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Is five too many? Simulation analysis of profitability and cost structure in the Korean mobile telephone industry

Jae-Do Song*, Jae-Cheol Kim

Graduate School of Management, Korea Advanced Institute of Science and Technology, Cheongryangri-dong, Dongdaemun-gu, Seoul 130-012, South Korea

Abstract

Four new nationwide entrants were introduced into the Korean mobile telephone industry provoking intense competition among the five carriers by late 1997. Some assert that there is excessive competition and industry restructuring is needed. In this paper, we analyze the profitability of mobile telephone carriers and the degree to which cost is reduced through M&A, thereby obtaining principal information on the economic incentives for industry restructuring. © 2001 Elsevier Science Ltd. All rights reserved.

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1. Introduction

During the last decade, the telecommunications industry has been in transition worldwide from a government-initiated paradigm based on the concept of natural monopoly, to a private-initiated paradigm based on market principle. Market principle implies that economic incentives of individual market entities, as the foundation in the operation of the economy, are enhanced. This trend is created on the one hand by the pressure of international free trade and on the other hand by increasing complexity of the economy with the rapid development of technologies. With these factors, individual entities of the economy recognize the limitation of the governmental role.

The private-initiated paradigm in Korea induced the introduction of competition in many telecommunication services,[1] particularly in the case of the mobile telephone industry, where four new nationwide entrants were introduced provoking intense competition amongst the five carriers.

* Corresponding author. Tel.: + 82-2-958-3686; fax: + 82-2-958-3604.

E-mail addresses: jaedo@sktelecom.com (J.-D. Song), jckim@kgsm.kaist.ac.kr (J.-C. Kim).

[1] A brief introduction of the recent liberalization process in the Korean telecommunications market is examined by Yoon (1999).

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Table 1
Mobile telecommunications carrier (unit: $million, thousand subscribers, %)

Carrier	SK Telecom (SKT)	Shinsegi	KT Freetel (KTF)	LG Telecom	Hansol PCS[a]
Service launch day	29-03-84	01-04-96	01-10-97	01-10-97	01-10-97
Frequency band	800 MHz band	800 MHz band	1.8 GHz band	1.8 GHz band	1.8 GHz band
No. of subscribers at Nov. 1998	5804	2067	2247	2024	1318
Revenue	2954	1040	1193	910	204
Operating profit	370	− 73	− 54	− 64	− 56
Assets	3384	1741	1965	2244	1258
Capital	27	4167	4375	545	317
Equity capital	1224	154	244	712	217
Liability	2160	1587	1720	1532	1041
Equity capital ratio (%)	36.2	8.8	12.4	31.7	17.3
Debt ratio (%)	176.4	1033.3	704.8	215.1	479.3

[a]The data of four carriers (except Hansol PCS) are at the end of 1998. Data of Hansol PCS are at June 1998 and its revenue and operating profit are for six months.

Source: Lee et al. (1998), *Maeil Business Newspaper* (1999) and *The Electronic Times* (1999).

All of them use CDMA technology. The carriers in the 800 MHz band are called cellular carriers and the carriers in 1.8 GHz band PCS carriers. Table 1 outlines each carrier's participation in mobile telephone service. Hansol PCS and KTF have formed a roaming partnership for specific areas. Other carriers are operating nationwide networks independently.[2] This situation is thought to be highly competitive, even when compared with other developed countries.

Although this paradigm shift seems to be widely accepted, enormous initial investment and aggravation of short-run profitability has led some experts to stress the need for M&A among mobile telephone carriers, even through government intervention.[3] Korea was under IMF administration, following the foreign exchange crisis in late 1997, and this argument became stronger in the atmosphere of government-driven industry restructuring of principal industries, which Koreans called the 'big deal'.[4] This argument is fundamentally against the market principle which respects the decisions of individual market entities. But there is resistance from conglomerates to restructuring and the widely accepted opinion is that because there have been few examples of voluntary M&A in Korean economic history, it will not be easy to restructure the market. This type of government intervention is not desirable in principle and there is the need for close examination of economic incentives of the individual entities.

[2] Ministry of Information and Communications (MIC) is scheduled to allocate IMT-2000 licenses in late 2000. In terms of this circumstance, SK Telecom took over Shinsegi in December 1999; and SK Telecom is likely to attempt getting one of the licenses. The analysis of this paper does not consider this type of incentive induced by industrial policy.

[3] It was pointed out in a public hearing in Congress that mobile telephone carriers can become insolvent through excessive competition and duplicate investment (see *The Korea Economic Daily*, 1999).

A survey revealed that most of people engaged in the telecommunication industry acknowledged the need for restructuring the mobile telephone industry and some of them approved government intervention (see *Chosun Ilbo*, 1998).

[4] The main means of restructuring is exchange of affiliates among conglomerates, and the exchange is being called 'big deal'.