Introduction to Industry and Company Analysis

Abstract

Contents

12a	Calculate and interpret price, income and cross-price elasticities of demand and describe factors that affect each measure
12b	Compare substitution and income effects
12c	Distinguish between normal goods and inferior goods
12d	Describe the phenomenon of diminishing marginal returns
12e	Determine and interpret breakeven and shutdown points of production
12f	Describe how economies of scale and diseconomies of scale affect costs

- What are the similarities and differences among industry classification systems?
- How does an analyst go about choosing a peer group of companies?
- What are the key factors to consider when analyzing an industry?
- What advantages are enjoyed by companies in strategically well positioned industries?

1. Uses of Industry Analysis

Understanding company's business

Understanding company's business environment

Identifying active equity investment opportunities

Portfolio performance attribution (performance attribution is the process of comprehending the performance of a portfolio; why did it differ from benchmark. It is usually due to portfolio's risk structure differing from the systemic risk of benchmarks, favoring some industry specific risks and investments)

2. Approaches to Identifying Similar Companies

The three major approaches to industry classification are:

- product and services supplied analysis;
- business-cycle sensitivity;
- statistical similarities;

2.1 Products and Services Supplied

According to the aggregation of companies with similar products and services there can be different levels of aggregation. An **industry** is defined as a group of companies offering similar products and services. For example, the industry of light personal vehicles is different than the truck industry because although they are similar products they aren't good substitutes of one another.
In this scenario, the term used to aggregate multiple industries is a **sector**. The automobile sector, in this example, considers the truck industry, light vehicles and luxury vehicles among other industries.
These classification systems place a company with multiple segments on the basis of determination of its principal business activity. A company's **principal business activity** is the source from which the company derives most of its revenues. One way to analyze them is through their financial reports. Companies which engage in more than one significant business activities are required to disclose informations about their operations in business segments.

2.2 Business-Cycle Sensitivity

Companies can also be group on the basis of their relative sensitivity to the business cycle.
A **cyclical company** is one whose profits are strongly correlated with the strength of the overall economy. Such companies experience wider fluctuations in demand across the business-cycle - high demand during hot economical periods and low demand during periods of contraction. Examples of these industries are relative capital intensive industries such as autos, housing, heavy machinery and capital goods.
In contrast, non-cyclical companies are companies whose performance is largely independent of the business cycle and demand is more stable during different periods.

2.2.1 Limitation of the business-cycle analysis

One limitation of the cyclical/non-cyclical classification is that business cycle sensitivity is a continuous spectrum and not a discreet spectrum as to cyclical or non-cyclical dichotomy. The impact of severe recession reaches all parts of the economy and some specific recessions can affect more some sectors than others, even if those sectors would be considered non-cyclical.

2.3 Statistical Similarities

The statistical analysis often involves grouping companies based on correlations established from past securities returns or data.

2.3.1 Limitations of Statistical Analysis

Moreover, statistical approaches rely on historical data which brings the question whether past findings can hold in the future. They can also generate non-intuitive groups of companies and falsely create relationships based on correlation rather than causation (or excluding them).

3. Industry Classification Systems

3.1 Commercial Industry Classification Systems

The broadest level of *Commercial Industry Classification Systems* is fairly similar between the tree standards.

- **Basic Materials and Processing** miscellaneous; building materials, chemicals, paper, metal and minerals, mining
- **Consumer Discretionary** cyclical consumer products
- **Consumer Staples** non-cyclical consumer products
- **Energy** exploration of energy products
- **Financial Services** banking, finance, insurance, asset management, brokerage services
- **Health Care** pharmaceuticals, biotech, medical supplies
- **Industry/Producer Durables** capital goods, heavy machinery, defense, aerospace, transportation services
- **Real Estate**
- **Technology** computers, software, semi-conductors, internet services
- **Telecommunications**
- **Utilities** electric, gas, water

3.1.1 Global Industry Classification Standard

Figure 1

The **Global Industry Classification Standard (GICS)** was jointly developed by Standard & Poor's and MSCI. Each company is assigned to a *sub-industry* according the *principal business activity*. Each sub-industry belongs to an industry; each industry belongs to a industry group and each group belongs to a sector.
The GICS classification structure comprised 4 levels of details consisting of 157 sub-industries, 68 industries, 24 industry groups and 11 sectors.

3.1.2 Russel Global Sectors

The **Russel Global Sectors (RGS)** classification system uses a three-tier structure to classify companies globally on the basis of products and services.
The RGS consists of 9 sectors, 33 sub-sectors and 157 industries.

3.1.3 Industry Classification Benchmark

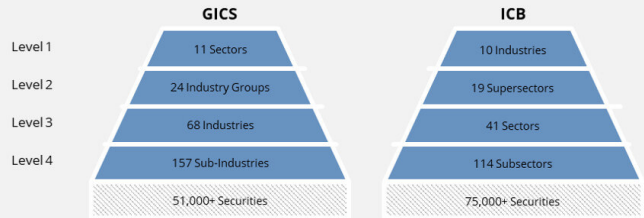

Figure 2

The Industry Classification Benchmark (ICB) was jointly developed by Dow Jones and FTSE. It uses a 4-tier structure to categorize companies globally on the basis of the source from which the company derives most of its revenue.
It consists of 10 industries, 19 super-sectors, 41 sectors and 114 sub-sectors.

3.2 Government Industry Classification Systems

Government agencies have their own classification systems in order to analyze the economic activity and facilitate comparison between in-country agencies and other countries as well (harmonization).

3.2.1 International Standard Industrial Classification

The **International Standard Industrial Classification of All Economic Activities (ISIC)** is organized into 11 categories, 21 sections, 88 divisions, 233 groups and more than 400 classes.
Examples of organizations using the ISIC are the UN, IMF and World Bank.

3.2.2 Statistical Classification of Economic Activities in the European Community

The **NACE** is regarded as the european version of the ISIC. NACE is composed of four levels: divisions (two digit numerical cods 01-99), groups (three digit numerical codes 01.1-99.0) and classes (01.11-99.00).

3.2.3 Australian and New Zealand Standard Industrial Classification

The Australian and New Zealand Standard Industrial Classification (ANZSIC) has a structure of 5 levels: divisions, subdivisions, groups, classes and subclasses.

3.2.4 North American Industry Classification System

The North American Industry Classification System (NAICS) was jointly developed by the United States, Canada and Mexico.
It uses a two-digit through six-digit code to structure its categories into five levels of detail. The first levels, from broadest to narrowest, are sector (first two digits of the code), subsector (third digit of the code), industry group (fourth digit), NAICS industry (fifth digit) and national industry (sixth digit).

3.3 Strengths and Weaknesses of Current Systems

Unlike commercial classification systems, most government systems do not disclose information about a specific business or company so analysts cannot know the constituents of a particular group (there are federal laws preventing them from disclosing private information).
Government classifications also have an important difference: they do not distinguish small and large business nor for-profit or non-profit organizations or even public from private companies, while commercial classifications system often make those distinctions and only include for-profit organizations and public traded firms.

3.4 Constructing a Peer Group

A peer group is a group of companies engaged in similar business activities whose underlying economics and valuation are influenced by closely related factors. Peer groups are important namely to benchmark company performance and relative valuations.

Steps in constructing a preliminary list of peer companies

- Examine commercial classification systems, if available. They should provide a starting point for identifying companies operating in the same industry.
- Review the subject company's annual report for discussion about direct competitors and competitive environment. Companies often cite competitors.
- Review competitors' annual reports to identify potential comparable companies
- Review industry trade publications to identify comparable companies
- Confirm that each comparable company derives a significant portion of its revenue from a business activity similar to the primary business of the subject company

Questions that may improve the list of peer companies:

- What proportion of revenue and operating profit is derived from businesses activities similar to the subject company? The more the better.
- Does the potential peer company face a demand environment similar to that of the subject company? This should include a comparison of growth rates, margins.

4. Describing and Analyzing an Industry

Analysts often study the statistical relationships between industry trends and a range of economic and business variables. Analysts use economic, industry and business publications and internet resources as sources of information. In addition, they also seek information from individual subject companies and their competitors, suppliers and customers.
Investment managers are interested in industry performance *(i)* in relation to other industries to identify industries with superior/inferior returns and *(ii)* over time to determine the degreee of consistency, stability and risk in the returns in specific industries.

Strategic Groups

Besides peer groups, analysts are also interested in **strategic groups** - groups of companies sharing distinct models or market segments albeit being in the same industry. For example, charter airlines (airlines which rent airplanes) form a strategic group which is different from the scheduled airlines although they all operate within the same industry. Another examples are pharma companies that sell patented drugs (proprietary drugs) and companies that sell generic drugs. These companies have a different client base and pursue different strategies.

Life-Cycle Stage Analysis

Analysts also classify industries according to its **life-cycle stage**. The analysts determine whether a specific industry is in the *embryonic*, *growth*, *shakeout*, *mature* or *declining* stage.

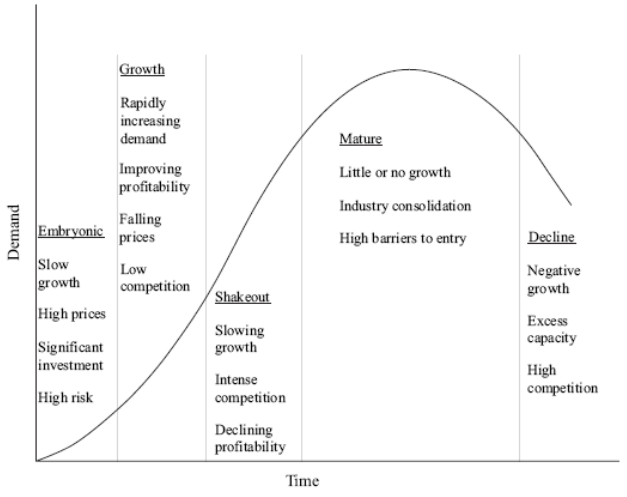

Figure 3. Industry Life Cycle Model

Embryonic Stage is an industry that is beginning to develop. For example, in 1960's the semiconductor industry was in embryonic stage or 1980's mobile phone industry.
The embryonic stage is characterized with slow growth and high prices as customers are often unaware of the industry's product and firms are not yet ready to achieve economies of scale. This is an high risk high reward phase, as most of start-up companies do not succeed.

Growth A growth industry tends to be characterized by rapidly increasing demand, improving profitability, falling prices and relatively low competition. Demand is fueled by new customers entering the market and prices lower as *economies of scale* are achieve, more production and *process knowledge* are developed and *distribution channels* mature.
The threat of new competitors entering the market is the highest during the growth stage because producers tend to profit the most (firms try to seize economic profits).
Competition is limited because firms do not need to capture market share from competitors as long as the customer base is growing.

Shakeout The shakeout phase is characterized by a slowing growth, increasing competition and declining profitability.
Demand approaches a saturation level because there are no new customers left to enter the market. Competition increases and becomes intense because firms become increasingly dependent on competition to grow their market share. Excess capacity begins to develop as growth slows down, which forces companies to cut prices fiercely so that profitability begins to decline.
During the shakeout phase, optimization of production processes and focus on reducing the cost structure (restructuring) of the company are key. Firms also start to develop customer brand loyalty.

Mature industries include little to no growth and refers to the phase of industry consolidation.
The growth is limited and often non-existent because demand has reached a point of saturation. Also, because industries start to develop advanced cost structures and economies of scale (which very much relies on *learn-by-doing*), the barriers to entry are the highest.
The marginal companies often fail or merge with others in oligopolistic models. It really depends on the degree of concentration, fragmentation among other variables.

Decline In the decline phase, industry growth turns negative, excess capacity develops and competition increases again.
Industry demand declines for a variety of reason, including technological substitution, social changes, global competition (and comparative advantage), etc.
As demand falls, overcapacity begins to form and many companies respond by cutting prices. The weaker companies often exit the market or redeploy capital (if possible) while other companies bid in price wars. During the decline phase the returns on capital are the lowest.

4.0.1 Limitations of Industry Life-Cycle Analysis

Technological changes may cause an industry to experience an abrupt shift from growth to decline, skipping the shakeout and mature stages. For example, the vacuum tubes in 1960's were in growing stage by were replaced by transistors soon after.

Regulatory changes can also have a profound impact on the structure of an industry, social changes such as the dual income family shift, with less time for household work increased the dining industry and home maids. The demographics shifts, as there is a shift towards elder population health care services become increasingly solicited.
In short, the industry life-cycle model is specially useful for analyzing industries in the absence of exogenous shifts and periods of relative stability.

The **experience curve** shows the direct cost per unit of a good or service as a declining function of cumulative output. The curve declines because (1) the utilization of capital goods increases and thus fixed costs are spread among a larger number of units of production, (2) because of improvements in labor efficiency and managements facilities and (3) because of advances in productions methods and product design.

4.1 Strategic Analysis

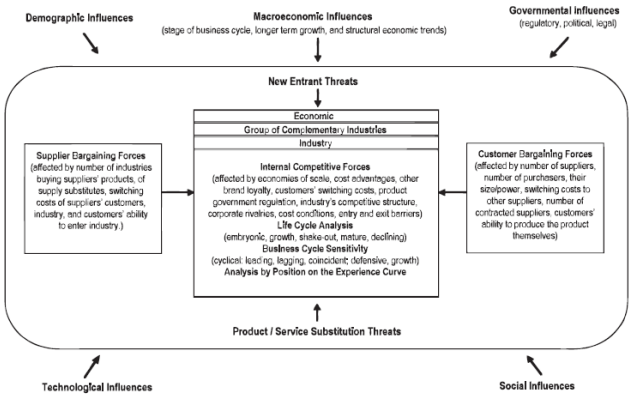

Figure 4. Framework for Industry Strategic Analysis

The principle of strategic analysis is to study the underlying fundamentals of each industry which explain their characteristics and the characteristics of industry participants and thus the profitability for investors (return on capital). It's important to know which industries create value and which industries destroy value.

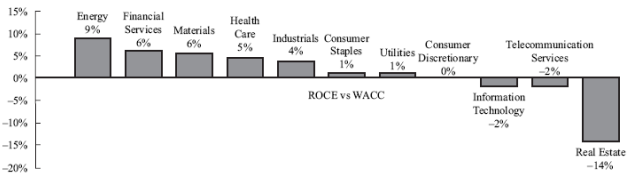

Figure 5. Average Industry ROIC minus WACC (Rate of economic profits)

The analysis of the competitive environment with the implications of such environment for corporate strategy is known as **strategic analysis**. The classic starting point for strategic analysis is the Michael Porter's *five forces*, although it was originally aimed more at internal managers than security analysts.

4.1.1 The 5 forces of Porter

Threat of entry The threat of entry to the industry depends on barriers to entry or on how difficult it would be for new competitors to enter the industry. Industry with low entry barriers are generally more competitive and have lower price control.

Power of Suppliers The power that suppliers have to raise prices or restrict the supply are key inputs to the company. The most common situations are unionized labor and suppliers of limited parts often possess significant pricing power.

Power of Buyers The price of buyers have on setting the prices. For example, auto parts companies generally sell to a small number of auto manufacturers, which allow these costumers to be tough negotiators.

Threat of Substitutes

Rivalry among Competitors The strategic analysis should address the following questions:

- What are the barriers to entry?
- How concentrated is the industry? How fragmented is the industry?
- What are the capacity levels? Can industry capacity shift easily or requires significant investment?
- How stable are market shares?
- Where is the industry in its life-cycle?
- How important is price to customer's purchase decision?

4.1.2 Barriers to entry

When companies are earning economic profits, the chances that they can sustain those profits, et ceteris paribus, are greater if there are high barriers to entry. Otherwise if competitors can easily enter the industry, the industry is likely to be more competitive and profits will shrink as entrants try to grab their share of economic profits.
As result, usually industries with low barriers to entry have little pricing power because price increases lead to economic profits which eventually attract new entrants.

How to analyze this? This information can be implied in historical data. How often new participants tried to enter the market? How often they succeeded/failed? Is the list of participants of the industry very different than 5 or 10 years ago? If an industry has a high flood of entrants, chances are the barriers to entry are low. Conversely, if the same companies dominate the market, barriers to entry are likely high. (*although it is important to distinguish barriers to success and barriers to entry*)

Why high barriers doesn't automatically mean high pricing power? Generally, it does. High barriers to entry correlates with pricing power in the sense there are greater frictions when entrying the industry and thus higher margins are more protected from competition. However, when analyzing the pricing power with respect to consumers, this can be limited due to 2 main factors: (i) *the price component* and (ii) *barriers to exit and capital intensity*.

- When price is a large component of the customer's purchase decision, consumers will be more price sensitive and generally less likely to tolerate price increases. For example, in the airline business, most airlines choose between Boeing and Airbus because of cost-related considerations. Increasing pricing of airplanes will not only hurt the airliners but also hurt the airline producers.

- Industries with high barriers to exit are prone to overcapacity. That is, industries where it is impossible to redeploy the capital and capital goods are not very sensitive to shift in prices because the stoppage of plants can be very painful to company's bottom line.
  Examples of such industries are the automobile and refining industry. Both refining plants and automobile plants require substantial capital investments which cannot be deployed anytime soon - the equipment is too specific to be sold at cost or redeployed.

A final consideration is that barriers tend to entry change overtime.

4.1.3 Industry Concentration

Industries with high concentration among few players are usually more stable and relatively less price competitive (see Oligopoly pricing strategies).
Fragmented industries tend to be highly price competitive because (i) there are too many competitors to monitor effectively (strategist need to be responsive and not reactive), (ii) small players have bigger incentives to steal market share and try to undercut prices and (iii) the market structure encourages players to think individualistic rather than as a member of a group, which leads to a fierce competitive environment and prevents any sort of *cartel* (price coordination).

How to analyze this? An analysis to industry concentration should start with market share: *What are the relative and absolute percentage market shares?*

Concentrated with Strong Pricing Power	Concentrated with Weak Pricing Power
Soft Drinks (Coca-Cola Co., PepsiCo)	**Commercial Aircraft (Boeing, Airbus)**
Orthopedic Devices (Zimmer, Smith & Nephew)	**Automobiles (General Motors, Toyota, Daimler)**
Laboratory Services (Quest Diagnostics, LabCorp)	**Memory (DRAM & Flash Product, Samsung, Hynix)**
Biotech (Amgen, Genzyme)	**Semiconductor Equipment (Applied Materials, Tokyo Electron)**
Pharmaceuticals (Merck & Co., Novartis)	

Figure 6

Fragmented with Strong Pricing Power	Fragmented with Weak Pricing Power
Asset Management (BlackRock, Fidelity)	Consumer Packaged Goods (Procter & Gamble, Unilever)
For-Profit Education (Apollo Group, DeVry University)	Retail (Walmart, Carrefour Group)
Analog Chips (Texas Instruments, STMicroelectronics)	Marine Transportation (Maersk Line, Frontline)
Industrial Distribution (Fastenal, W.W. Grainger)	Solar Panels
Propane Distribution (AmeriGas, Ferrellgas)	Homebuilding
Private Banking (Northern Trust, Credit Suisse)	

Figure 7. Two-factor Analysis

4.1.4 Industry Capacity

The effect of industry capacity on pricing is also relevant. Tight or limited capacity gives producers more pricing power as demand for the product exceeds supply, because competitors can't adjust capacity in the short term. However, in periods where demand is lower than supply, overcapacity is created which leads to price cuts and competitive environment.

How to analyze this? Analysts should not only consider the current capacity but should also think about what conditionates capacity and future capacity levels. How quickly can companies adjust to fluctuations in demand? How flexible are they? What is the effect of capacity on pricing power and industry margins?
From an economical point of view, capacity is fixed in the short term (or quasi-fixed) and variable in the long term. For that reason, it is also important to know the short and long run time frames.

4.1.5 Market Share Stability

4.1.6 Industry Life-Cycle

4.1.7 Price Competition

The general rule for price competition is: the larger the price factor is in consumers budgeting and thus customer purchase decisions, the more competitive those industries tend to be.

4.1.8 Industry Analysis example

	Branded Pharmaceuticals
Major Companies	Pfizer, Novartis, Merck, GSK plc
Barriers to Entry	*Very High*: Substantial financial and intellectual capital required to compete effectively. A potential new entrant would need to create a sizable R&D operation, a global distribution network, and large-scale manufacturing capacity.
Level of Concentration	*Concentrated*: A small number of companies control the bulk of the global market for branded drugs. Recent mergers have increased level of concentration.
Impact of Industry Capacity	*NA*: Pharmaceutical pricing is primarily determined by patent protection and regulatory issues, including government approvals of drugs and of manufacturing facilities. Manufacturing capacity is of little importance.
Industry Stability	*Stable*: The branded pharmaceutical market is dominated by major companies and consolidation via mega-mergers. Market shares shift quickly, however, as new drugs are approved and gain acceptance or lose patent protection.
Life Cycle	*Mature*: Overall demand does not change greatly from year to year.
Price Competition	*Low/Medium*: In the United States, price is a minimal factor because of consumer- and provider-driven, de-regulated health care system. Price is a larger part of the decision process in single-payer systems, where efficacy hurdles are higher.
Demographic Influences	*Positive*: Populations of developed markets are aging, which slightly increases demand.
Government & Regulatory Influences	*Very High*: All drugs must be approved for sale by national safety regulators. Patent regimes may differ among countries. Also, health care is heavily regulated in most countries.
Social Influences	*NA*
Technological Influences	*Medium/High*: Biologic (large-molecule) drugs are pushing new therapeutic boundaries, and many large pharmaceutical companies have a relatively small presence in biotech.
Growth vs. Defensive vs. Cyclical	*Defensive*: Demand for most health care services does not fluctuate with the economic cycle, but demand is not strong enough to be considered "growth."

Figure 8

Figure 9

4.2 External Influences

The main external influences include *macroeconomic*, *technological*, *demographic*, *governmental* and *social influences*.

4.2.1 Macroeconomic Influences

Macroeconomical influences affect the overall economic activity. These trends can be *cyclical* (related to the business-cycle) or *structural* (related to enduring changes). Some of

the economic variables which can affect industry's revenues and profits are:

- GDP
- interest rates which are a proxy of cost of debt. Many consumers and businesses require debt to fuel their consumption and investments
- availability of credit
- inflation, which reflects the changes in price and consumer/business confidence

4.2.2 Technological Influences

4.2.3 Demographic Influences

Changes in population size, changes in distribution of age and gender and other important demographic characteristics.

4.2.4 Governmental Influences

4.2.5 Social Influences

5. Company Analysis

Company analysis includes the analysis of the company's *financial position*, analysis of its *products and services*, analysis of its *competitive strategy* and strategic objectives. The company analysis takes place after the analyst has gained an understanding of the company's external environment - the macroeconomical, demographic, governmental, technological and social forces influencing the industry.

5.1 Porter's Generic Competitive Strategies

The **competitive strategy** and strategic objectives can be identified within 2 broad distinct competitive strategies: a low-cost strategy (cost leadership) or a product/service differentiation.

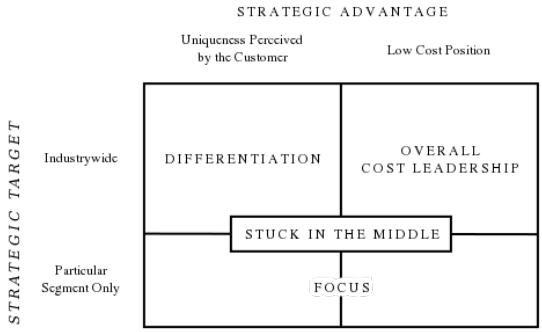

Figure 10. Porter's three generic strategies

5.1.1 Cost leadership

In a **low-cost strategy** (or cost leadership) companies strive to become the low-cost producers and gain market share by offering their products and services at lower rates than their competitors, while still making a decent profit margin.
Low-cost strategies can be **defensive** - when the competitive environment is of low rivalry - **aggressive** -when rivalry is intense - and **predatory** - when cost reductions cannibalize profit margins (they can inclusively be lower than LRAC in the short term).
Companies focus on tight controls, efficient operating and reporting systems, production scrutiny and low wages. These changes often involve restructuring.

5.1.2 Product differentiation

In a **differentiation strategy**, companies attempt to establish themselves as suppliers of niche products and services, either with unique quality, type, or means of distribution.

5.2 Elements of Company Analysis

A through company analysis, particularly as presented in a research report, should:

- Provide an overview of the company (corporate profile), including a basic understanding of its business, invest-

ment activities, corporate governance and perceived strengths and weaknesses

- Explain relevant industry characteristics
- Analyze the demand for the company's products and services
- Analyze the supply of products and services, which includes an analysis of cost
- Explain the company's pricing environment
- Present and Interpret relevant financial ratios, including comparisons over time and comparisons with competitors

References

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