

Equity Analysis FN 451

-Role of an equity analyst

Fundamental analysis:

- **Approach of fundamental analysis & assets allocation**
- **Economic, industry and firm analysis and financial forecast**

Valuation Technique:

- Fundamental of assets valuation
 - Dividend discount model
 - Discounted cash flow model
 - Market multiples
- Workshop: Equity research report writing and analyst presentation technique
- Banking sector analysis



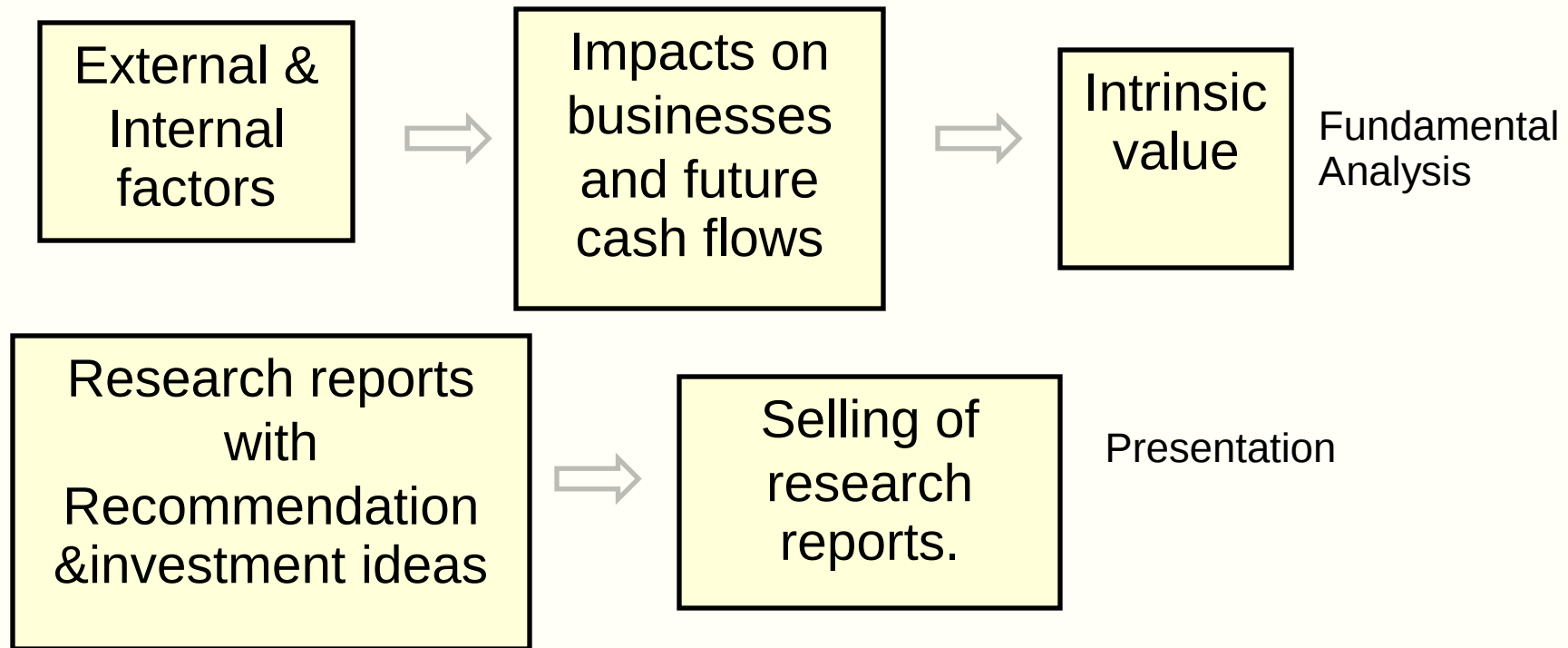
Intrinsic Value and Market Value

Course lecturer: Sirinattha Techasiriwan



Role of an equity analyst

The aim of equity analysis is to find the **equilibrium value (intrinsic value)** of equity (i.e. the equilibrium value of common share) and give an investment recommendation



Intrinsic value and market value

An Intrinsic value (fundamental value, fair value) is the equilibrium value, which reflects the price that rational investors with full knowledge about the asset's characteristics are willing to **pay for the firm's future earnings**.

A market value of equity is the total value of firm's outstanding shares based on market price.



Investment recommendation

BUY if Intrinsic value $>$ market value (Undervalued)

SELL if Intrinsic value $<$ market value (Overvalued)

BUY if expected return $>$ required return (Undervalued)

SELL if expected return $<$ required return (Overvalued)

Expected return and required return are equal if market is fairly valued (equilibrium price, i.e. price where demand equals to supply). This is the equilibrium return base on homogeneous expectations.

Why fundamental analysis is important?

- **Efficient market hypothesis** (Eugene F. Fama, the University of Chicago): Financial markets are **informationally efficient**. One cannot consistently achieve returns in excess of average market returns on a risk-adjusted basis. EMH is based on an assumption the market as a whole **acts rationally**.

- All of the people doing fundamental analysis is the reason the market is efficient
- **Financial markets may not be perfectly efficient**



Financial markets may not be perfectly efficient: Market anomaly

A market anomaly is something that would lead us to reject the hypothesis of market efficiency.

(Anomaly means something that deviate from the common rule.)

Patterns in security returns that appear to violate market efficiency

January effect (tax-loss selling in December), window dressing, overreaction affect, size effect, earnings announcement, December effect, etc.

Financial markets may not be perfectly efficient:

Behavioral finance

Behavioral finance examines whether investors behave rationally, how investor behavior affects financial markets, and how cognitive biases may result in anomalies.

- **Loss aversion** (the tendency for investors to be more risk averse or become overreact when faced with potential losses and less risk averse when faced with potential gains),
- **Gambler's fallacy** (recent results affect investor estimates of future probabilities),
- **Conservatism** (react slowly to changes),
- **Narrow farming** (view events in isolation),
- **Information cascade** (uninformed traders watch the actions of informed traders to make their decisions),
- **Herding behavior** (individuals in group act together without planned direction)

Approach of fundamental analysis & assets Allocation

Course lecturer: Sirinattha Techasiriwan



Two general approach of fundamental analysis

Top down approach: An analysis of the impacts of the economic environment on industries and securities of companies in the industries.

Bottom up approach: An analysis of industries and forecasts fundamentals for the companies in those industries in order to determine valuation.

The difference between the two approaches **is the perceived importance of economic and industry influence on individual firms and stocks.**

John Burr Williams (1900 – September 15, 1989), one of the first economists to view stock prices as determined by “intrinsic value”. He is recognized as a founder and developer of fundamental analysis. He is best known for his 1938 text "The Theory of Investment Value", based on his Ph.D. thesis at Harvard University.

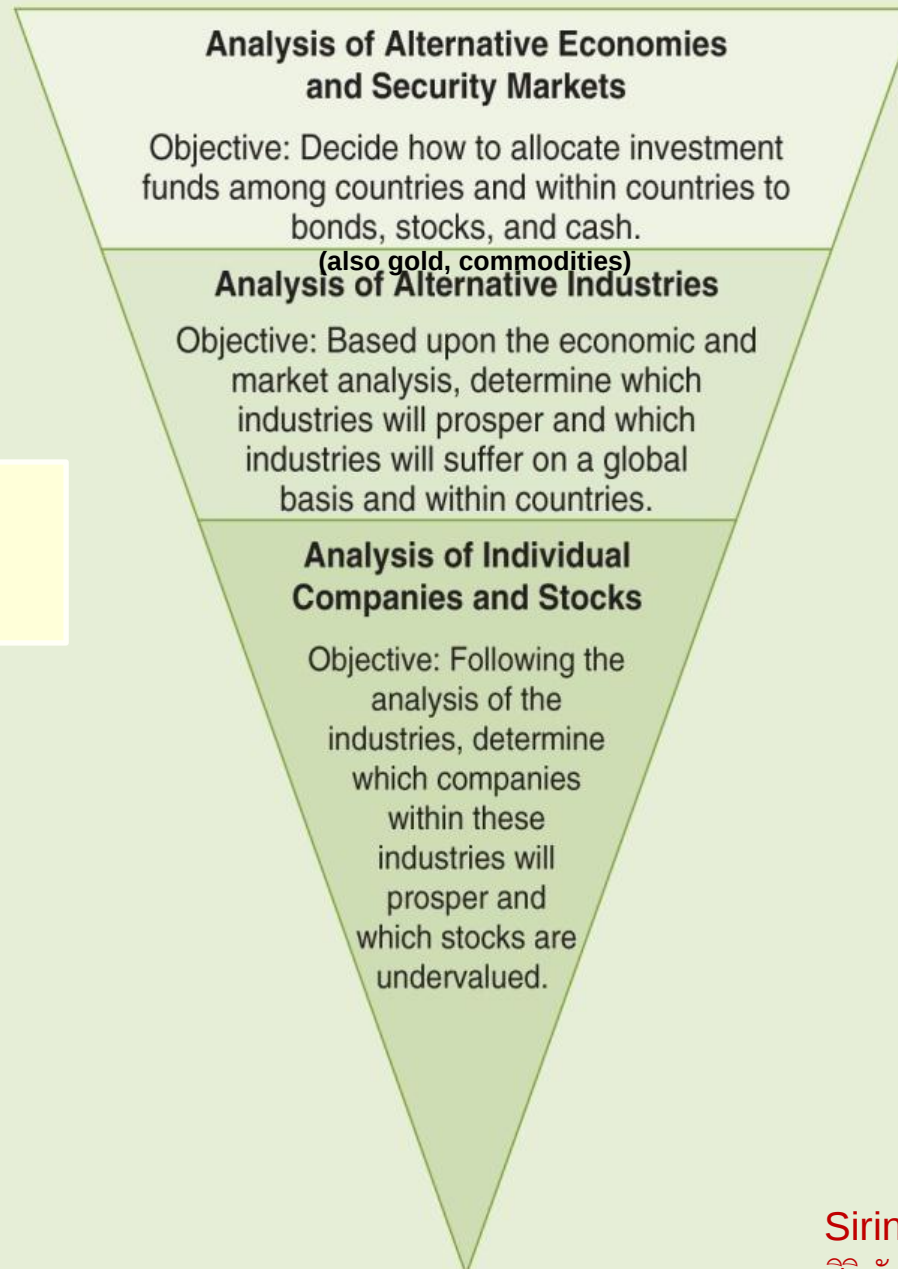


Top-down approach (Three-Step Top-Down Process)

- Economic Analysis
 - Economic analysis process
 - Business cycle & Cyclical Indicators
 - Fiscal policy, Monetary policy and Business Cycle
 - The environment in favor of equity securities price
- Industry Analysis
 - Industry analysis process
 - Rotation strategy and the Business Cycle
 - Industry life cycle
 - Strategy analysis
- Company Analysis
 - Business strategy, competitive edge, etc.
 - Financial Forecast
 - Valuation (Intrinsic Value)



Top-down approach & Assets Allocation



Three-Step Top-Down Process for Asset Allocation

- First examine the **influence of the general economy on the security markets**
- Then analyze the prospects for various global **industries with the best outlooks in this economic environment**
- Finally turn to the **analysis of individual firms in the preferred industries** and to the common stock of these firms.



Economic, industry and firm analysis and market environment

Course lecturer: Sirinattha Techasiriwan



Why Three Step Process?

Economic Analysis

- **Fiscal policy, monetary policy and some other events have influence on individual firms and stocks.**
 - **Fiscal policy initiatives (government spending, taxation)** can encourage spending and stimulate the economy
 - **Monetary policy (controlling money supply growth or interest rate)** affects all segments of an economy and that economy's relationship with other economies
 - **Inflation** causes changes the spending and savings behavior of consumers and corporations
 - **Other events** such as war, political upheavals in foreign countries, or international monetary devaluations exert strong effects on the economies



Why Three Step Process?

Industry Analysis

- Alternative industries have different responses to the **business cycle**
 - Different industries react to economic changes at different points in the business cycle
 - **Demographic factor** and **international exposure** will also have different impacts on different types of industries
 - Identify industries that will prosper or suffer in the **long run** or during the expected **near-term** economic environment



Why Three Step Process?

Company Analysis

- The purpose of company analysis is to decide whether a stock is a good investment
 - This involves examining a firm's past performance, but more important, its future prospects
 - It needs to compare the estimated intrinsic value to the prevailing market price of the firm's stock and decide whether a stock is a good investment
 - For an asset allocation purpose, the final goal is to select the best stock within a desirable industry and include it in your portfolio based on its relationship (correlation) with all other assets in your portfolio



Empirical evidence: Three Step Process

- Studies found a relationship between **aggregate stock prices** and various economic series such as **GDP growth, money supply, interest rates, inflation, employment, and income (or production)**
- Studies have also found that **most changes in an individual firm's earnings can be attributed to changes in aggregate corporate earnings and changes in the firm's industry**
- An analysis of rates of return for showed that **most of the changes in rates of return for individual stock could be explained by changes in the rates of return for the aggregate stock market and the stock's industry**



Economic Analysis



Economic analysis process

- Identifying continuation of **current trend** (expansion, contraction) and **turning points in the business cycle** (peak, trough)
- Identifying **key drivers** for the economic growth.
- How does the business cycle **relate to fiscal policy and monetary policy / money supply, interest rate, inflation and growth?**

Industries can response differently to **business cycle**

Impacts on company: How do the economic cycle, monetary policy and fiscal policy affect the industry and the company?;
Key economic indicators that impact business of the company.
What are the impacts / outlook?



Understanding Business Cycles

- Business Cycles
 - Expansion, Peak, Contraction, Trough

Investment timing: Stock price normally leads economic cycles



Cyclical Indicator approach to forecasting business cycles

- **Leading Indicators:**

- Economic series that usually reach peaks or troughs before corresponding peaks or troughs in aggregate economy activity

- **Coincident Indicators:**

- Economic series that have peaks and troughs that roughly coincide with the peaks and troughs in the business cycle

- **Lagging Indicators:**

- Economic series that experience their peaks and troughs after those of the aggregate economy



Cyclical economic series

- **Leading** : new orders, building permits, first time unemployment claims, *stock prices*
- **Coincident**: Non-farm payroll, industrial production
- **Lagging**: Inventory-to-sales, labor cost
- **Selected Series**: Economic series that do not fall into one of the three main groups such series as balance of payments and federal surplus or deficit



Analytical measures of performance

- Diffusion Indexes
 - Trends
 - Rates of change
 - Direction of change
 - Comparison with previous cycles
- Rates of Change
 - **Normally, the rate of change values for a series reaches peaks or troughs prior to the peak or trough in the aggregate series**



Stock market as a leading indicator

- Stock prices **reflect expectations** of earnings, dividends, and interest rates
- Research has documented that peaks and troughs in stock prices tend to occur prior to peaks and troughs in the economy
- Stock market reacts to various leading indicator series
- Stock prices consistently turn before the economy does

How does the business cycle relate to Fiscal policy and Monetary policy?

$$GDP = C + I + G + X - M$$

- **Government Fiscal Policy**

- Taxes
- Government spending
- Debt management

- **Monetary Policy**

- Money supply
- Interest rates
- Reserve requirements



- **Growth & Stability**

- Economic Growth
- Full Employment
- Price Stability (control inflation)

- Inflation
- Currency exchange rates
- Consumer spending
- Business investments
- Foreign trade



The environment in favor of equity securities price

The environment in favor of equity securities price:

Increased money supply

Low interest rates

Low inflation

Fast-growing economic growth ($C + I + G + X - M$)

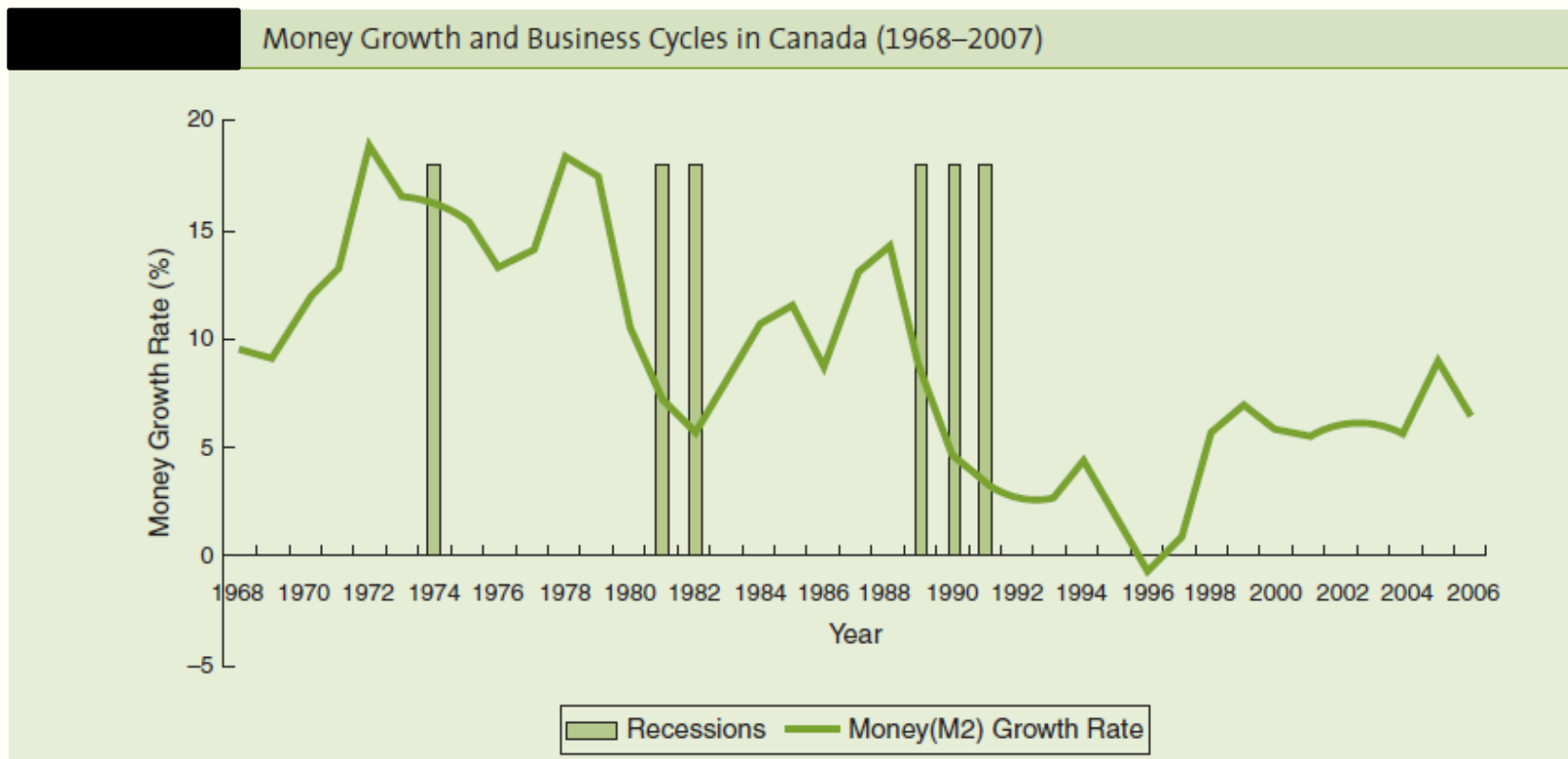
Money Supply

- Friedman and Schwartz (1963) showed:
 - **Declines** in the rate of growth of the money supply have preceded business **contraction**
 - **Increases** in the rate of growth of the money supply have preceded economic **expansions**
- Friedman (1969) suggested:
 - A transmission mechanism through which **changes in the growth rate of the money supply affect the aggregate economy**
 - Federal Reserve plays the central role through the **open market operation**



Empirical evidence: Money Supply

- History shows that **each recession in Canada since 1915 was preceded by a decline in the growth of money supply**



Source: Authors' graph based on IMF International Financial Statistics, and Statistics Canada data.



Money supply case study: FOMC action

Operation Twist

- Operation Twist began in 1961 with the intent to flatten the yield curve. The Fed utilized open market operations by selling some of the short term debt (three years or less to maturity) and buying longer term government debt.
- The FOMC did in fact take an analogous action in 2011, including a plan to purchase 267 billion years and to sell 267 billion bonds. (Assignment: A group study on operation twist)
 - What is operation twist?
 - What is the impacts on a money supply and the economy?)
- This is an attempt to do what Quantitative Easing (QE) tries to do, without printing more money and without expanding the Fed's balance sheet, therefore hopefully avoiding the inflationary pressure associated with QE.
- This announcement brought a bout of risk aversion in the equity markets and strengthened the US Dollar, whereas QE I had weakened the USD and supported the equity markets.
- Further, on June 20, 2012 the Federal Open Market Committee announced an extension to the Twist program by adding additionally \$267 billion thereby extending it throughout 2012.



Money supply case study: FOMC action

Quantitative Easing 1 (QE1, December 2008 to March 2010)

- "On November 25, 2008, the Federal Reserve announced that it would purchase up to *\$600 billion in agency mortgage-backed securities (MBS) and agency debt*. On December 16, the program was formally launched by the FOMC. On March 18, 2009, the FOMC announced that the program would be expanded by an *additional \$750 billion in purchases of agency MBS and agency debt and \$300 billion in purchases of Treasury securities*. The purpose was to support the housing market, which was to devastated by the subprime mortgage crisis.

Quantitative Easing 2 (QE2, November 2010 to June 2011)

- On November 3, 2010, the Federal Reserve announced that it would purchase *\$600 billion of longer dated treasuries*. This program, popularly known as "QE2", concluded in June 2011.
- (Assignment: A group study on quantitative easing
-What is quantitative easing?
-What is the impacts on a money supply and the economy?)

Quantitative easing 3 (QE3)

- On September 13, 2012, the Federal Reserve announced a third round of quantitative easing (QE3). This new round of quantitative easing provided for an open-ended commitment to purchase *\$40 billion agency mortgage-backed securities per month until the labor market improves "substantially"*.

Quantitative easing 4 (QE4)

- The Federal Open Market Committee voted to order a fourth round of quantitative easing (QE4) on December 12, 2012. This round authorized *up to \$40 billion worth of agency mortgage-backed securities per month, and \$45 billion worth of longer-term Treasury securities*.



Industry Analysis



Industry analysis

- **Industry analysis** provides a framework for understanding the **firms** in the industry, which can provide insights about the **potential growth, profitability, competition and risks**.
- Industry analysis evaluates the **competitive position** of a **particular industry in relation to other industries**
 - Looking for new opportunities & growth potential
- Identify companies **within the industry** that **look promising**
 - Looking for **strong market positions, pricing leadership, economies of scale**, etc.



Industry grouping

Industry grouping is normally based on **principle business activity**. Firms can also be classified by their **sensitivity to business cycles**.

Peer group is a set of companies in similar **business activities, demand drivers, cost structure drivers and availability of capital**.

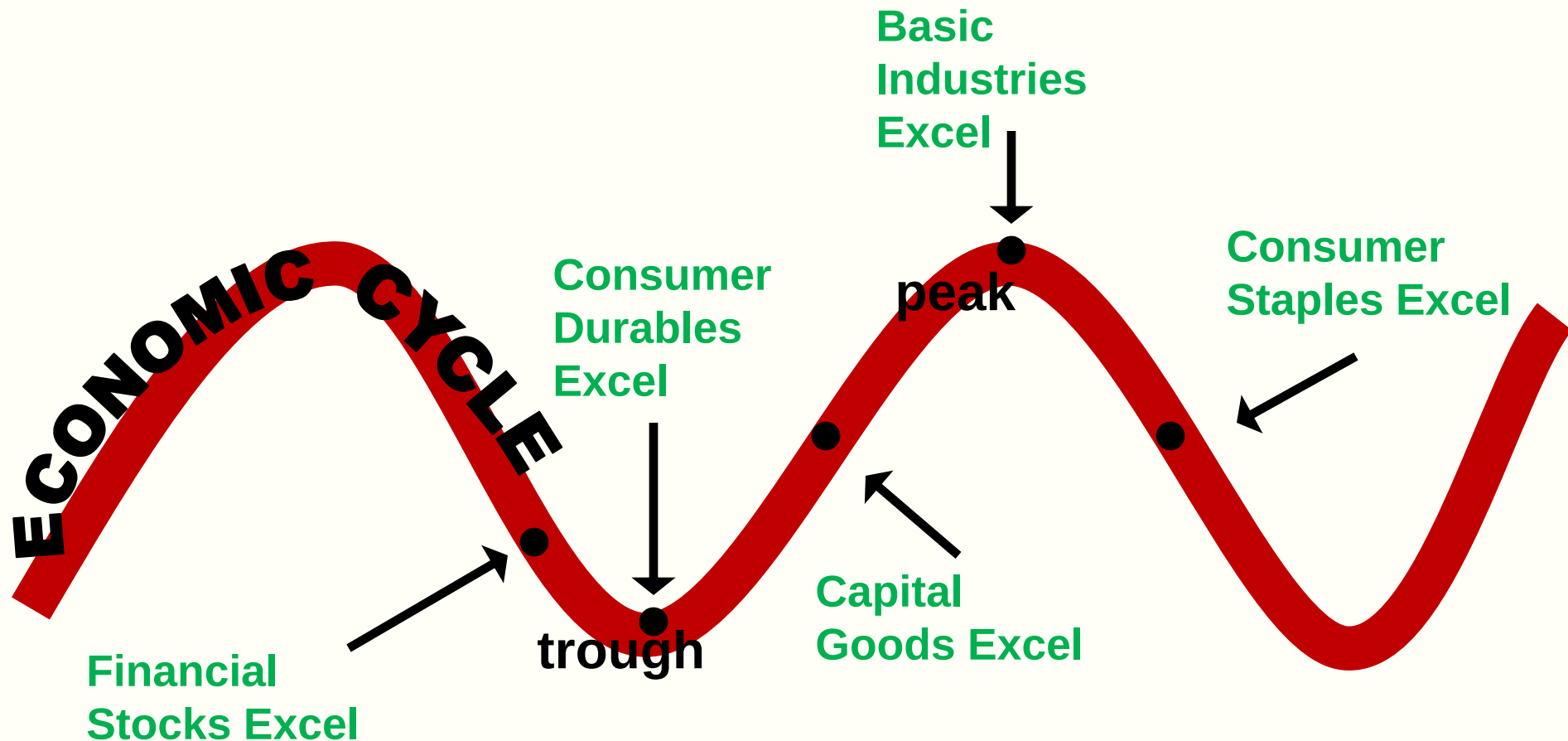
Some firms will experience growth and profits that are dissimilar to those in their peer group due to competitive advantages or disadvantages.

The Business Cycle & Industry Sectors

- Industries can response differently to business
- **Rotation strategy** is when one switches from one industry group to another over the course of a business cycle



Empirical evidence: Rotation strategy and the Business Cycle



Rotation strategy and the Business Cycle

	Definitions	Examples
Capital goods	Any tangible assets that an enterprise uses to produce goods	factory, machinery, equipment
Basic industries	An industry that produces materials that are supplied to other industries	agriculture, fishing, mining, petroleum
Consumer goods	Products directly purchased by consumers for personal or household use	
Consumer staples	Products that are essential for personal or household use	food, beverages, household items, clothing
Consumer durables	Consumer goods, which have long life span (usually more than 3 years)	cars, home appliances (household goods), consumer electronics, sport equipments

Industry analysis process

Industry characteristic

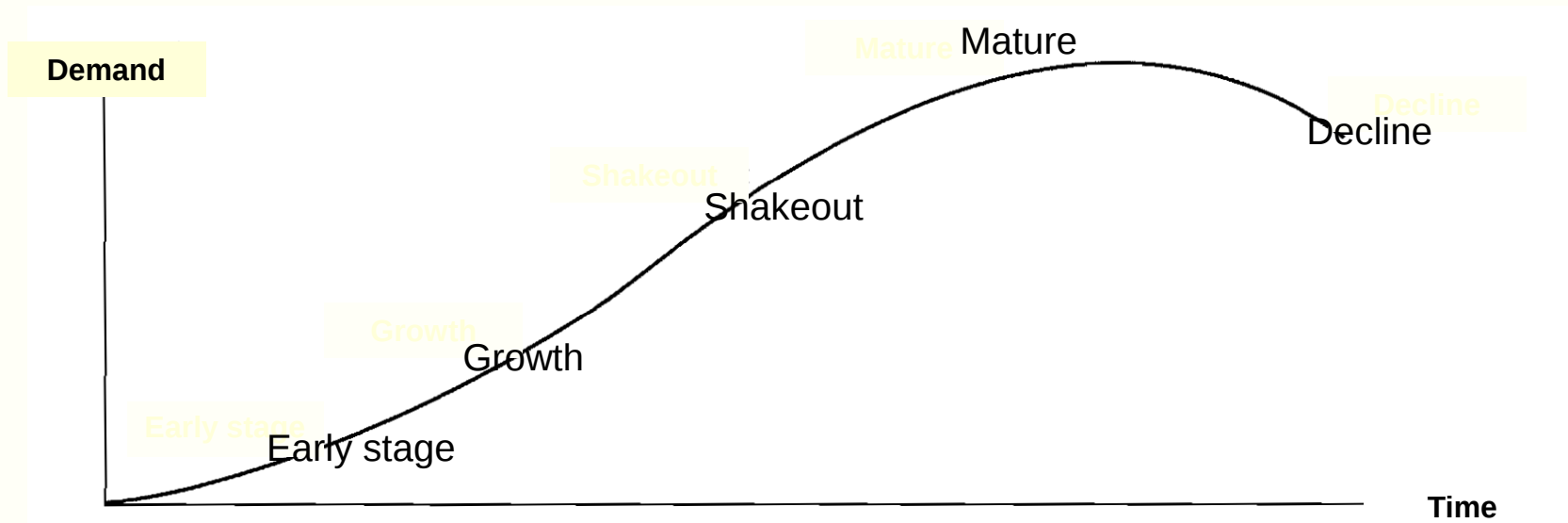
- What is the industry life cycle? How does growth looks like?
- (if applicable) Regulatory, tax condition, labor condition, importance of R&D and technological developments

Competitive positioning

- Market positioning/ranking of competitors compared to the company
- The company's key competitive edge: Factors that makes the company gain/lose competitive edge, such as product differentiation, bargaining power with suppliers, bargaining power with customers
- Risks: Vulnerability to external shock, threats of new entrants / substitute products



Industry life cycle



The five phases of the industry life cycle:

- Early stage
- Growth
- Shakeout
- Mature
- Decline



Industry life cycle

- An industry stage in the cycle has an impact on **growth, competitive structure, cost and profit.**
- An industry stage in the cycle affects business strategies, including **pricing, marketing, cost cutting and R&D**
- An industry's stage will change over time.

Early stage of industry life cycle

Early stage

- Slow growth
- Customers are unfamiliar with the product
- Large investment for R&D and to develop awareness
- High price as the volume necessary for economies of scale has not been reached
- High risk of failure.

Growth stage of industry life cycle

Growth stage

- Rapid growth
- Lots of new firms coming into the market, but the rapid demand growth allows firms to grow without competing on price.
- Prices falling as economy of scales are reached and distribution channel increased.
- Increasing profitability due to economy of scale.

Shakeout stage of industry life cycle

Shakeout stage

- Demand reaches saturation level.
- Growth and profitability are slowing due to strong competition.
- Increasing overcapacity
- Increased cost cutting
- Increased failures.

Mature stage of industry life cycle

Mature stage

- Market is saturated and demand is only for replacing.
- Market evolves to an oligopoly.
- Firms try to avoid price war.
- High barriers to entry as surviving firms have brand loyalty and low cost structures.
- Superior firms gain market share.

Decline stage of industry life cycle

Decline stage

- Industry growth turns negative due to development of substitute products, societal change, or global competition.
- Declining prices due to competition and overcapacity. - Consolidation.

Analysis of business strategy and Dividend Policy

Growth firms should reinvest their profit for internal growth. Growth firms should focus on **increasing product offerings, increasing economy of scale and building brand loyalty.**

Mature firms should pay out cash to investors as dividends or stock repurchase because cash flows are strong but internal growth is limited. Mature firms should focus on **cost efficiency** because demand is largely from replacement.



Porter's the five competitive forces

- The five forces analyze the **micro environments** that affect attractiveness of the industry.
- It provide a framework to analyze **competitive intensity** of the industry and **attractiveness of or overall industry profitability**
- Potential profitability of firm is heavily influenced by profitability of its industry
- **To create a profitable competitive strategy**, firm must first examine **basic competitive structure** of its industry



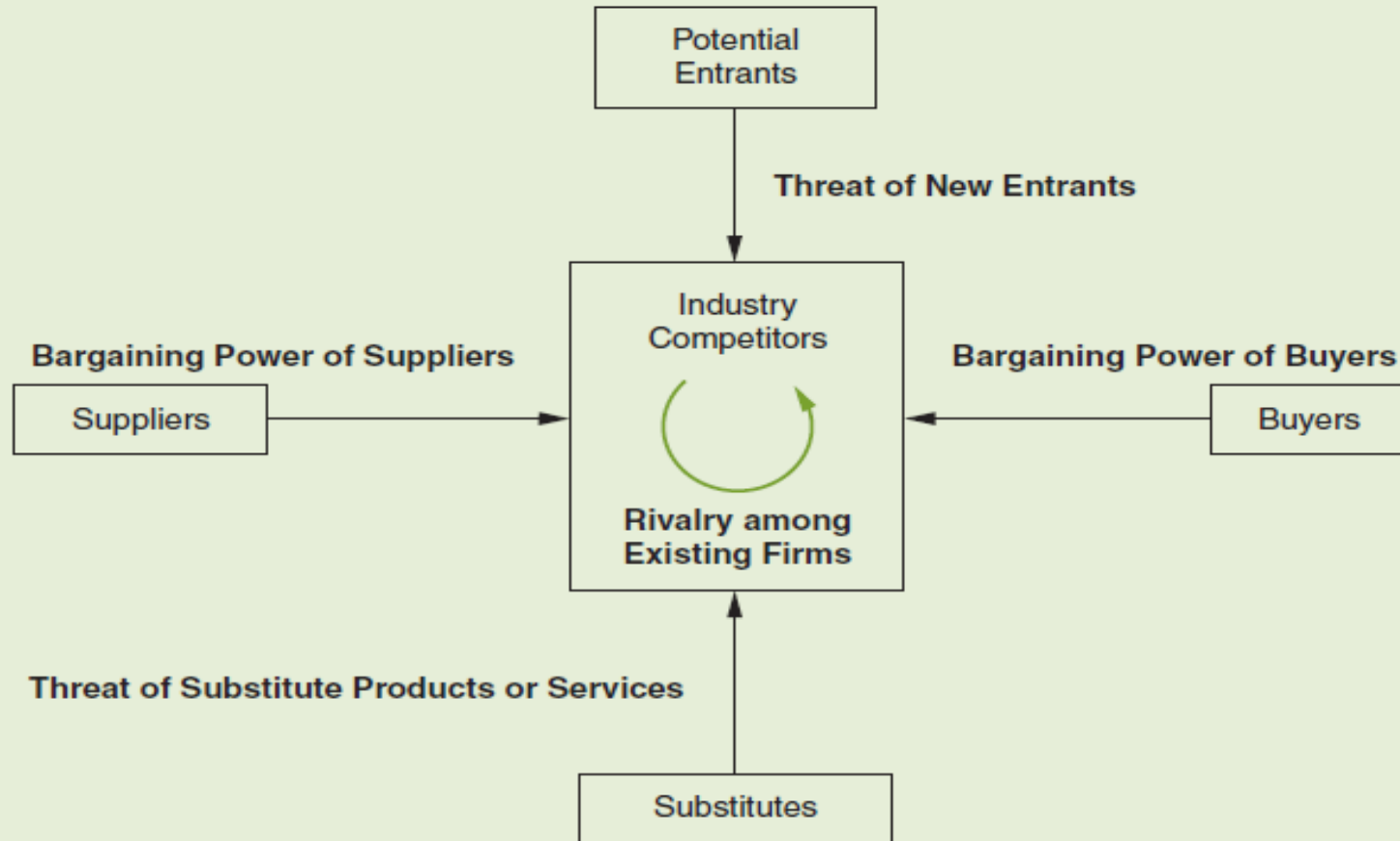
Porter's the five competitive forces: Analysis of Industry Competition

Porter's Competitive Forces that shape strategy

- **Rivalry among existing competitors**
 - More rivalry means intense competition
- **Threat of new entrants**
 - Are there barriers to entry?
- **Threat of substitute products**
 - Substitute products limit the profit potential of an industry
- **Bargaining power of buyers**
 - Volume discounts, quality demands
- **Bargaining power of suppliers**
 - Can suppliers increase prices or reduce quality?

Analysis of Industry Competition

Forces Driving Industry Competition



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Porter's two competitive strategies

Porter's two competitive strategies:

- cost leadership strategy;
- product or service differentiation strategy.



Differentiated or commodity-like

Industries with products are undifferentiated and commodity-like, consumers will switch to the lowest-priced producer. The more consumer price sensitive, the greater the competition in the industry.

Industries with greater product differentiation, reliability and after-sale-services will have greater pricing ability.

Although **industry concentration** does not guarantee pricing power, a **fragmented market** usually results in strong price competition.



Cyclical or non-cyclical

Cyclical industries are highly dependent on the stage of the business cycle (performance is highly related to economic activity). These firms have high earnings volatility and operating leverage.

Non-cyclical industries produce goods and services for which demands are relatively stable. Non-cyclical industries can be grouped into **defensive (stable) or growth**.

Cyclical industries: energy, petrochemical, soft commodities, materials, technology and consumer discretionary.

Defensive industries: utilities, healthcare, consumer staples

Growth industries: E-Commerce, biotechnology, environmental consulting, video games*

**Top 10 fastest growth industries according to IBISWorld*



Capital intensive industry

Capital intensive industries have **high barrier of entry**, as it will be costly to enter or exit. **Overcapacity can result in intense price competition.**

Capacity: Producers may overshoot the optimal industry capacity, especially in cyclical market. Producers may start to expand capacity during an economic expansion. By the time they bring the additional production on the market, the economy may enter a recession.



Company Analysis



Company Analysis Process

- Evaluation of a specific company's business
 - Company's business: products / services, customers, markets
 - Competitive position, strength and weakness
 - Composition / key drivers and growth in sales Composition of cost
- Evaluation of operating results
 - Profit margins and dynamics of earnings
 - The mix between fixed cost and variable cost
 - Asset mix
 - Financing mix
 - Liquidity
- Forecast
- Valuation



Evaluation of operating results: Analysis of financial Statements

What are we looking for on financial statements?

- Trends (improving vs. decreasing)
- Relative amounts (large vs. small)
- Relationships
- Liquidity

Investors generally prefer high growth and high ROE companies.



The DuPont formula

The DuPont formula, also known as the strategic profit model, is a common way to break down ROE into three important components.

ROE = ROA x Financial leverage

ROE = Net margin x Assets turnover x Financial leverage

**ROE = (Net income/Sales) x
(Sales/Average total assets) x
(Average total assts/Average shareholders' equity)**

Implications of the DuPont formula:

- Investors want to know if ROA is moving up (or down) because of improvement (or deterioration) in the company's profit margin and/or its total asset turnover.
- Investors want to know if ROE is moving up (or down) because of how much debt the company is using or because of how the firm is managing its assets and operations.



Warning signs!

The following financial statement developments could indicate a company heading for financial problems:

- Inventories and receivables growing faster than sales
- A falling current ratio, caused by current liabilities increasing faster than current assets
- A high and rapidly increasing debt-to-equity ratio, suggesting problems with servicing debt in future
- Cash flow from operations dropping below net income
- Presence of lots of indecipherable off-balance sheet accounts and extraordinary income entries



Forecast & valuation: Financial statements projection

Financial projection model contains forecasts of a company's balance sheet, income statement, and cash flows statement, in order to determine future profitability and financial status and intrinsic value (fundamental value).

The more confident the investor is about the estimated inputs (assumptions) used in financial projection model, the more likely the investor is to take an investment position in the stock that is identified overvalued or undervalued.

Analysts must also consider the sensitivity of a model value to each of its inputs or assumptions.



Steps in forecast and valuation

- Explore all the external and company's internal factors that impact the company
- Translate those factors into assumptions
- Link the assumptions into financial forecast
- Translate forecasts into valuation
- Sensitivity analysis.....

(Example TICON, CPALL)



Financial statements projection

Key financial model assumptions:

- Macro assumptions that impacts businesses
- Key drivers of revenues
- Key determinations of fixed costs
- Key determinations of variable costs
- Expansion plan and CAPEX
- Financing plans and interest on debts
- Tax rate
- Extraordinary items



Key assumptions

- Focus on the ones that give major impacts on profitability
- Ignore minor ones



How to make assumptions?

- Repeat historical patterns only if there are no fundamental changes
- Accompany fundamental change into assumptions and forecasts.....
- Translate forecasts into valuation...

(Example TICON)

