/EconomicCalendar.htm

US Economic Indicators 1

- Beige Book
- Business Outlook Survey
- Consumer Confidence Index (CCI)
- Consumer Credit Report
- Consumer Price Index (CPI)
- Durable Goods Report
- Employee Cost Index (ECI)
- Employee Situation Report
- Existing Home Sales
- Factory Orders Report
- Gross Domestic Product (GDP)
- Housing Starts

US Economic Indicators 2

- Industrial Production
- Jobless Claims Report
- Money Supply
- Mutual Fund Flows
- Non-Manufacturing Report
- Personal Income and Outlays
- Producer Price Index (PPI)
- Productivity Report
- Purchasing Managers Index (PMI)
- Retail Sales Report
- Trade Balance Report
- Wholesale Trade Report

Industry Analysis

- Porters 5 factor model

  1. Competition in the industry
  2. Potential of new entrants into industry
  3. Power of suppliers
  4. Power of customers
  5. Threat of substitute products

- http://www.investopedia.com/features/industryhandbook/

Industry Analysis

- Cyclical stocks
    - Automotive
    - Housing

- Counter-cyclical stocks / Defensive
    - Utilities
    - Household non-durables
    - Tobacco
    - Food
    - Oil

Industry Analysis

- http://biz.yahoo.com/ic/index.html
- http://biz.yahoo.com/p/sum_conameu.html

Fundamental Analysis

- The practice of evaluating the information contained in financial statements, industry reports, and economic factors to determine the intrinsic value of a firm.

- The basic idea is to identify "undervalued" stocks to buy and "overvalued" stocks to sell.

- In practice however, such stocks may in fact be correctly priced for reasons not immediately apparent to the analyst.

- Qualitative & Quantitative Factors
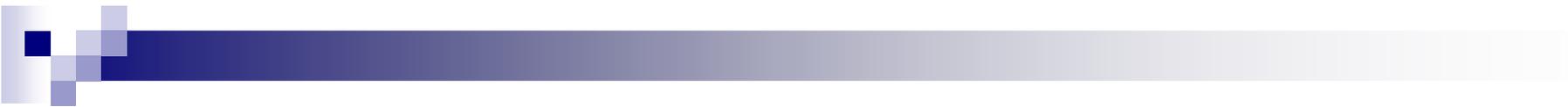
Fundamental Analysis Answers:

- Is the company's revenue growing?
- Is it actually making a profit?
- Is it in a strong-enough position to beat out its competitors in the future?
- Is it able to repay its debts?
- Is management trying to "cook the books"?

FA - Qualitative Factors

- **Company Related**
  - Business model
  - Competitive Advantage
  - Management
  - Corporate Governance
- **Industry Related**
  - Customers
  - Market Share
  - Industry Growth
  - Competition
  - Regulation

FA – Quantitative Factors

- **Financial Statements**
    - Profit & Loss / Income Statement
    - Balance Sheet
    - Cash Flow Statement
- **Annual Report**
- **SEC Filings – 10K**

Income Statement

- summarizes a company's revenues (sales) and expenses quarterly and annually for its fiscal year.

- The final net figure, as well as various others in this statement, are of major interest to the investment community

Income Statement

Multi-Step Format	Single-Step Format
Net Sales	Net Sales
Cost of Sales	Materials and Production
Gross Income	Marketing and Administrative
Selling, General and Administrative Expenses (SG&A)	Research and Development Expenses (R&D)
Operating Income	Other Income & Expenses
Other Income & Expenses	Pretax Income
Pretax Income	Taxes
Taxes	Net Income
Net Income (after tax)	--

Balance Sheet

- Snapshot of Company's position
- Assets = Liabilities + Shareholders' Equity

Assets

- Assets are what a company uses to operate its business

- Current Assets
- Non-Current Assets

- Depreciation is calculated and deducted from most of these assets, which represents the economic cost of the asset over its useful life.

Current Assets

- Current assets have a life span of one year or less, meaning they can be converted easily into cash.
  - **Cash,** the most fundamental of current assets, also includes non-restricted bank accounts and checks. Cash equivalents are very safe assets that can be are readily converted into cash such as U.S. Treasuries.
  - **Accounts receivable** consists of the short-term obligations owed to the company by its clients. Companies often sell products or services to customers on credit, which then are held in this account until they are paid off by the clients.
  - **Inventory** represents the raw materials, work-in-progress goods and the company's finished goods..

Non-current Assets

- Non-current assets, are those assets that are not turned into cash easily, expected to be turned into cash within a year and/or have a life-span of over a year.

- Tangible assets such as machinery, computers, buildings and land.

- Intangible assets, such as goodwill, patents or copyright. While these assets are not physical in nature, they are often the resources that can make or break a company - the value of a brand name, for instance, should not be underestimated

Liabilities

- **Financial obligations a company owes to outside parties**
- **Long Term Liabilities**
    - debts and other non-debt financial obligations, which are due after a period of at least one year from the date of the balance sheet
- **Current Liabilities**
    - liabilities which will come due, or must be paid, within one year. This is comprised of both shorter term borrowings, such as accounts payables, along with the current portion of longer term borrowing, such as the latest interest payment on a 10-year loan.

Shareholder's Equity

- Shareholders' equity is the initial amount of money invested into a business.
- If, at the end of the fiscal year, a company decides to reinvest its net earnings into the company (after taxes), these retained earnings will be transferred from the income statement onto the balance sheet into the shareholder's equity account.
- This account represents a company's total net worth.

Balance Sheet - Example

Balance Sheet for Wal-Mart
As of Jan 31, 2006

| Assets		Liabilities and Shareholders' Equity	
Current Assets:		*Current Liabilities:*	
Cash and Cash Equivalents	6,414	Commercial Paper	3,754
Receivables	2,662	Accounts Payable	25,373
Inventories	32,191	Accrued Liabilities	13,465
Prepaid Expenses and Other	2,557	Accrued Income Taxes	1,340
Total Current Assets	43,824	Long-term Debt, due within one year	4,595
		Obligations Under Capital Leases, due within one year	299
Property and Equipment, at cost:		**Total Current Liabilities**	48,826
Land	16,643		
Buildings and Improvements	56,163	Long-term Debt	26,429
Fixtures and Equipment	22,750	Long-term Obligations Under Capital Leases	3,742
Transportation Equipment	1,746	Deferred Income Taxes and Other	4,552
Total Property and Equipment, at cost:	97,302	Minority Interest	1,467
Less Accumulated Depreciation	21,427		
Property and Equipment, net	75,875	*Shareholders' Equity:*	
		Preferred Stock	0
Property Under Capital Lease:	5,578	Common Stock	417
Less Accumulated Amortization	2,163	Capital in Excess of Par Value	2,596
		Accumulated Other Comprehensive Income	1,053
Property Under Capital Lease, net	3,415	Retained Earnings	49,105
Goodwill	12,188		
Other Assets and Deferred Charges	2,885	**Total Shareholders' Equity**	53,171
Total Assets	138,187	**Total Liabilities and Shareholders' Equity**	138,187

Cash Flow Statement

- shows how much cash comes in and goes out of the company over the quarter or the year.

- Difference to Income statement – accrual accounting
    - Accrual accounting requires companies to record revenues and expenses when transactions occur, not when cash is exchanged. At the same time, the income statement, on the other hand, often includes non-cash revenues or expenses, which the statement of cash flows does not include.

System
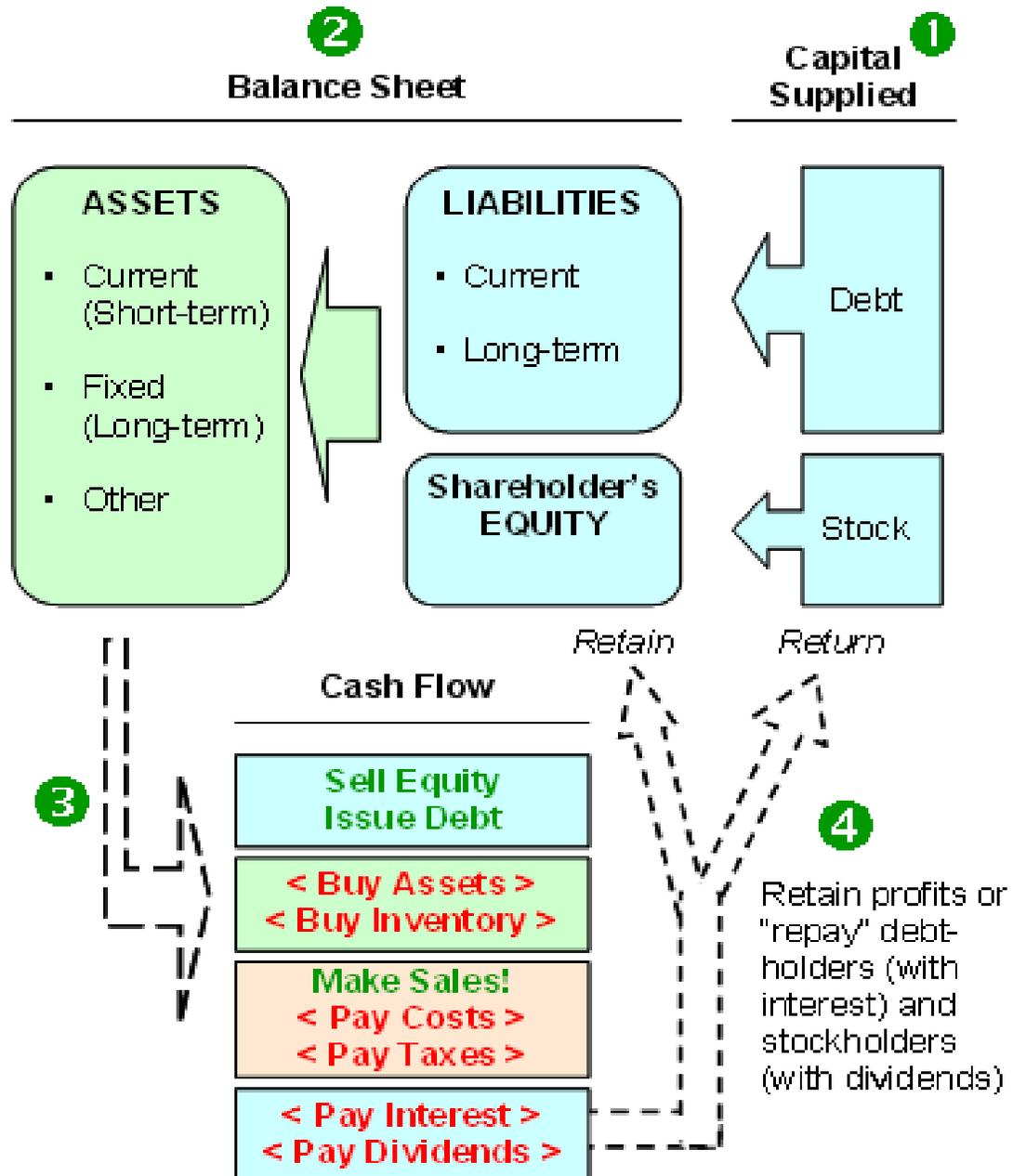
Cash Flow
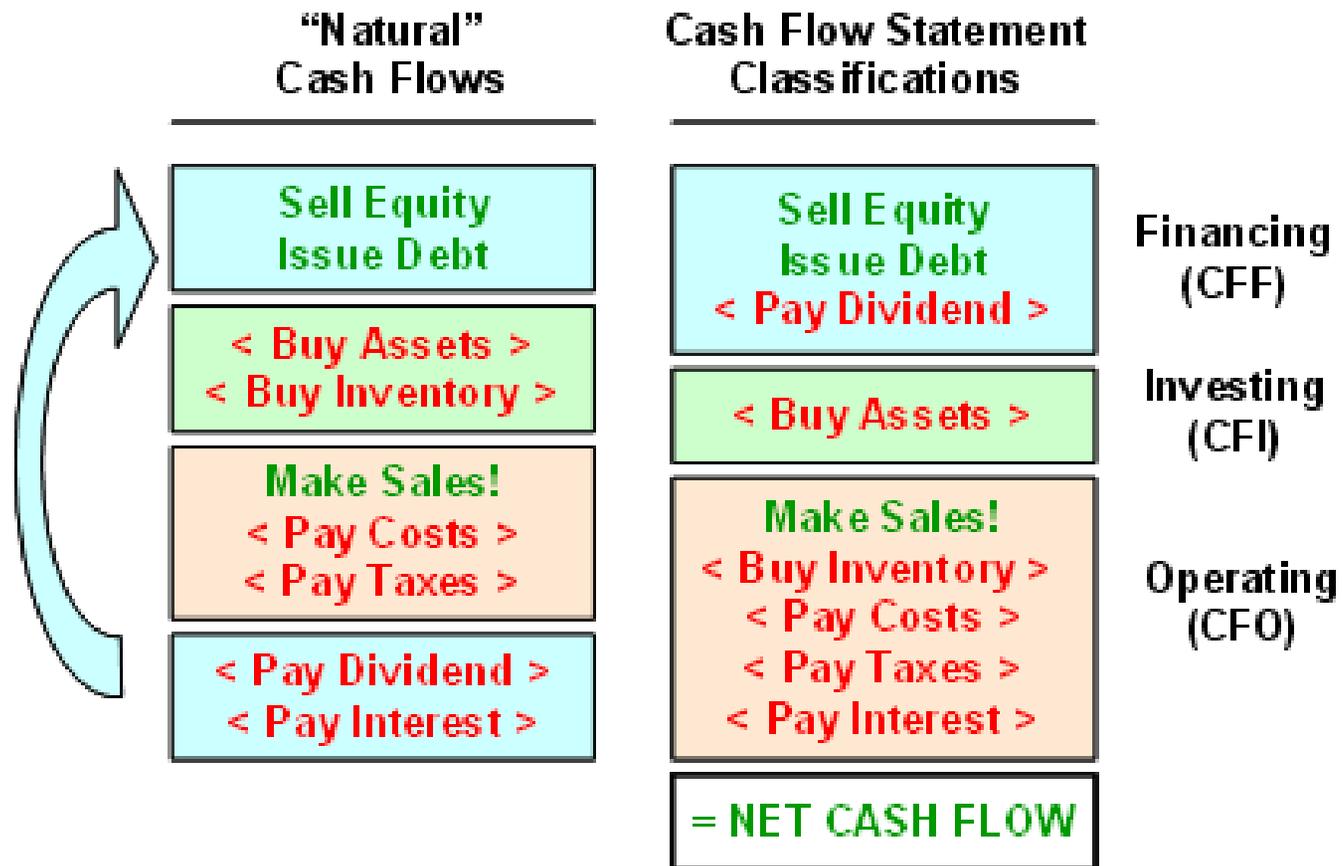
Free Cash Flow

Net Income

+ Amortization/Depreciation

- Changes in Working Capital

- Capital Expenditures

_____

= Free Cash Flow

Working Capital = Current Assets - Current Liabilities

Ratio Analysis

- Ratios
    - Performance
    - Activity
    - Financing
    - Liquidity Warnings

Performance Ratios

- Average Interest rate
- Book Value per Share
- Cash Flow to Assets
- Common Size Analysis
- Dividend payout ratio
- Earnings per Share
- Gross Profit margin
- Price/Earning ratio
- Profit margin
- Return on Assets
- Return on equity

Average Interest Rate

- Indicates the average interest rate that a company borrows at.

    - This is a rough estimate, the ratio does not account for everything.
    - Using the before tax or after tax interest expense will produce different results

- = (Interest Expense - Accounts Payable)/Liabilities

Book Value Per Share

- Stockholder's equity to the number of shares outstanding, giving the shares a raw value.
    - Comparing the market value to the book value can indicate whether or not the stock in overvalued or undervalued.
    - During bull markets the stock price is more likely to trade significantly higher than book value, and in a bear market the two value's may be close to equal.

- =(Stockholders Equity - Preferred Stock) / Average Outstanding Shares

Cash Flow to Assets

- This ratio indicates the cash a company can generate in relation to its size.
    - Comparing to previous years is important, if the company's ratio is decreasing then they may eventually run into cash problems.
    - Ratio below 10 % signals possible problems

- = Cash from Operations / Assets

Common Size Analysis

- Indicates the proportion of an asset/liability/expense is as a function of total assets/liabilities/revenue.
  - Compares what proportion that an expense reduces sales, especially useful when comparing previous years.
  - It is also useful when comparing similar companies of different sizes to see if they have the same financial structure.
- = Entity / Total Entity

ABC	2006	2007
Sales	100%	100%
COGS	35%	34%
Other Expenses	40%	41%
Net Income	17%	16%

Dividend Payout Ratio

- Indicates the proportion of earnings that are used to pay dividends to shareholders.
    - A reduction in dividends paid is looked poorly upon by investors, and the stock price usually depreciates as investors seek other dividend paying stocks.
    - A stable dividend payout ratio indicates a solid dividend policy by the company's board of directors.
- = Yearly Dividend per Share / Earnings per Share

Earnings Per Share - EPS

- The most widely used ratio, it tells how much profit was generated on a per share basis.
    - Diluted EPS means that the outstanding shares includes any convertible's or warrants outstanding.
    - If the company issues more shares then EPS are much harder to compare to previous years.
    - EPS growth !!!

- = (Net Income - Dividends on Preferred Stock) / Aver. Outstanding Shares

Gross Profit Margin

- Indicates what the company's pricing policy is and what the true mark-up margins are.
    - The results may skew if the company has a very large range of products.
    - This is very useful when comparing against the margins of previous years.

- = Revenue - Cost of Goods Sold / Revenue

Price to Earnings Ratio - P/E Ratio

- One of the most widely used ratios, it compares the current price with earnings to see if a stock is over or under valued.

  - Generally a high P/E ratio means that investors are anticipating higher growth in the future.
  - The p/e ratio can use estimated earnings to get the forward looking P/E ratio.
  - Companies that are losing money do not have a P/E ratio.

- = Market Value per Share / Earnings Per Share

S&P 500 - P/E

S&P 500 and P/E Ratio

http://tickersense.typepad.com
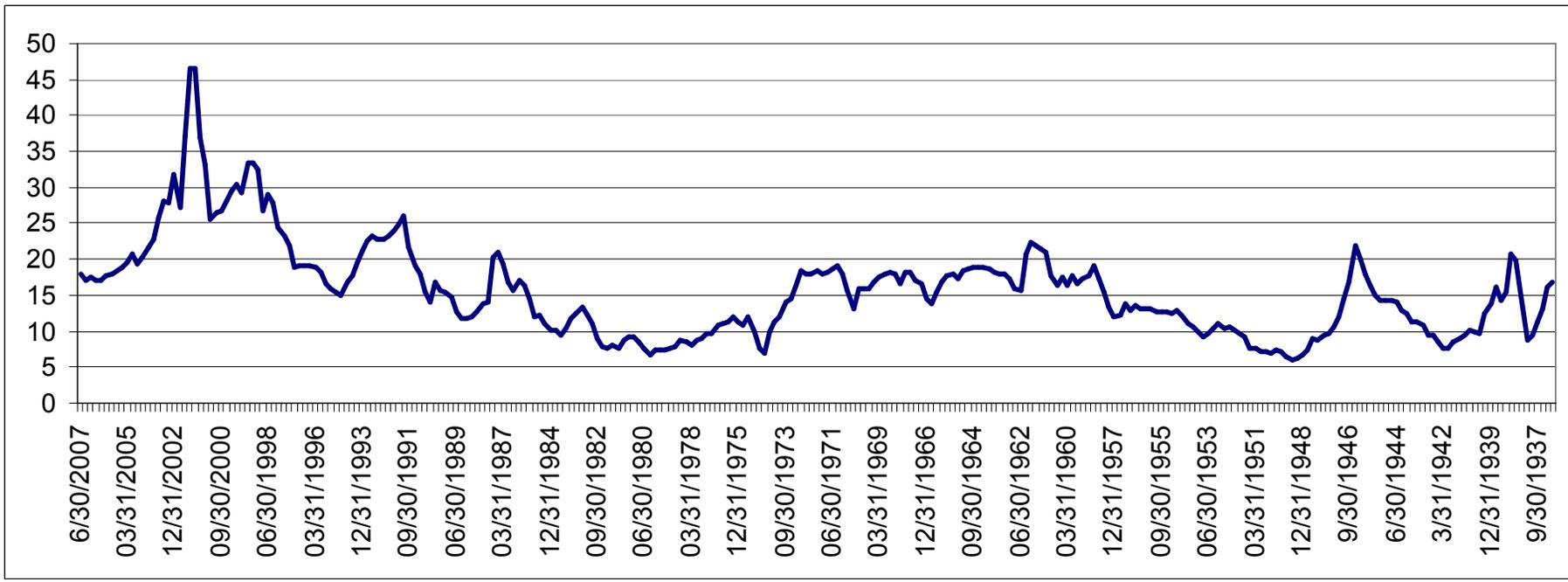
Net Profit Margin

- Indicates what portion of sales contribute to the income of a company.
    - This ratio is not useful for companies losing money, since they have no profit.
    - A low profit margin can indicate pricing strategy and/or the impact competition has on margins.

- = Net Income / Revenue

Return On Assets - ROA

- Indicates what return a company is generating on the firm's investments/assets.
    - The ROA is often referred to as ROI
    - We add the interest expense to ignore the costs associated with funding those assets.
    - This is an important ratio for companies deciding whether or not to initiate a new project. The basis of this ratio is that if a company is going to start a project they expect to earn a return on it, ROA is the return they would receive.
    - Simply put, if ROA is above the rate that the company borrows at then the project should be accepted, if not then it is rejected.

- = Net Income + Interest Expense / Total Assets

Return On Equity - ROE

- Indicates what return a company is generating on the owners' investment.
    - If new shares are issued then use the weighted average of the number of shares throughout the year.
    - For high growth companies you should expect a higher ROE.
    - Averaging ROE over the past 5-10 years can give you a better idea of the historical growth.

- = Net Income / Shareholder's Equity

Asset Turnover

- Indicates the relationship between assets and revenue.
    - Companies with low profit margins tend to have high asset turnover, those with high profit margins have low asset turnover - it indicates pricing strategy.
    - This ratio is more useful for growth companies to check if in fact they are growing revenue in proportion to sales.

- = Revenue / Total Assets

Collection Ratio

- This indicates the average number of days it takes a company to collect unpaid invoices.
    - A high ratio indicates that the company is having problems getting paid for services or products.
    - The ratio is sometimes seasonally affected, rising during busy seasons and falling during the off-season. To account for this seasonality, the average accounts receivable ((beginning + ending accounts receivable)/2) could be used instead.

- = Accounts Receivable / (Revenue/365)

Inventory Turnover

- An important and often overlooked ratio that indicates inventory levels.
    - A low turnover is usually a bad sign because products tend to deteriorate as they sit in a warehouse.
    - Companies selling perishable items have very high turnover.
    - For more accurate inventory turnover figures, the average inventory figure, ((beginning inventory + ending inventory)/2), is used when computing inventory turnover. Average inventory accounts for any seasonality effects on the ratio.

- =Cost of Goods Sold / Average or Current Period Inventory

Debt-Asset Ratio

- Indicates what proportion of the company's assets are being financed through debt.
  - This ratio is very similar to the debt-equity ratio.
  - A ratio under 1 means a majority of assets are financed through equity, above 1 means they are financed more by debt.
  - You can interpret a high ratio as a "highly debt leveraged firm".

- = Total Liabilities / Total Assets

Debt-Equity Ratio

- Indicates what proportion of equity and debt that the company is using to finance its assets. Sometimes investors only use long term debt instead of total liabilities for a more stringent test.
    - A ratio greater than one means assets are mainly financed with debt, less than one means equity provides a majority of the financing.
    - If the ratio is high (financed more with debt) then the company is in a risky position - especially if interest rates are on the rise.

- = Total Liabilities / Shareholder's Equity

Acid Test (Quick Ratio)

- A stringent test that indicates if a firm has enough short-term assets (without selling inventory) to cover its immediate liabilities.
  - It is similar but a more strenuous version of the "working capital" ratio, indicating whether liabilities could be paid without selling inventory.
  - An extreme version of the working capital ratio because it only uses cash and equivalents.
  - The ratio excludes inventory, which for some companies can make up a large portion of its assets.
  - Preferably above 1…..

= (Cash + Accounts Receivable + Short-term Investments) / Current Liabilities

Interest Coverage

- Indicates what portion of debt interest is covered by a company's cash flow situation.
  - A ratio under 1 means that the company is having problems generating enough cash flow to pay its interest expenses.
  - Ideally you want the ratio to be over 1.5.

- = EBITDA / Interest Expense
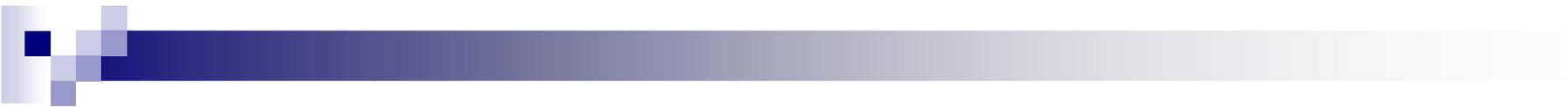
Current Ratio (Working Capital Ratio)

- Indicates if a firm has enough short-term assets to cover its immediate liabilities.
    - A high working capital ratio isn't always a good thing, it could indicate that they have too much inventory or they are not investing their excess cash.
    - Anything below 1 indicates negative W/C (working capital). While anything over 2 means that the company is not investing excess assets. Most believe that a ratio between 1.2 and 2.0 is sufficient

- = Current Assets / Current Liabilities

Valuations

- **Discounted Cash Flow models (DCF)**
  - a model that utilizes the discounted cash flow principle to value common stock
  - Dividend discount model
- **Evaluation using the economic value added (EVA) approach**
  - method used to evaluate if the earnings generated by a firm are sufficient to compensate the suppliers of funds - both the bondholders and the stockholders
- **Valuation using P/E ratios**
  - ratio computed by dividing the current market price per share by the earnings per share

Discounted Cash Flow Model

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \ldots + \frac{CF_n}{(1+r)^n}$$

CF = Cash Flow

r = discount rate (WACC)

Discounted Cash Flow Model

- Calculating growth rate

- Calculating free cash flow
    - Free cash flow to Equity
    - Free cash flow to Firm
    - Dividend discount model

- Calculating discount rate
    - Weighted Average Cost of Capital (WACC)

DCF

- Intrinsic value
- Inputs & sensitivity
- Detailed modeling needed