NSS Economics Curriculum-Anti-competitive behaviours and competition law: concepts, cases and concerns - Part 1

Anti-competitive Behaviour & Competition Policy

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Compare and Contrast Anti-competition and Monopolization

- How to apply the theoretical definition of market structure in defining market dominance and market power.
- Are monopoly behaviour equivalent to anti-competitive behaviour?
- Difference between Competition Law and Anti-monopoly Law.
- Should competition policy embrace anti-monopoly provisions?

Market Structure

- Definition in the textbook – classification of monopoly power using abstract features
  - Monopoly – absolute power
  - Oligopoly – strong power
  - Monopolistic Competition – weak power
  - Perfect Competition – absent of power

Market Structure

- Observation in the market place – classification of monopoly power
  - Dominant Firm
    - With ability to act without taking into accounts of reaction of its competitors
  - Tight Oligopoly
    - Operator independently significantly affects the market outcome and also mostly affected by its rivals action which they eager finds way to coordinate their activities.
  - Loose oligopoly
    - Operator insignificantly affects the market but they can capture some of their customers
    - Free entry but individual operators' product or services are distinct.
  - Fragmented market
    - Individual operators' action insignificant affect the market, but they are highly affected by the market prices and reactions

Market Power

- Market power arises where an undertaking ("economic entity") does not face sufficiently strong competitive pressure and can be thought of as *the ability to profitably sustain prices above competitive levels or to restrict output or quality below competitive levels*.

- Hence, if *the undertaking can remain profitable while charging prices above competition levels, over a non-transitory period, then it can be considered to have market power*

- The ability to make decisions on pricing and quality without regard to the reactions of customers and other suppliers is the essence of market power.

Market Power

- In market place, any undertaking can, in principle, temporarily raise its prices above competitive levels.

- If an undertaking that faces competition does so, however, it will be unable to do so "profitably" for a sustained period, because customers will switch to other cheaper suppliers, additional suppliers may enter the market, and hence the undertaking will lose sales and become unprofitable.

- In a free economy, an undertaking with market power might also have the ability and incentive to harm the process of competition by weakening existing competition, raising entry barriers or slowing innovation.

Market Power

- Market power is not absolute.
- The degree of market power that the particular undertaking in question possesses will depend on the circumstances of each case.
- More than one undertaking may have a substantial degree of market power in a relevant market. It is not necessary to show an undertaking is a monopoly or has absolute power in a market in order for it to have a substantial degree of market power.
- In assessing whether an undertaking has a substantial degree of market power, the extent to which there are constraints on that undertaking's ability to profitably sustain prices above competitive levels will be considered.

Market Power

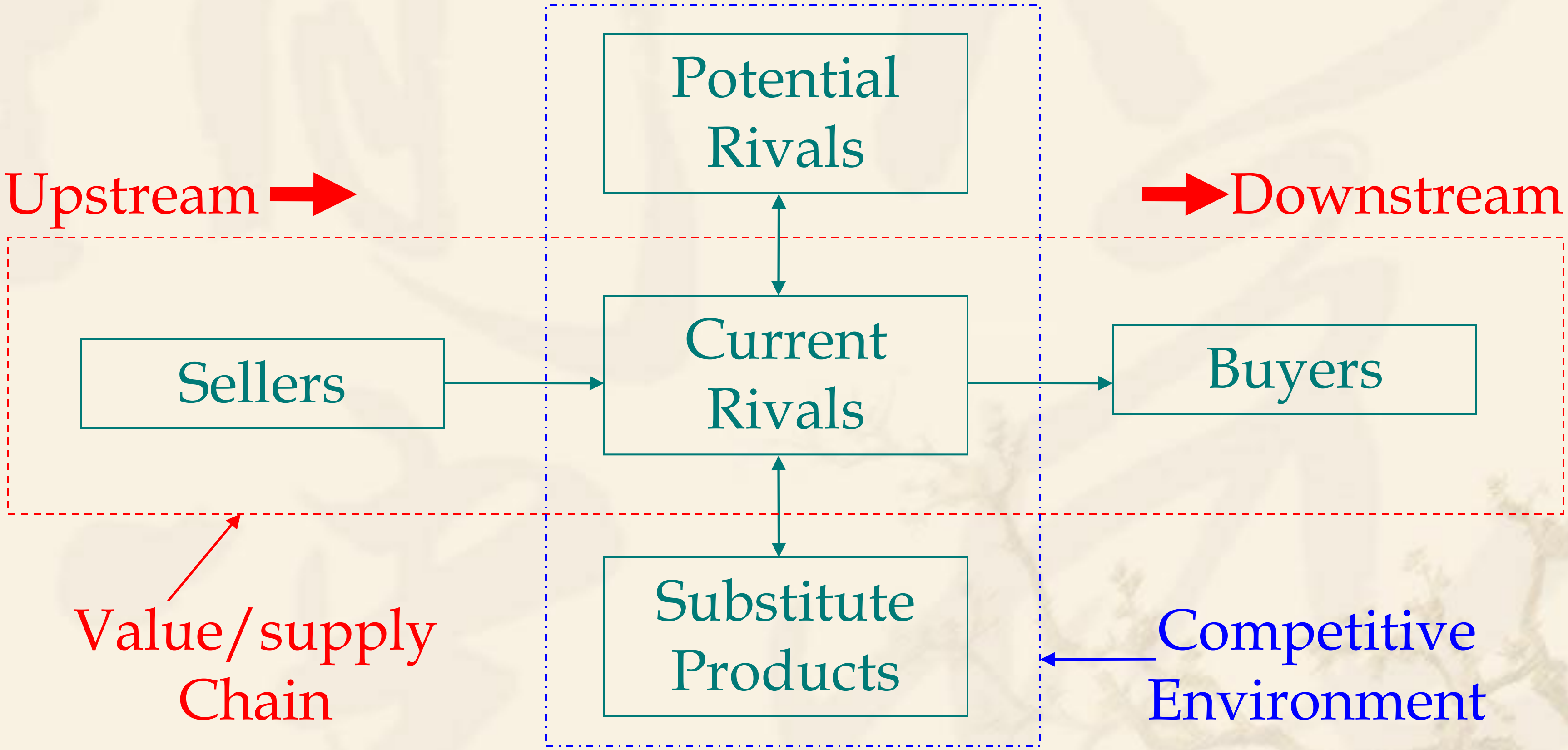
- Any business analysis needs to evaluate the profitability which assessing the market using an alternative approach

- Some factors in the *market environment* can directly affect the profitability of the corporation including
  - Government regulation
  - Suppliers & customers bargaining powers
  - Threats of competitors
  - Other stakeholders influence
    - Creditors, employees (labor unions), minor stakeholders (local communities, special-interest groups and trade associations)

Michael Porter's New Approach

- Who is Michael Porter?
- A Professor in Harvard Business School who introduced the idea of five competitive force restraint a firm's profitability
- Porter's five forces influencing the firm's market power
  - Potential rivals
  - Existing rivalry
  - Substitute products
  - Buyer power
  - Supplier power

Porter's Five Forces



Porter's Five Competitive Forces

- There were two threats, two bargaining powers, and existing rivalries.
  - the threat of new entrants,
  - the bargaining power of customers,
  - the bargaining power of suppliers,
  - the threat of substitute products or services, and
  - the rivalry among current contestants

Threat of Entry

- New entrants to an industry bring new capacity (the ability to push down the industry price as the industry supply increases) and the desire to gain market share.
- Some economists claim that without barriers to entry, new firms tend to erode profits of the existing firms within the industry. So the most important strategy is to try to inhibit entry whenever possible.

  - Illustrate any industries there is no threat of entry

  - Can you think of the five major barriers to entry?

Barriers to Entry

- **Economies of scale** - - These economies deter entry by forcing the contender either to come in on a large scale or to accept a cost disadvantage.
- **Product differentiation** -- Brand identification creates a barrier by forcing entrants to spend heavily on marketing
- **Cost disadvantages independent of size** -- Established companies may have cost advantages not available to potential rivals, no matter what their size and attainable economies of scale.

Barriers to Entry

- **Access to distribution channels** -- The newcomer must have difficulties to secure distribution of its product or service that are used by existing companies.
- **Government policy** -- Governments can limit or even foreclose entry to industries with controls such as license requirements and limits on access to essential materials.

Substitute Products

- Place a ceiling on prices a competing firm can charge, limiting markup pricing.
- Limit profits in normal times; they also reduce the bonanza an industry can reap in boom times.
  - Cross-border housing substitute local housing.
- Substitutes often come rapidly into play if some technological development in other industries that causes price reduction or performance improvement.
  - Example: mobile telecommunication technology make mobile service more likely to substitute fixed line services.

Powerful Suppliers and Buyers

- What determines the power of each important supplier or buyer group?
- That power depends on the characteristics of the supplier's or buyer's market situation and
- on the relative importance of its sales or purchases to the industry compared with its overall business.

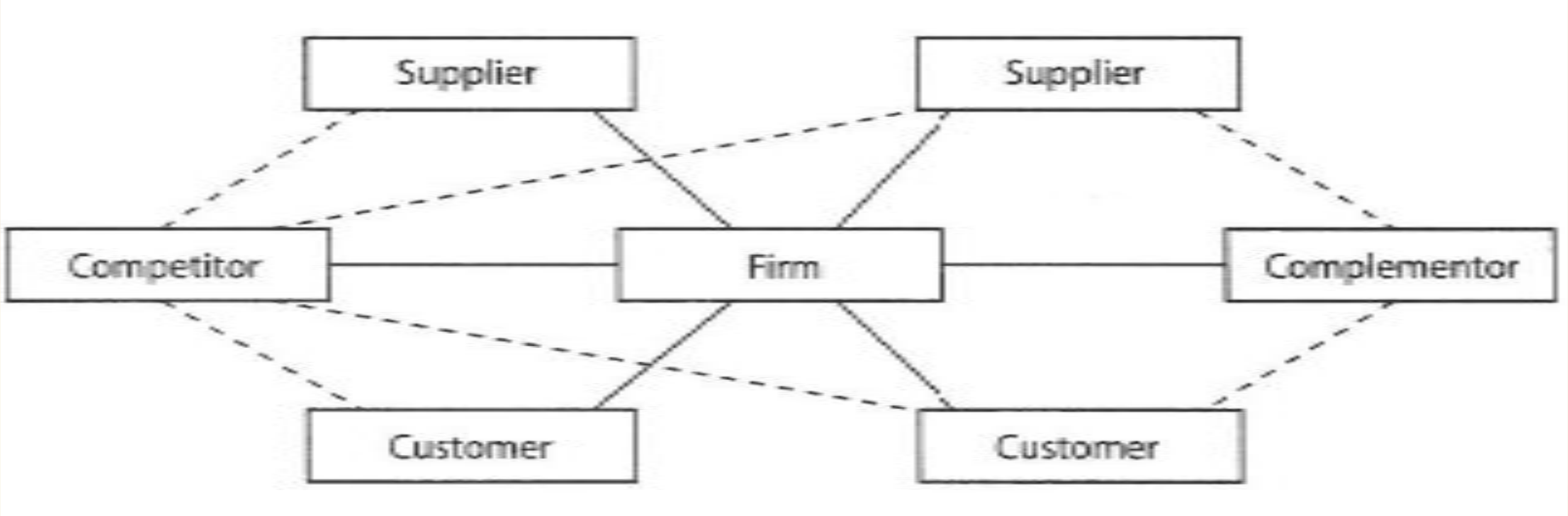
Powerful Suppliers and Buyers

- A company's choice of suppliers to buy from or buyer groups to sell to should be viewed as a crucial strategic decision.
- This is especially true of a company that is able to choose whom it will sell to. In other words, “buyer selection” is often a strategic concern for a company.

The Sixth Force: Complement

- Brandenburger and Nalebuff: Co-opetition, emphasize on the force of complementary products, e.g. blue-ray and movies; laptop and batteries; smart phone and applications.
- Managing relationship between complementary products, complementary components and stakeholders interests strengthen the group market power.
- The idea offers an alternative way to look into something beyond competition in business

The New Sixth Force: Complement



- Direct relationship (solid line) and indirect relationship (dashed line) determine the potential to cooperate or coordinate to leakage other stakeholder's features, make it difficult to replicate resulting sustainable profitability

High Resolution Compact Disk Technology Competing in the Market in 2006

Table 1

	Companies Supporting
Blu-Ray	Sony, Panasonic, Philips, LG, Pioneer, Apple
HDDVD	Toshiba, Hitachi, Microsoft, NEC

Major Content Providers

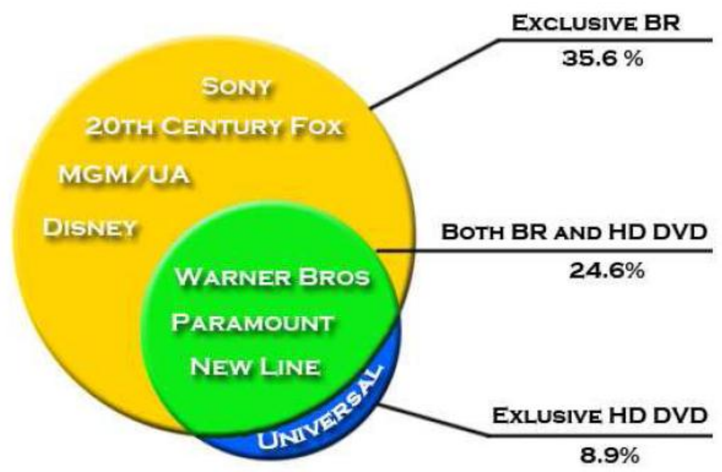
Table 2: Studio Market Share: (Jan 1. – Dec. 31, 2006)

Rank	Distributor	Market Share	Total Gross	Movies	Tracked 2006 Movies
1	Sony / Columbia	18.6%	$1,710.9	34	27
2	Buena Vista	16.2%	$1,492.6	25	19
3	20th Century Fox	15.2%	$1,398.4	28	24
4	Warner Bros.	11.6%	$1,065.8	27	21
5	Paramount	10.3%	$947.3	19	16
6	Universal	8.9%	$815.2	21	17
7	Lionsgate	3.6%	$331.4	19	17
8	New Line	2.7%	$251.5	13	10
9	Weinstein Company	2.5%	$226.5	15	9
10	MGM/UA	1.8%	$166.8	13	15
11	Fox Searchlight	1.8%	$165.7	16	13
12	Focus Features	1.3%	$118.5	9	7

Cooperation between Disk Technology & Content Provider

- Exclusive Blu-ray
  - Sony Pictures, MGM & 20th Century Fox = 35.6%
- Exclusive HDDVD
  - Universal Studios 8.9%
- Both Technology
  - New Line Cinema, Paramount Pictures and Warner Bros = 24.6%

Figure 1. Studio Support Market Share

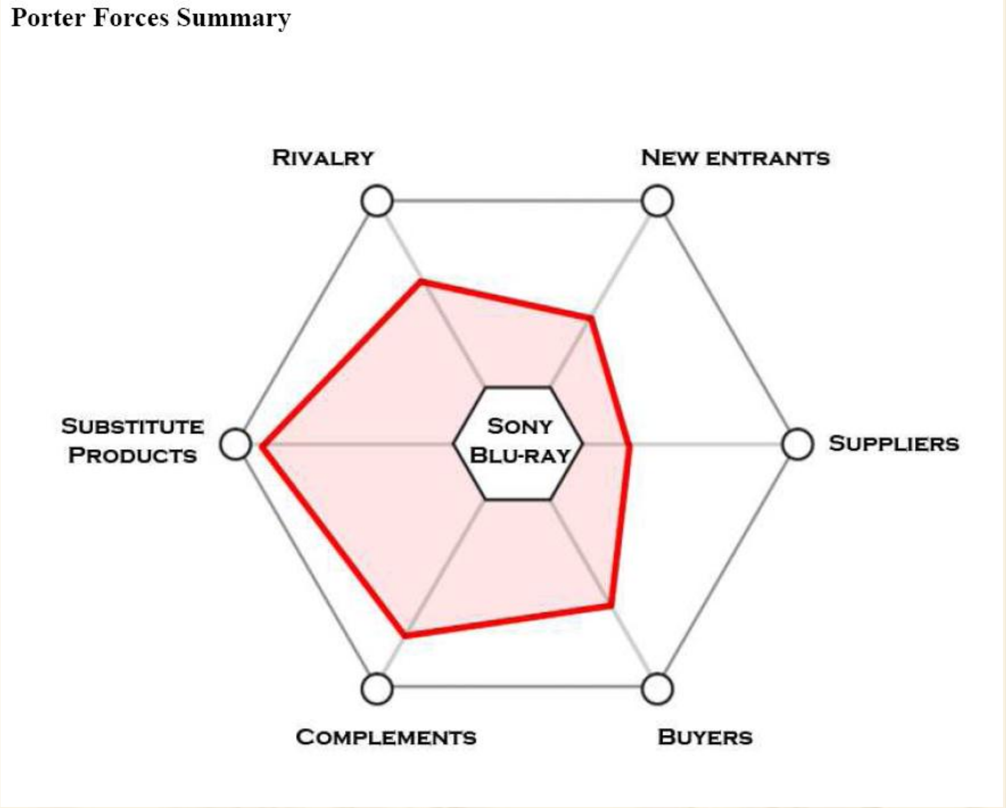


Blu-Ray vs HDDVD Specifications

	Blu-Ray	HDDVD
Storage Capacity Single Layer	25GB	15GB
Maximum Data Transfer Rate	54Mbit/s	36.6Mbit/s
Java Support	YES	No
Single Layer Prices	$11.99	$8.99
Protective Hard-coating	YES	NO
Average Prices (US$)	$782	$582

Competition Forces

- Rivalry
  - Some: such Sony, Phillip, Samsung
- New Entrants
  - Decode program is limited available
- Suppliers
  - Sony limit the availability of license
- Buyers
  - Affordability
- Complements
  - Lot of content providers
- Substitute
  - Alternative technologies such as HDDVD, DVD, CD



More color occupied the hexagon more competitive market environment

Market Power

- Relevant constraints on an ability to exercise market power include

  - **existing competitors:** refer to competition from undertakings already in the relevant market, to whom buyers might switch if the undertaking with a substantial degree of market power sustained prices above competitive levels. The market shares of competitors (the market concentration) in the relevant market are one measure of the competitive constraints from existing competitors;

  - **potential competitors:** refer to the possibility that undertakings will enter the relevant market and gain market share at the expense of the undertaking with a substantial degree of market power that sustained prices above competitive levels. The strength of potential competition is affected by barriers to entry and the ability of potential competitors to enter the market;

Market Power - Quantitative Measures

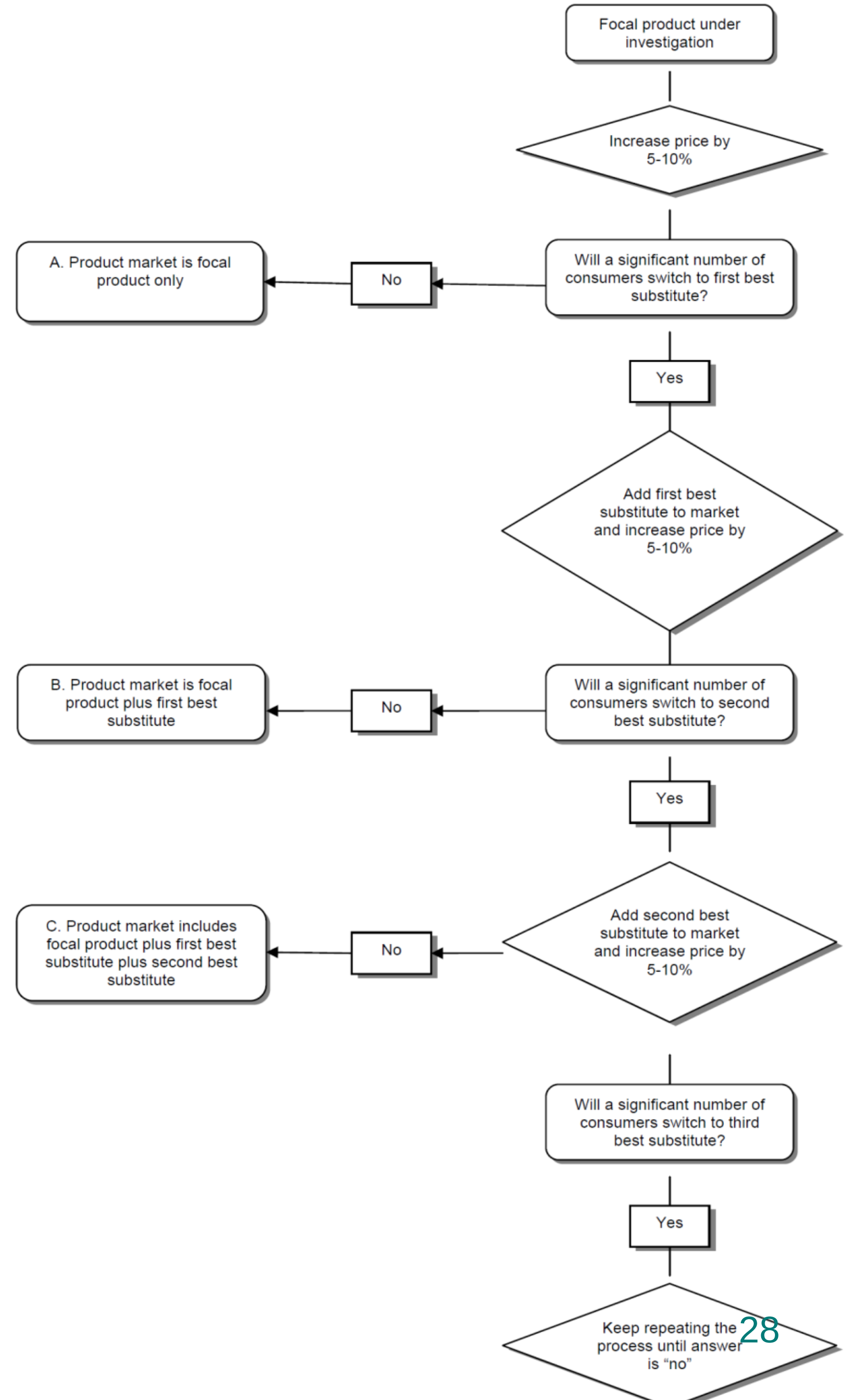
- Different incumbents in different industries have different degree of competition from existing competitors.
- Extent of market power can be usually referred in terms of quantitative measures related to market concentration
- Potential competitors affect the market power in the long run usually determined by the following market structure determinants
  - Technological / cost conditions
  - Demand features
  - Potential for entry
  - Product life cycle

Market Concentration – An illustration

- CK is the major property developer in HKSAR
- Focus on market of residential housing
- CK only holds around 4000 unsold newly built units in the market and supply 6000 units in 2007
- Total annual new supply of the market is around 20000-30000 in 2007
- Is CK the major player?
- Analysis
  - **Flows (40-60K 2nd hand units put on the market) versus Stock (3M)**
  - **1st handed or 2nd handed? Are they really the substitute**?
    - Are 10 year old second hand units a substitute of 1st hand new supply?
    - Around 30K of supply of 2nd handed of less than 5 year old apartment
    - Together total market supply including 1st & 2nd = 50000
    - CK only has a market share of 20%.

Market Definition

- Define the boundary of the market is crucial to measure the market share
- The common method used is called a SSNIP (small significant non-transitory increase price) test using power able to raise price to make profit of a monopoly to define the market
- Reference to Guideline on Market Definition issued by Government



Market Concentration

- Market share can be measured by
  - **Value of sales:** market share is usually determined by an undertaking's sales to customers in the relevant market. Often value data will be more informative, for example, where goods are differentiated.
  - **Volume of sales:** market share can sometimes be determined by volume of sales especially when the concerned goods are more homogeneous.
  - **Production capacity:** sometimes market shares will be measured by an undertaking's capacity to supply the relevant market where capacity is an important feature in an undertaking's ability to compete, such as in a market where undertakings are operating at, or close to, full capacity, e.g. number of petroleum filling stations

Market Concentration

- Market concentration measure the size distribution of firms within an industry
- Some industries are dominated by a few large firms, while others are composed of many small firms
- Measures of Market Concentration - economists use the following index indicating the degree of industry concentration:

1. Four Firm Concentration Ratio
2. Herfindahl-Hirschman Index (HHI)

Measures of Market Concentration

(1) **Four-Firm Concentration Ratio**

- The fraction of total industry sales generated by the four largest firms in the industry

$$\mathbf{C_4 = (S_1 + S_2 + S_3 + S_4) / S_T}$$

  - S_1, S_2, S_3 and S_4 are the sales of the four largest firms in an industry, and S_T is the total sales of all firms in the industry

- Equivalent, it is the sum of the market shares of the top four firms in the defined industry:

$$\mathbf{C_4 = w_1 + w_2 + w_3 + w_4} \text{ (where } w_i = S_i / S_T\text{)}$$

Measures of Industry Concentration

Example:

- *Suppose an industry is composed of 6 firms. Four firms have sales of \$10M each, and two have sales of \$5M each. What is the four-firm concentration ratio for this industry?*

- Total market turnover = \$50M
- Four largest firms turnover = \$40M
- So $C_4 = 0.8$

Measures of Industry Concentration

- In a highly competitive industry in which there are many small firms, C_4 is close to zero
- In an industry in which there are four or fewer firms, C_4 is equal to one.
- The closer C_4 is to zero, the *less* concentrated is the industry (i.e. much competition).
- The closer C_4 is to one, the *more* concentrated is the industry (i.e. little competition)

Measures of Industry Concentration

(2) **Herfindahl-Hirschman Index (HHI)**

- The sum of the squared market shares of firms in a given industry, multiplied by 10,000:

$$\mathbf{HHI = 10{,}000 \times \Sigma w_i^2}$$

  - Where $w_i = S_i / S_T$, which is firm i's share of total market output (or value or capacity)

Measures of Industry Concentration

Example:

- *Suppose there are three firms in an industry. Two firms have sales of \$10 each, and one has sales of \$30. What is the HHI for this industry? What is the C_4?*

- $C_4 = 1$, and $W_1 = 0.6$ and W_2, W_3 equal .2
- HHI = $10000 \times (0.6^2+0.2^2+0.2^2) = 4400$

Measures of Industry Concentration

- The value of HHI lies between 0 and 10,000:
  - When there are few large firms in an industry: high HHI value
  - When there are many small firms in an industry: low HHI value
- Typically, industries with high C_4 tend to have higher HHI value

Market Structure Determinants
Technological Conditions

- Industries differ in terms of the technologies used for production.
- Some industries are more labour intensive, while others are more capital intensive.
- Firm in industry, in which firms have access to identical technologies with similar cost structures, will have difficulties to acquire market power.
- Firm in industry, in which technology used is not available to other firms, will have market power.

Market Structure Determinants: Demand Features

- It is related to the demand elasticity of the product of the firm.
- Using the Rothschild Index - a measure of the price elasticity of industry demand for a product relative to that of an individual firm:

$$\mathbf{R = \eta_T / \eta_F}$$

  - η_T = price elasticity of demand for the total market
  - η_F = price elasticity of demand for the product of an individual firm.
  - R has a value between 0 (perfect competition) and 1 (monopoly).

- When an industry is composed of many firms, each producing similar products, the Rothschild index will be close to zero.

Own-Price Elasticities of Demand and Rothschild Indices in US

Industry	*Elasticity of Market Demand*	*Elasticity of Firm's Demand*	*Rothschild Index*
Food	1.0	3.8	0.26
Tobacco	1.3	1.3	1.00
Textiles	1.5	4.7	0.32
Apparel	1.1	4.1	0.27
Paper	1.5	1.7	0.88
Chemicals	1.5	1.5	1.00
Rubber	1.8	2.3	0.78

Market Structure Determinants
Potential For Entry

- In some industries, it is relatively easy for new firms to enter the market, in others it is more difficult, because of the existence of *barriers to entry*.
- Sources of barriers to entry:
  - limited access to key inputs and distribution outlets;
  - capital requirement;
  - patents;
  - economies of scale;
- Barriers to entry have important implications to the long-run profits a firm can earn in a market.

Measure Market Power Directly

- Lerner index (p-mc)/p is a measure of technical market power where p is the price and mc is the marginal cost.
  - Profit maximisation condition for a monopolist:
  - $(p-mc)/p = 1/e_F$
  - NB Firm elasticity not the same as market elasticity

- Accepted in US anti-trust cases.
  - "The profit-maximization condition for the dominant firm is precisely the same as that for a monopolist, provided that the elasticity of demand in the condition is understood to be that faced by the dominant firm."
    - Werden (1998)

Means to Infer Market Power

- Price Cost Margin
  - Direct measurement
  - Price comparisons
  - Price discrimination
  - Persistent profit
- Firm’s Elasticity of Demand
  - Direct measurement
  - It depends on availability of substitutes, the market definition, the market share, the rivals’ supply response such as barrier to expansion, mobility and entry

Monopolize = Anti-competitive ?

- Monopoly Power = Power to Raise Price

- "..the fact that an undertaking is compelled by the pressure of its competitors' price reductions to lower its own prices is in general incompatible with that independent conduct which is the hallmark of a dominant position (substantial degree of market power) ". *Hoffman LaRoche v. Commission* [1979] ECR 461.

- "Microsoft certainly had the ability to raise prices significantly above marginal costs. Indeed, Microsoft possessed the ability to raise prices significantly above long-run average costs, as suggested by the large multiple of Microsoft's market value to the cost of its asset base." Gilbert, R.J. and Katz, M.L., (2001): An Economist's Guide to *US v. Microsoft, Journal of Economic Perspectives,* 15(2), (Spring) 25-44.

Monopolize = Anti-competitive ?

- Competition law or Anti-monopoly law does not concern itself with unilateral behaviour by individual firms unless a firm is dominant or with substantial degree of market power.
- The meaning of monopolization can mean (i) the existing market power of an undertaking; or (ii) the extent of market power of an undertaking.
- The problem of a dominant firm or with substantial degree of market power firm is about exercising its market power or use its market power to sustain or increase its market power.
  - Should we regulate firms engage in behaviour that is harmful to the competitive process?
  - Should we regulate firms raise price excessively?

Monopolize = Anti-competitive ?

- Neither Sherman Act, nor EU Treaty, presume that possession of a dominant position offensive.
- Concern is with practices or conduct by dominant firms that is designed to reduce or even eliminate competition.
- Dominant or substantial degree of monopoly firm "has a special responsibility not to allow its conduct to impair undistorted competition…" Case 322/81 *Michelin v. Commission* [1983] ECR 3461, Para 57.

Monopolize = Anti-competitive ?

- Although US Anti-trust law does not deal with possession of a dominant position, it does have preventive measures against building up of market power.
- Two Provisions
  - Merger control – prevent market concentration.
  - Market structure remedy – reverse market concentration.
- Hong Kong Competition Bill has no provision regulating mergers and no provision providing power to restructure a firm in a dominant position or with substantial degree of market undertaking to different independent business undertakings.

Anti-monopoly Law – Regulate Merger

- Mergers may increase market power.
- Substitutability between mergers and cartels as alternative means of securing market power explains strength of US merger boom of 1899-1900 in comparison to UK.
  - Scherer and Ross (1990) Late 19th century US merger boom aimed at creating monopolies.
  - Sherman Act made cartel agreements more difficult - encouraged mergers.
- Strategy Alliances or Joint Venture are also subject to the regulation of the antitrust provisions in overseas whereas cooperative activities between companies of a merged firm will be exempted.

Anti-monopoly Law – Regulate Merger

- Mainly US led but other countries following suit.
- 1960s US cases – Supreme Court blocked mergers in cases where merging firms combined market shares below 10% (narrowly defined market)
  - *Philadelphia National Bank*
  - *Vons Grocery Stores*
- UK merger decisions described as "rough justice: some deals get stopped while others sneak through. But rough justice is better than no justice at all."
  - P. Martin: The Merger Police, *Financial Times,* 12.3.1998.
- Many inappropriate decisions have altered significantly in recent years.

Anti-monopoly Law – Regulate Merger

- Dominance Test – Traditional EU Standard, an market structure approach
- Substantial Lessening of Competition (SLC) Test – US Standard, an economic analysis of competitive effect approach
  - "The SLC test is interpreted in terms of consumer welfare. Consumer welfare depends on a range of variables including price, output, quality, variety and innovation. In most cases, the effect on consumer welfare is measured by whether the price in the market will rise. "
  - The test reflects the concerns on exercising of substantial degree of market power

Anti-monopoly Law – Regulate Merger

- First Step: Market definition
  - SSNIP Test

- Second Step: Market Concentration Measures to determine whether it is regulated
  - Four Firm Concentration Ratio (CR4)
  - HHI Generally Used, superior to CR4 in a number of ways.

Anti-monopoly Law – Regulate Merger U.S. Guideline Thresholds

Zone	HHI	Change
A – less likely to have competitive effects.	<1000 1000-1800 >1800	Any <100 <50
B – "may raise significant competitive concerns".	1000-1800 >1800	>100 50 – 100
C - "occur in already highly concentrated markets and more usually be those that raise competitive concerns."	>1800	>100

Anti-monopoly Law – Regulate Merger China Guideline Thresholds

- 《中華人民共和國反壟斷法》**第二十二條**　經營者集中有下列情形之一的，可以不向國務院反壟斷執法機構申報：
  （一）參與集中的一個經營者擁有其他每個經營者百分之五十以上有表決權的股份或者資產的；
  （二）參與集中的每個經營者百分之五十以上有表決權的股份或者資產被同一個未參與集中的經營者擁有的。

Anti-monopoly Law – Regulate Merger EU Guideline Thresholds

- Thresholds taken from US Guidelines
  - Simpson & Hosken (1998) found adverse effects in mergers where HHI>2,500 but none for HHI <2000.
  - However, guidelines state thresholds do not constitute "Safe Harbours", common practise in overseas competition regimes use market concentration threshold to identify potential anti-competitive mergers.

Anti-monopoly Law – Regulate Merger

- Anti-competitive Effects of Mergers
  - Unilateral Effect- Refers to situation where, as a result of the merger, the merged firm would have power to unilaterally raise price. In particular when merger creates or strengthens a dominant position.
  - Coordinated Effects - Merger may facilitate the operation of a formal cartel, because a reduction in the number of competitors may make it easier to enforce the cartel, and thereby ensure that the remaining firms adhere to any cartel arrangement. Merger may reduce the number of firms to the stage where each of the remaining firms is far more likely to recognise that they can gain if they compete less vigorously, i.e. merger may facilitate tacit collusion.

Competition Law and Anti-monopoly Law

- The monopoly power requirement under US monopolization doctrine is a prerequisite to anti-trust liability for possible infringement similar in Hong Kong
- A threshold significant market power as a screen
  - Whether a single-firm behaviour should be regulated
  - Whether the behaviour is anti-competitive or monopolizing – in this aspect, the two laws are similar

Competition Law and Anti-monopoly Law

- The monopoly requirement is the threshold that avoids substantial costs of administration, mistaken prohibition, and inhibition of competitive vigour
  - Threshold is higher than merger guideline usually
  - More substantial problem of positive false (Type I error) and related chilling effects.
- The monopoly threshold requirement
  - How high should the market power requirement be?
  - What is the potential error in the market power enquiry?
  - Whether it should relate to the challenged practises

Competition Law and Anti-monopoly Law

- Concern is with practices or conducts by firms with substantial degree of market power regulated by competition law that are designed to reduce or even eliminate competition through exclusion.
- Application to the challenged practices, the crucial question should be
  - Will the challenged practices significantly reduce competition
    - Remove constraint on the defendant's pricing
    - Efficiency loss on total surplus
    - Efficiency loss on consumer surplus

Competition Law and Anti-monopoly Law

- Concern about the practices or conducts by firms with substantial degree of market power that are designed to enhance exploitation
- Apply to the challenged practices, the crucial question should be
  - Will the challenged practices significantly enhance the ability of monopoly to profiteering?
    - Remove constraint on the defendant's pricing
    - Harm to consumers