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Competition Policy in Regulated Sectors:  
Focusing on the Institutional Design of the Relationship between  
Competition Authority and Sectoral Regulators

규제산업의 경쟁정책:  
각 산업의 감독당국과 경쟁당국 간 관계에 대한 제도 설계를 중심으로

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# A Competition Review on Korean Telecommunication Markets: Theory and Practice

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# 1. Methodology:

## Competition Assessment on Telecommunication Markets

### Contents

- Background
- Basic Concepts
- Aim of Competition Review
- Process of Competition Review: Overview
- Market Definition
- SMP Evaluation Criteria: Indicators in detail
- SMP Evaluation Criteria: Synthesis of Indicators

# Background



- Since 1999, KISDI (on behalf of MIC and KCC) has been performing Competition Analysis on major Korean telecommunication markets
  - The result has been used as a reference to establish and improve competition policies in telecommunication sectors
- Telecommunications Business Act in Korea has been revised (January, 2007) to include explicit provisions institutionalizing telecom market competition analysis
  - Subsidiary legislation is being prepared to prescribe the evaluation criteria, procedure, and methodology in detail

# Basic Concepts (I)



## SMP (Significant Market Power)

- Definition of SMP in EU framework

“An undertaking shall be deemed to have SMP if, either individually or jointly with others, it enjoys a position equivalent to **dominance**, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers”  
(EU Framework Directive, Article 14(2))

# Basic Concepts (II)



## Effective Competition

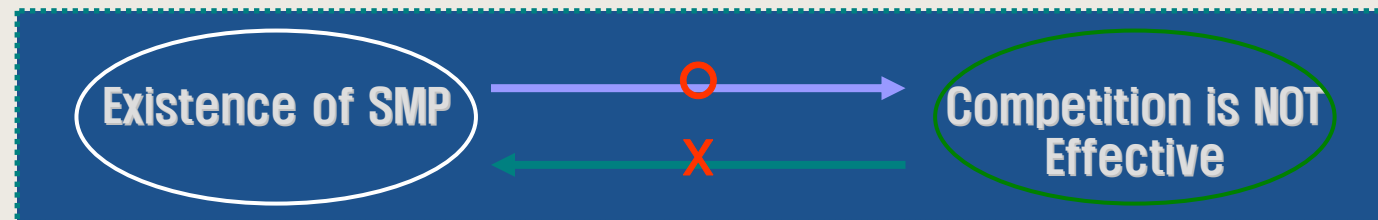
- **Conditions for effective competition**
  - (i) There does not exist any SMP holder, and
  - (ii) As a result of active competition among firms or high competitive pressure by potential entry, market performance is similar to that of perfect competition
- **Effective competition makes firms to be efficient, innovative, and customer focused; Consumers get benefits like lower prices, higher qualities, more service choices**
- **Under effective competition, costs of regulatory invention exceeds benefits of it**

# Aim of Competition Review

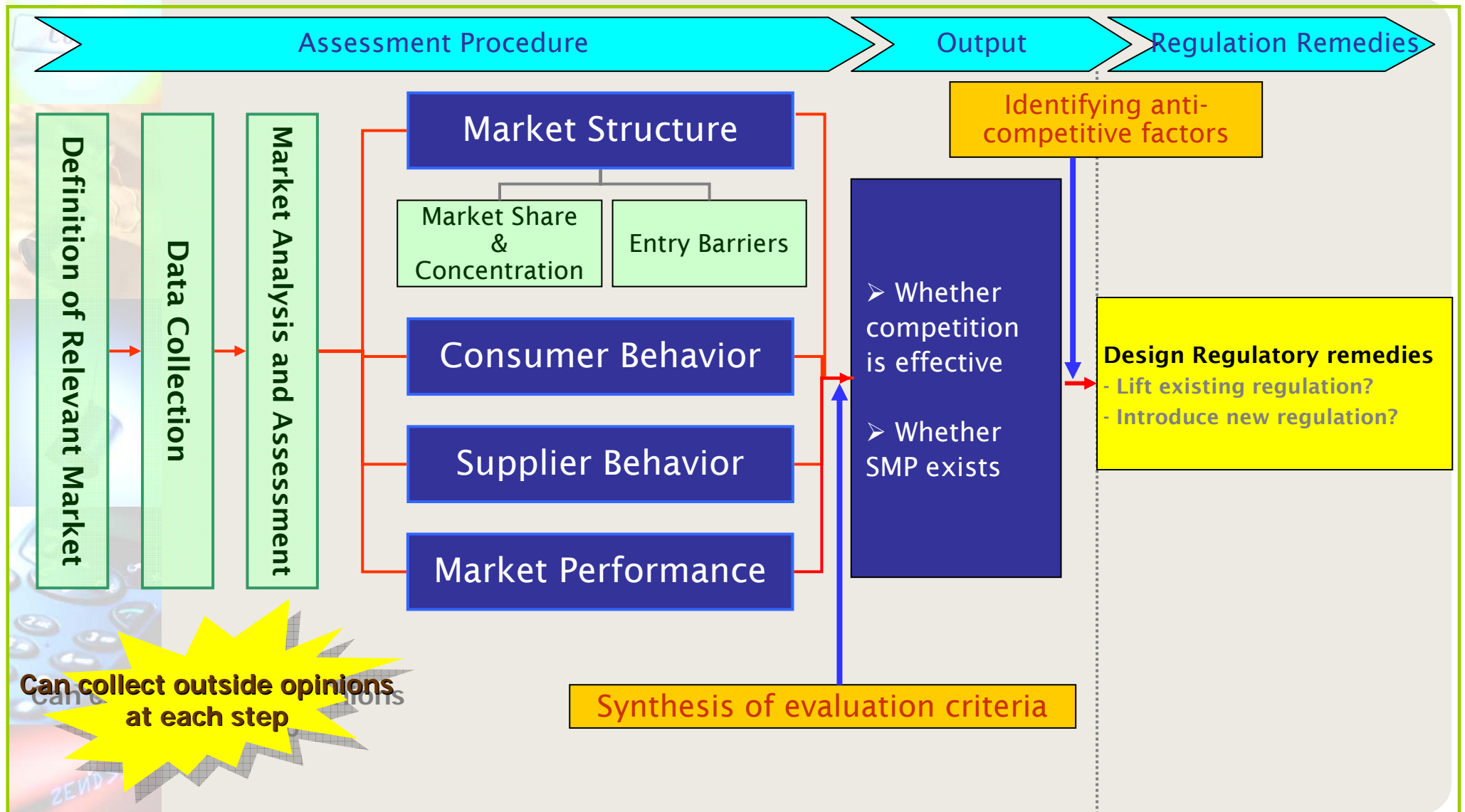


## Aim of Competition Review

- Evaluate market conditions and performances to find out **whether competition is effective** in the market
  - Finding out **whether there exists any SMP holder** is, of course, the core part of market competition review
  - But even without a SMP holder, the competition might be ineffective by other factors of the market like collusive behaviors, declining demand, and so on.
- ※ Long distance fixed telephone services market in Korea



# Process of Competition Review: Overview



# Market Definition (I)



## Criteria of Market Definition

- Two dimensions: Services market and Geographic market
- Flexible application is necessary to properly reflect the dynamic change of substitutable services group due to rapid technological progress and evolutionary trend in telecommunication sectors

### (i) Demand and Supply Substitutability

- Adopt conceptual framework of “SSNIP” test (DOJ/FTC Merger Guidelines) or “hypothetical monopolist” test (EU framework)

# Market Definition (II)



## Criteria of Market Definition (continued)

※ When applying SSNIP, consider 10% (or so) increase in general.  
But from the characteristic of some telecommunication markets, sometimes 10% increase might not be sufficient.

- When there are a number of locked-in customers
- When non-price competition (like innovation) is more important under rapid technological progress

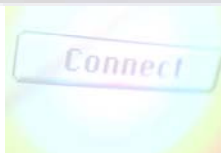
### (ii) Level of production or distribution chain

- Retail vs. wholesale market

### (iii) Characteristics of user groups

- Market for residential users vs. market for firms

### (iv) “Common Pricing Constraints” (Ofcom)



## Classification of Criteria to Determine SMP

- **Market Structure Criteria**
  - Market Share and Concentration
  - Entry Barriers
- **Market Behavior Criteria**
  - Consumer Behavior
  - Supplier Behavior
- **Market Performance Criteria**
  - Each category includes both quantitative and qualitative indicators
  - Derive conclusions by synthesis of all criteria
  - Considering the characteristics of each market, flexible application of weights on each indicator is desirable

# SMP Evaluation Criteria: Indicators in detail (I)



## Market Share

- Primary, but not the sole indicator
  - Can be calculated by (i) value-based (revenues), (ii) volume-based (number of subscribers, call minutes), or (iii) capacity-based (number of lines installed)
    - When each operator's ARPU is not the same, value-based market share is different from volume-based market share
    - Holding high ARPU itself may be regarded as a sign of high competitiveness and the possession of market power
- value-based measure is the first choice in general

Market  
Structure

Consumer  
Behavior

Supplier  
Behavior

Market  
Performance



## Market Concentration: Other Measures

- Trend of market share
- HHI (Herfindahl-Hirschman Index) and its trend
- Concentration Ratio ( $CR_k$ )
  - market share that k largest firms account for
- Number and sizes of rival firms

Market  
Structure

Consumer  
Behavior

Supplier  
Behavior

Market  
Performance

# SMP Evaluation Criteria: Indicators in detail (III)



## Entry Barriers

- Essential facilities
  - critical inputs to retail production, which is not feasible, either economically or technologically, for retail competitors to duplicate or develop a substitute for it
- Absolute advantages by legal barriers like licenses, patent, etc.
- Economies of scale/scope
- Capital requirements and sunk costs
- Vertical integration
- Product differentiation and brand loyalty
- Historic trend of entry and exit

Market  
Structure

Consumer  
Behavior

Supplier  
Behavior

Market  
Performance



## Consumer Behavior

- **Switching Barriers**
  - Costs (both financial and non-financial) of switching suppliers
  - Level of switching suppliers
- **Access to information**
- **Ability to use information and market opportunities**
- **Countervailing buying power/negotiation power**
  - Existence of large consumer groups, etc

Market  
Structure

**Consumer  
Behavior**

Supplier  
Behavior

Market  
Performance

# SMP Evaluation Criteria: Indicators in detail (V)



## Supplier Behavior

- Active competition in price and its trend
- Active competition in quality and its trend
- Technological innovation (introducing new services, etc)
- Absence of anti-competitive behavior and collusion

Market  
Structure

Consumer  
Behavior

Supplier  
Behavior

Market  
Performance



## Market Performance

- Profitability and its trend
  - Existence and persistence of extra profit, etc
  - ※ In theory, the concept of extra profit is clear. But in practice, it is not an easy job to verify how much proportion of high profitability is due to market power
- Consumer satisfaction with price, quality, and affordability
- Level of price and quality
  - International comparison, etc

Market  
Structure

Consumer  
Behavior

Supplier  
Behavior

Market  
Performance



## Synthesis of Indicators: Basic Direction

- (i) Presume SMP or Non-SMP provisionally by the market share criterion
- (ii) Examine other indicators comprehensively to determine whether to rebut the presumption
  - Do other indicators show that we can expect stable and satisfactory market performances?

## Evaluation of Single Dominance

STEP 1: Presume the existence/non-existence of SMP by the level of market share

- (i)  $S_1 \geq 50\%$ : Presume SMP → Go to STEP 2
- (ii)  $25\% \leq S_1 < 50\%$ : Presume no SMP → Go to STEP 2
- (iii)  $S_1 < 25\%$ : Make a final conclusion that SMP does not exist  
(STEP 2 is not necessary. But the possibility of collective (joint) dominance remains)

## Evaluation of Single Dominance (Continued)

### ※ EU guidelines (2002, paragraph 75):

- $S_1 > 50\%$ : evidence of SMP, save exceptional circumstances
- $S_1 > 40\%$ : SMP concerns normally arise
- $25\% < S_1 \leq 40\%$ : may have SMP concerns in some cases
- $S_1 \leq 25\%$ : SMP is not likely to exist

# SMP Evaluation Criteria: Synthesis of Indicators (III)



## Evaluation of Single Dominance (Continued)

STEP 2: Examine other indicators besides market share to determine whether to rebut the presumption in STEP 1

- ❖ Exceptional circumstances where the SMP presumption can be rebutted, even with  $S1 \geq 50\%$ 
  - 1) Market performances are satisfactory and expected to remain stable, as one or some of the following conditions are so dominating that sufficient competition pressure can be provided:
    - ① Entry barrier is low enough to create high competition pressure by the potential entry (example: perfectly contestable market)
    - ② Market concentration indicators clearly show an improving trend
    - ③ Consumers' countervailing power is strong enough to create high competition pressure by active operator-switching
    - ④ Active price/quality competition is observed and expected to continue

# SMP Evaluation Criteria: Synthesis of Indicators (IV)



## Evaluation of Single Dominance (Continued)

### STEP 2 (Continued)

#### Example:

- In 1995, FCC relieved AT&T of the dominant carrier status in long-distance telephone services market, though it possesses 55% of market share
  - FCC considered the following factors to reach such a decision: rapidly falling trend of AT&T's market share, high churn rate, falling trend of long-distance calling rates
- ❖ Exceptional circumstances where the SMP presumption can be rebutted, even with  $S1 \geq 50\%$  (Continued)
- 2) There is little incentive or low possibility of success to use market power due to the change in market conditions (ex. declining industry, low tariff by regulation, etc.)



## Evaluation of Single Dominance (Continued)

### STEP 2 (Continued)

- ❖ Exceptional circumstances where the Non-SMP presumption can be rebutted, even with  $25\% \leq S_1 < 50\%$ :

Market performances are not satisfactory or not expected to remain stable, as one or some of the following conditions are so dominating that sufficient competition pressure is not provided:

- ① Entry barrier is so high that competition pressure by the potential entry is not provided
- ② Market concentration indicators clearly show an aggravating trend
- ③ Consumers' countervailing power is very weak
- ④ Price/quality competition is not active

## 2. Application:

### Mobile Telephone Services Market in Korea

#### Contents

- Relevant Market Definition
- Market Share and its Trend
- Market Concentration and Entry Barriers
- Consumer Behavior
- Supplier Behavior
- Market Performance
- Summary: Synthesis of Indicators

# Relevant Market Definition (I)



## Retail Mobile Telephone Services market

As a retail market, define mobile voice services (access and calls) and wireless data services as one relative market

- Separation of Fixed Telephony and Mobile Telephony
  - Demand substitutability is appeared to be insufficient yet (based on consumer surveys)
- Non-separation of voice and wireless data services
  - Separate purchases are not possible; complementary feature
  - Competition status would be the same (cluster market)
  - Competition status in voice and data services may be separated in the future, by the development of WiBro and the introduction of MVNO

## Relevant Market Definition (II)

### Retail Mobile Telephone Services market (Continued)

- Non-separation of 2G and 3G services
  - In terms of voice services, there is high substitutability between 2G and 3G
  - In terms of data services, there is low substitutability  
(Currently, 3G provides functionally superior services at similar price; penetration pricing)
  - So far, 3G data services usage ratio is not as high as voice services  
→ Define 2G and 3G services as one market
  - In the future, 3G data services can be more and more differentiated as the development of handset and killer application proceeds, which will increase the possibility of separate market definition

# Market Share and its Trend



- Oligopoly by 3 carriers (SK Telecom, KTF, LG Telecom)
- Market Shares (2006)
  - Revenue-based: SKT 55.3%, KTF 29.4%, LGT 15.3%
  - Subscriber-based: SKT 50.4%, KTF 32.1%, LGT 17.4%
- Trend
  - Differences among 3 carriers are kept stable since 2000
  - SKT's share is decreasing slightly, while LGT's share is increasing slightly

Fig. 1. Market Shares (Revenue-based)

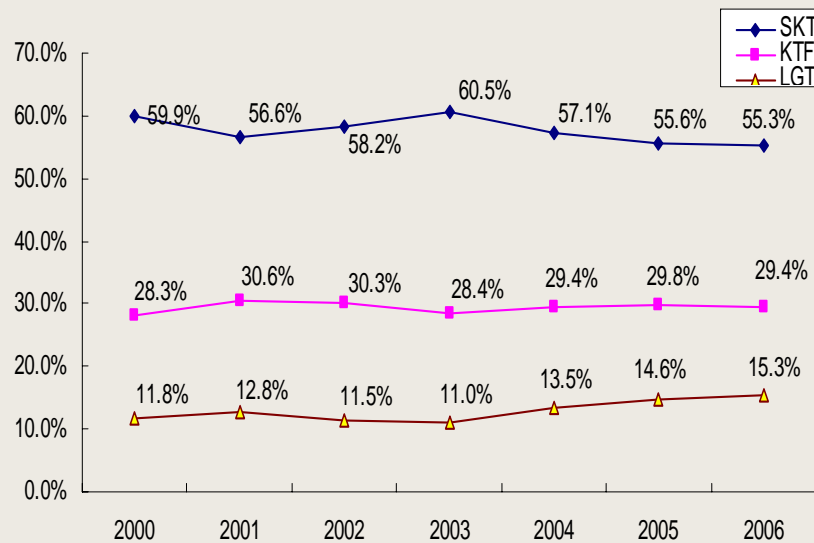
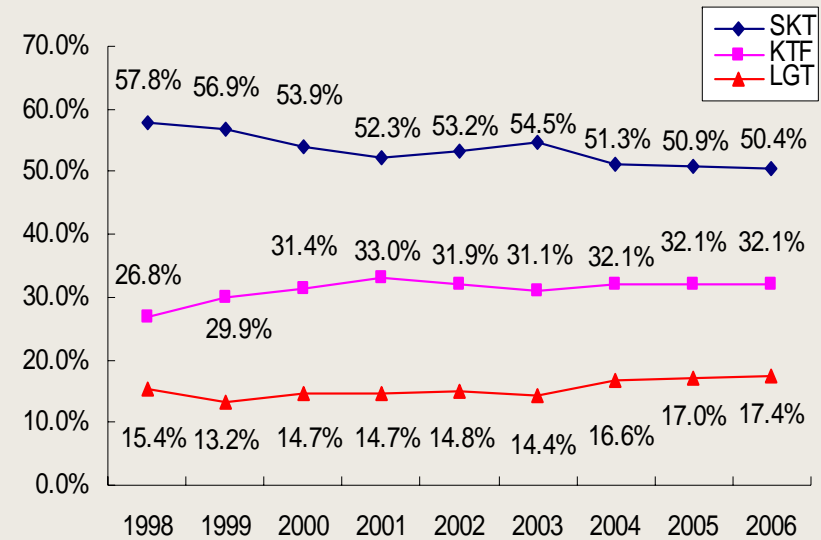


Fig. 2. Market Shares (Subscriber-based)



Sources: IR data from each carrier

# Market Concentration and Entry Barriers



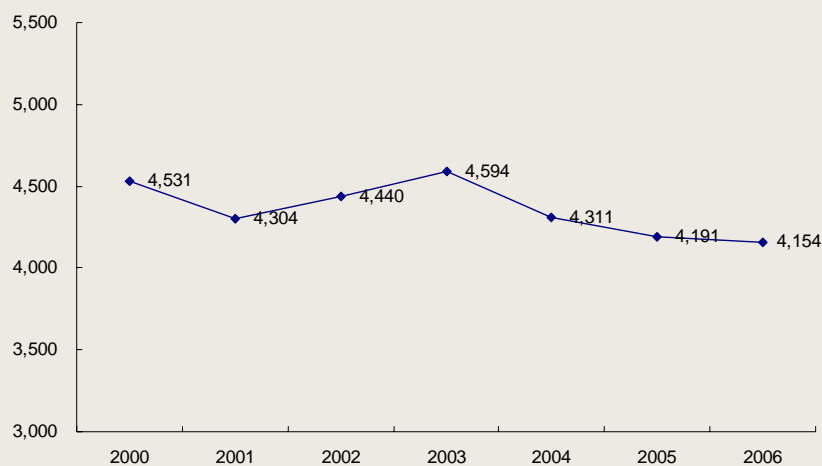
## Market Concentration

- Market leader's share (subscriber-based) is 10<sup>th</sup> highest among 30 OECD countries (OECD average= 46.9%, Korea=50.4%)
- HHI=4,154 (8<sup>th</sup> highest among 30 OECD countries)
- Leader's market share and HHI are slightly declining recently

## Entry Barriers

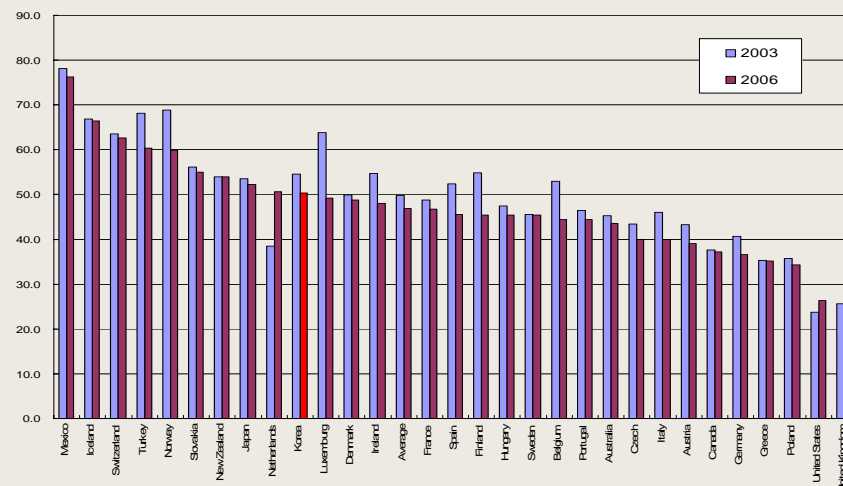
- No possibility of further entry because of radio-spectrum constraint
- MVNO system is not activated → potential competition pressure is weak

Fig.3. Trend of HHI (based on revenue-based market shares)



Sources: IR data from each carrier

Fig.4. Market leader's subscriber-based share (international comparison)

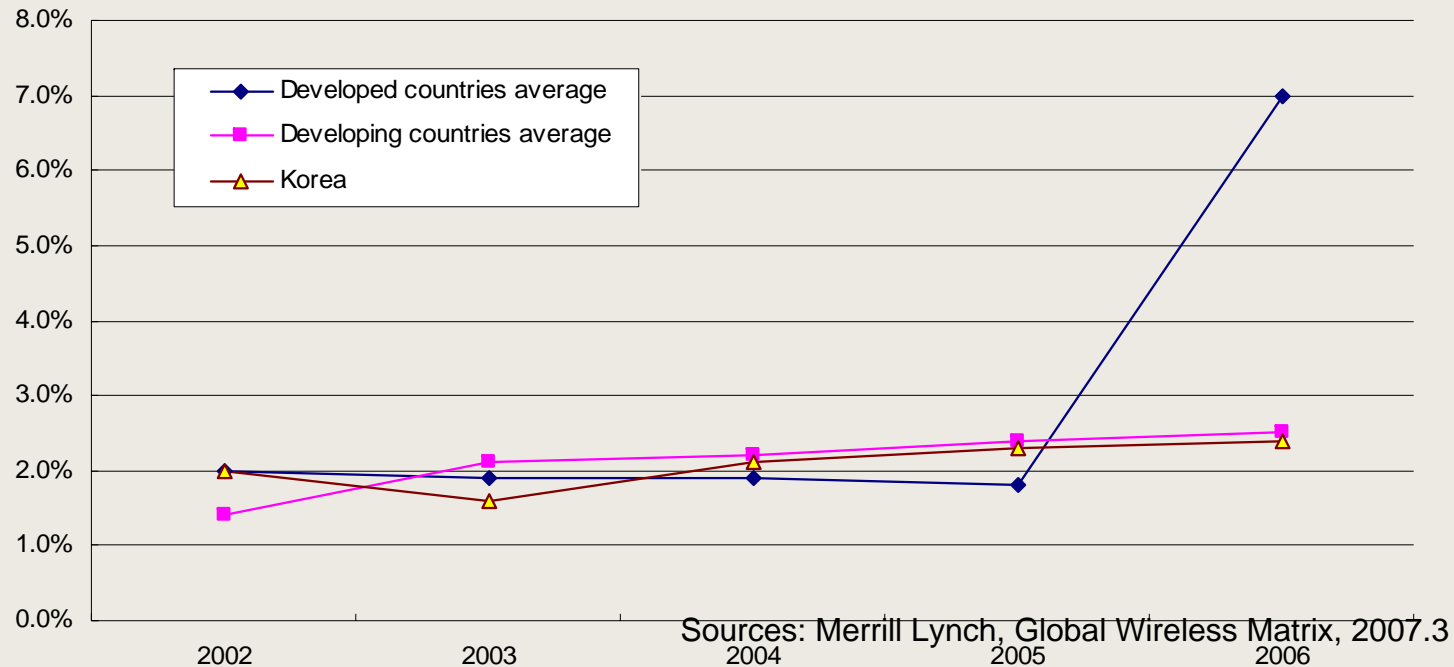


Sources: Merrill Lynch, Global Wireless Matrix, 2007.3

## · Switching Barriers

- There exist operator switching costs due to structural SIM lock and restrictions on handset subsidy
- Introduction of number portability system reduced switching cost
- Monthly churn rate level is similar to world average

Fig. 5. Monthly Churning Rate





## • Price Competition

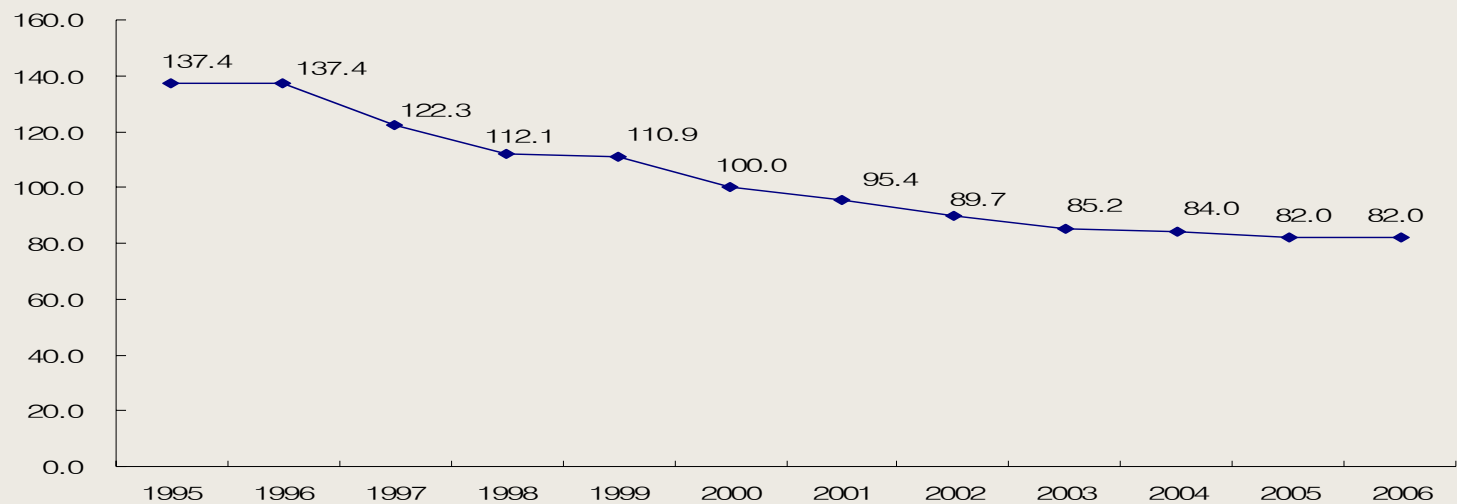
- Price index is in its falling trend, but more active price competition is wanting
- Competition through voluntary reduction in standard rates is not active

## • Quality Competition is active

## • Competition in new investment, innovation and new services

- Introduce frontier services (WCDMA/HSDPA, DMB...)
- Active overall, but big differences among carriers

Fig. 6. Trend of Price Index in Mobile Telephony Market



Source: Korea National Statistical Office

# Market Performance: Price, Quality, and Consumer Satisfaction



## • Price

- Price per minute is very low compared to other countries (OECD)
- Pre-paid services are not activated → Options for light-volume users are limited

• **Quality and Coverage** is superb

• **Consumer Satisfaction** is good on the whole

Fig. 7. Price per Minute (PPP)

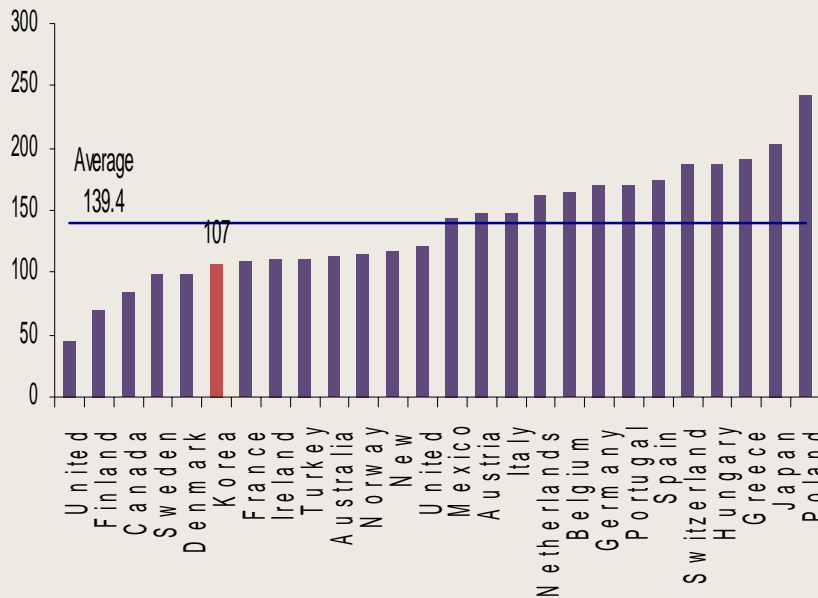
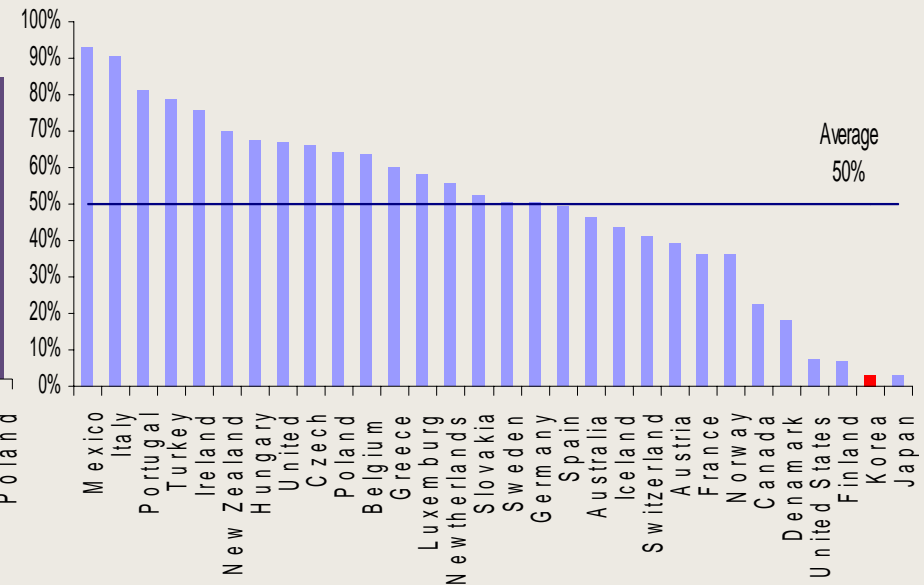


Fig. 8. Ratio of Users using Pre-paid Services (2005)



Source: Merrill Lynch, Global Wireless Matrix, 2007.3

# Market Performance: Profitability



- **Profitability: Comparison with Other Industries in Korea**

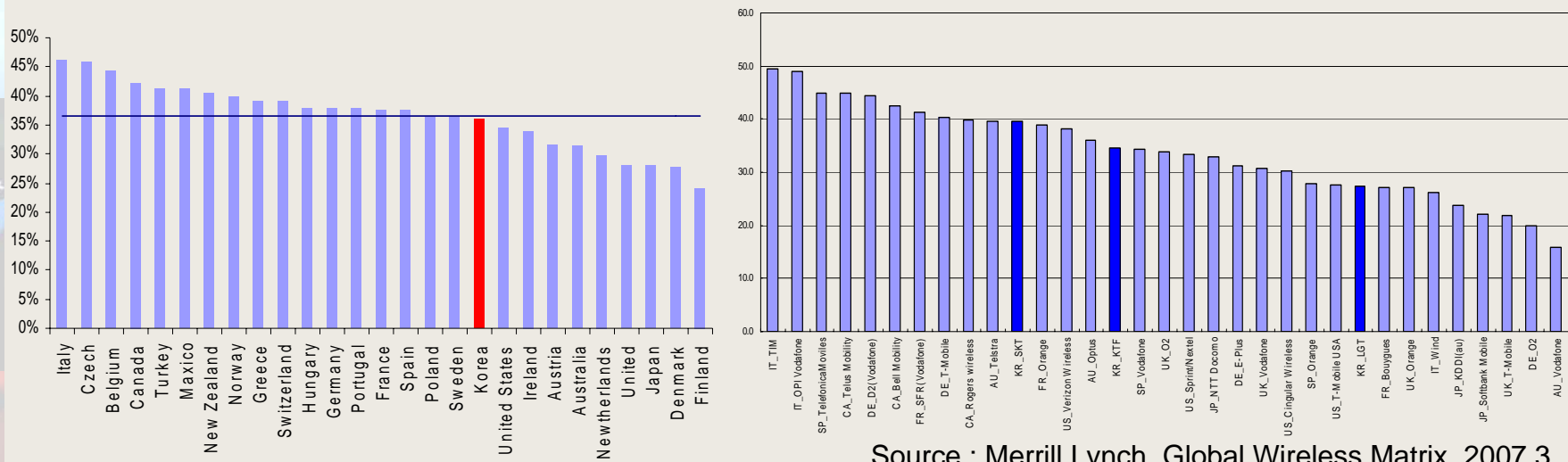
- High profitability compared to other industries
- Profit/Revenue ratio: SKT (76<sup>th</sup>),KTF (91<sup>th</sup>),LGT (94<sup>th</sup>) among Kospi 200 operators
- EBITDA margin: SKT (5<sup>th</sup>), KTF (16<sup>th</sup>), LGT (84<sup>th</sup>)

- **Profitability: International Comparison**

- Average EBITDA margin of Korea is 18<sup>th</sup> highest among 27 OECD countries
- SKT (11<sup>th</sup>),KTF (15<sup>th</sup>),LGT (25<sup>th</sup>) among 33 operators in 10 OECD countries

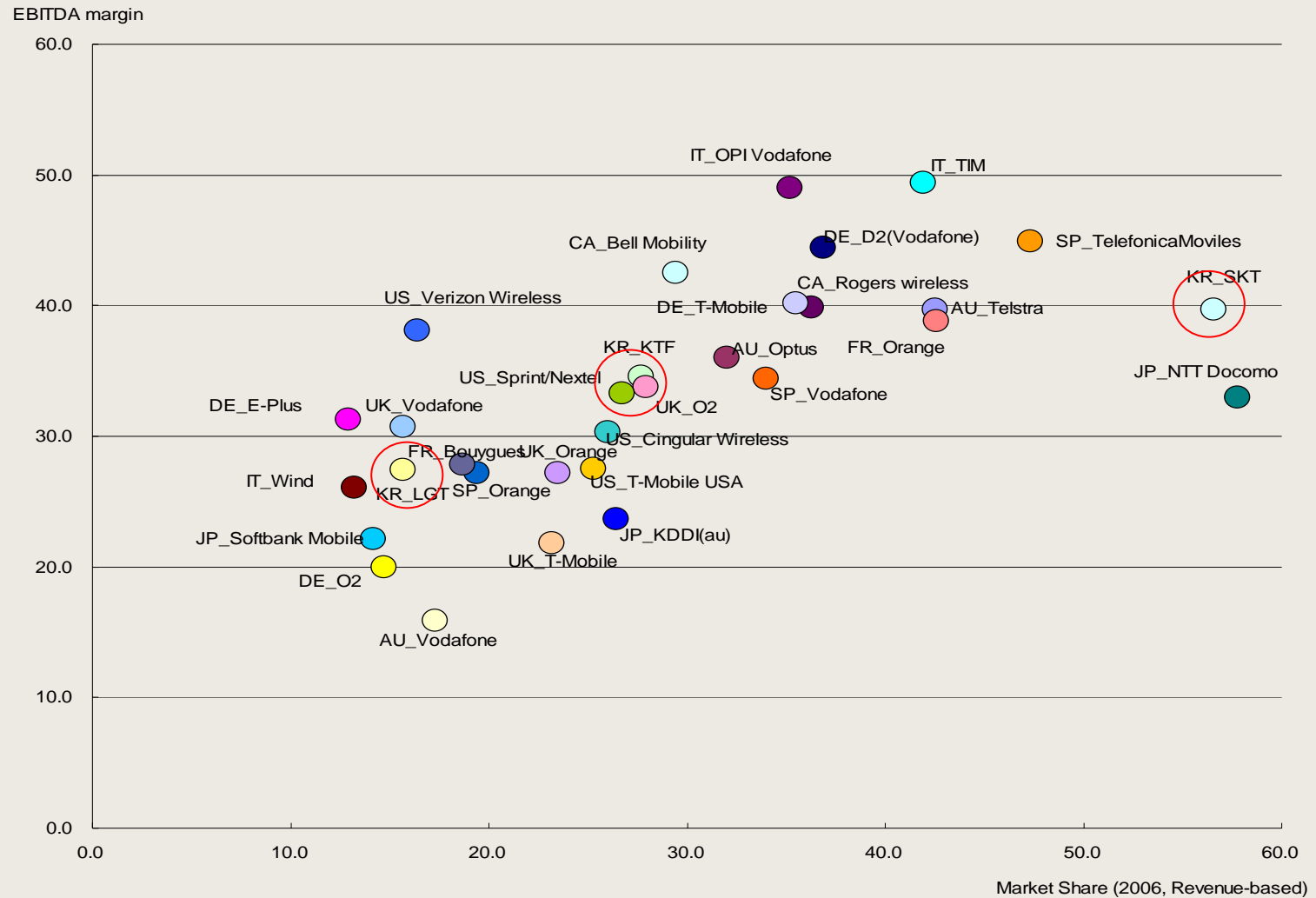
- **Cost-recovery ratio** is higher than 100% for all operators

Fig. 9. EBITDA Margin: International Comparison (2006)



Source : Merrill Lynch, Global Wireless Matrix, 2007.3

# Market Performance and Market Share



Source : Merrill Lynch, Global Wireless Matrix, 2007.3

# Summary: Synthesis of Indicators

SKT's market share: 55.3% (subscriber-based 50.4%) → Presume SKT's SMP

## Market Performance

- Price per minute is low compared to other countries but differences are decreasing
- Options for light-volume users are limited
- Quality and development of new technology are superb
- SKT has been realizing high profitability

## Market Structure

- Slightly improving trend, but concentration ratio remains high compared to other countries
- Entry barriers by radio-spectrum constraints
- MVNO system is not activated

## Supplier Behavior

- Quality competition is active
- More price competition is wanting
- Competition in new technology is active (SKT and KTF)

## Consumer Behavior

- Churn rate is comparatively good
- Number portability system reduced switching costs
- Operator switching costs due to structural SIM lock and restrictions on handset subsidy

## ◆ Can we rebut the presumption?

- Evidences for exceptional circumstances to rebut the presumption are not sufficient
  - Market Performance: Positive and negative elements are mixed (Some factors need to be improved)
  - Market Structure: Unsatisfactory
  - Supplier and Consumer Behavior: Mixed

Conclude SKT holds SMP

*Thank you!!!*

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