

EE481: Industrial Economics

SCP and NEIO

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Homework

**** Due: Friday 19th February before 2pm at the BE Office.**

** Adapted from Industrial Organization: A Strategic Approach by Church & Ware. Practice Question in Chapter 10. You can also try other problems as your practice for the midterm exam.

Suppose that demand is given by $P = 300 - Q$ and marginal cost equals 10. Firms are Cournot competitors and play a supergame. The collusive agreement being considered is for each to produce one-fourth of the monopoly output (there are 4 firms in this industry).

(a) What is the critical discount factor to sustain collusion using grim punishment strategies if detection of deviation requires 2 periods (so, the cheating firm enjoys high profit for 2 periods)?

(b) Do you think the value of the critical discount factor will be higher or lower if detection of deviation requires 3 periods? Explain.

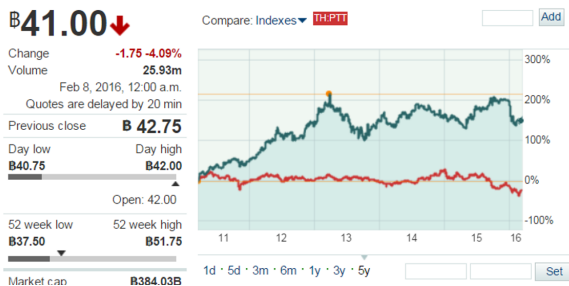
(b) Do you think the value of the critical discount factor will be higher or lower if the number of firms increases to 5? Explain.

Summary

- The SCP framework can be used to analyze firms' performance.
- SCP analyzes 1) Industry Structure 2) Firms' Conducts 3) Firms' Performance.
- Some measures of structure and performance will be discussed in this class.
 - measures of structure: HHI, CR4, etc.
 - measures of performance: price-cost margin, Tobin's Q
- Market power = ability to charge price above cost (has positive margin).
- Market power comes from high concentration, low price-elasticity, ability to collude.

Some Questions

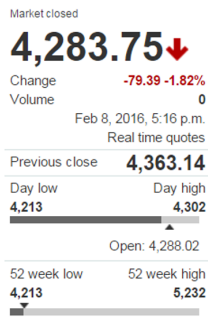
How can CP ALL's stock price (green color) increased faster than that of PTT (red color)?



source: <http://www.marketwatch.com>

Some Questions

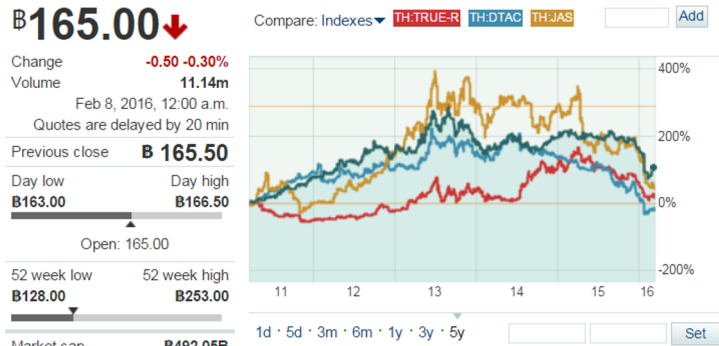
The Smartphone companies (Nasdaq (green) vs. Apple (red) vs. Samsung (blue) vs. Huawei (gold)).



source: <http://www.marketwatch.com>

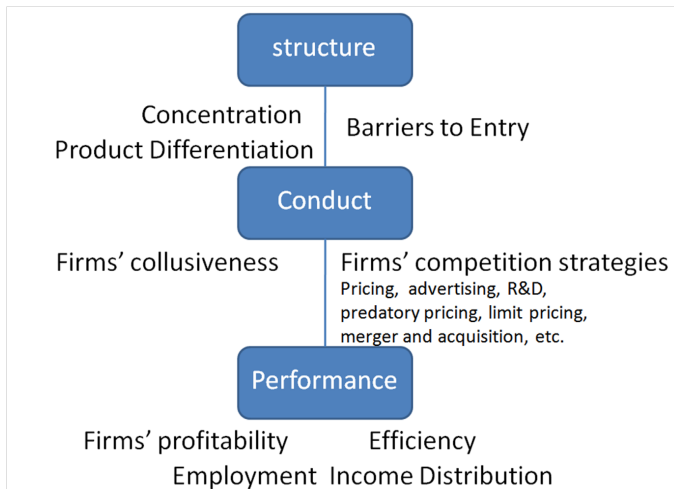
Some Questions

How come the mobile network industry hasn't performed very well lately?



source: <http://www.marketwatch.com>

Structure Conduct Performance (SCP)



Measures of Market Structure

- 1 Industry Concentration (number of firms)
- 2 Barriers to Entry (is it easy to enter?)
- 3 Product Differentiation (are all products the same?)
- 4 Unionization (do the workers form a strong labor union?)
- 5 etc.

These factors determine the basis (potential competitiveness) of the industry.

Concentration

- Industry Concentration - the **higher** the number of firms, the **less** industry concentration (production activity is not concentrated within just a few firms)

1 Herfindahl-Hirschman Index

2 Concentration ratio (CR4 and CR8)

Lower market concentration -> likely to be more competitive.

Barriers to Entry

- Barriers to entry may also determine industry performance
 - Economies of Scale
 - Product Differentiation
 - Absolute Cost Advantage
 - Government Regulations

Lower barrier to entry -> likely to be more competitive.

Unionization

- A strong labor union can take a big share of profit away from firm.
- This increase marginal cost and may increase price.
- A firm that makes a lot of money may not turn out to be that profitable.
- Unionization may discourage entries.

Strong labor union -> likely to be less competitive.

Example of Market Structure Analysis

Market Conditions	Industry 1	Industry 2	Industry 3
Seller Concentration (CR4)	100%	100%	> 95%
Buyer Concentration (CR4)	< 0.0001%	< 0.0001%	>8%
Homogenous Product	almost	no	almost
Barriers to Entry			
Large Plant Scales	no	no	yes
Large Investment Costs	no	no	yes
Government License	yes	no	no



Conduct (what firms do)

- Collusion
- Pricing Strategies
- Quality Choice
- Advertising Strategies
- R&D
- Predatory Pricing, Limit Pricing
- Merger and Acquisition
- Franchise

(Most of these conducts will be discussed in later on in this class.)

Theories of Price Markups and Economics Profits

Predictions Based on Market Structure	$p - MC$	π_{SR}	π_{LR}
Competition	0	+ or -	0
Monopolistic competition	+	+ or -	0
Monopoly	+	+ or -	+ or 0
Oligopoly	+	+ or -	+ or 0

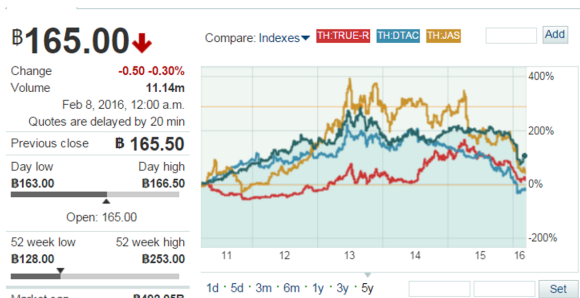
- Market power = ability to charge price above marginal cost.
- π_{SR} is not informative.
- π_{LR} reflects whether there is free-entry, not market power.
- Using $P - MC$ is more informative about the market power than using profits.

Measurements of Market Performance

- Rates of Return - how much is earned per 1 baht (dollar) of investment.
- Lerner's index (or adjusted price-cost margin - $\frac{P-MC}{P}$).
- Other measures such as Tobin's q ratio ($\frac{\text{Market Value}}{\text{Value based on replacement cost}}$)
- In industrial organization, we usually use **price-cost margin**.

Structure vs. Performance

- Industrial Organization researchers have not been able to find a universal pattern of how structure relates to performance.
 - High market concentration does not necessarily lead to high profit
 - The relationship differs industry by industry.



source: <http://www.marketwatch.com>

NEIO

NEIO (New Industrial Industrial Organization)

- Usually studies 1 industry at a time.
- Estimates degree of market power and sources of market power in each industry.
 - i.e. does not assume a stable relationship across industries between structural variables and performance
- Market power = ability to charge price higher than marginal cost.

Price-Cost Margins

Price-cost margin is usually used to measure the degree of market power:

$$\text{Price-Cost Margin} = P - MC$$

Lerner's Index (or adjusted price-cost margin)= _____

When MC is not available, people use AVC in practice.

Derivation of the Lerner's Index

The Market's Lerner's Index

The market's Lerner's index is practically the firms' weighted-average Lerner's index.

Market Power Comes from 3 Sources

From the market Lerner's Index, we can infer that market power comes from 3 sources.

- 1 High Market Concentration
- 2 Low Price elasticity of demand
- 3 Ability to Collude

Reference and Further Reading I



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Modern Industrial Organization. 4th Edition.
Pearson Addison Wesley Press, 2005.



Domowitz, I. G.R. Hubbard, and B.C.Petersen. *Business Cycles and the Relationship Between Concentration and Price-Cost Margins*.
Rand Journal of Economics 17: 1-17, 1986.



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Working Paper no.127, U.S. Federal Trade Commission, 1985.