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Impact of FDI on Competition: The Korean Experience

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Executive Summary

Korea has seen tremendous changes in its foreign economic relations since the outbreak of the currency cum financial crisis in 1997. One notable consequence of the crisis is a significant increase in foreign investment, following dramatic liberalization measures and aggressive solicitation of foreign investors. Ceilings on foreign equity ownership in the stock market have been eliminated, cross border mergers and acquisitions (M&As) are now allowed and foreign land ownership has been fully liberalized.

The benefits of FDI are well established in the literature. FDI induces not only stable, long term capital, but also spillovers in technology and managerial know-how, employment creation and regional development.

Foreign investment has an added significance for post-crisis Korea: it can be a source of funds for restructuring firms which cannot find qualified domestic investors, both in the financial and managerial sense. Even if not directly involved in the workout process of distressed firms, the larger presence of foreign firms in the Korean economy can encourage the adoption of international best practice and promote better corporate governance. FDI is seen by some as providing the only viable competition for dominant domestic chaebols, both in managerial and product markets. In fact, the domination by chaebols is seen by some to have inhibited foreign investors in the past.

Serious concerns remain, however, regarding the concentrating effects of multinationals, especially because recent FDI has entered through mergers and acquisitions rather than green-field investment. Critics suspect that foreign monopolies may simply substitute for domestic ones. Clearance

of large M&As in the name of restructuring, which might not have been allowed under normal circumstances, certainly fuel such concerns.

This study focuses on this issue of how FDI impacts on market structure and competition in Korea. In Section II, the study conducts a simultaneous estimation to investigate the impact of FDI on concentration and price cost margin in Korean manufacturing industries during the pre-crisis years of 1991-1997. Even though FDI as a proportion of total capital formation was not large, FDI consistently increased during this period following several liberalization measures and played a significant role in some sectors. Therefore, it would be meaningful to explore how competition was affected by FDI entry during this period.

The economic ramifications of the financial crisis are still unfolding, and the post-crisis years would be less amenable for a quantitative study, especially due to lack of consistent time series data. However, the massive inflow of FDI after the crisis, especially in the form of M&As, has raised particular concern regarding anti-competitive effects of multinationals. Therefore it would be important to analyse post crisis impact of FDI. This issue is explored through two detailed case studies on the seed and paper industries in Section III. Case studies would show more in detail the process through which FDI affects the competition process and provide a useful complement to the quantitative analysis.

Although the empirical study in Section II is limited in many ways, the results from this study provide some perspective on how FDI affected competition in Korean manufacturing industries during the 1990s, pre crisis. According to the estimation results, FDI seems to have an upward influence on concentration, confirming earlier studies for Korea. At the same time, concentration leads to higher price cost margin, and through this

channel, FDI would indirectly contribute to increasing price cost margin. The direct impact of FDI on price cost margin is not conclusive, but seems to suggest that multinationals are attracted to markets where profits are stable (and probably high), but compete profit away as they enter these markets.

Implication of these results for competition policy is threefold. First, FDI dominant sectors can be highly concentrated and firms in this sector may enjoy supernormal profits. This would warrant continuous vigilance with respect to FDI dominant sectors on the part of the competition authority.

Secondly, because of the strong positive feedback mechanism between concentration and price cost margin, persistence of concentration would be a reasonable indication of presence of excess profit and market power, although at what level of concentration market power is achieved cannot be discerned from the empirical study.

Thirdly, although MNCs may have an upward impact on price cost margin over time through raising concentration, they may also lower price cost margin at entry, offsetting anti-competitive effects to a certain degree. Thus, it would be important to examine industry specific competition dynamics carefully to determine the competitive impact of FDI in that particular sector, rather than to merely consider concentration level at a given point in time.

The case studies in Section III throw more light upon the process through which a multinational company can gain market dominance over time. And, in some cases, such dominance has given them the power to influence prices, even at market shares lower than the 50 percent threshold, and competition was drastically reduced where the multinational has

segmented not only the national market but also the world market among its non-competing subsidiaries.

For example, although the Seminis case does not cause serious competition concerns when viewed using merger regulation guidelines, especially at the time of entry, the market segmentation arrangement between Hungnong and Choong Ang and their ability to control prices gave rise to substantial market dominance. It is plausible that their market share and dominance may increase in the long term. Further, the abuse of such market dominance was evident in the resale price maintenance policy of Seminis.

The paper industry seems to be the more worrisome case. The mergers have led to substantial concentration, with merging party market share increasing rapidly over the 50 percent benchmark. In the newsprint paper market, because continued market growth is expected, consolidation through mergers to correct temporary excess capacity would be ill advised. The dominance of merging parties in the international market, especially with the regional market segmentation agreement, has also been substantially enhanced.

Some lessons for merger regulation can be drawn from these case studies. Although concentration and market share levels may be reasonable indication of market power as results from the econometric study suggests, the use of 50 percent benchmark to determine effective suppression of competition may be inappropriate, and should be complemented by greater analysis of price changes specific to the mergers.

Further, the use of market share ceiling as a remedial measure is not very effective. In general, behavioural remedies such as market share restrictions or price ceilings do not fundamentally address competition

concerns, and are more difficult to monitor than structural remedies. The remedial measure required in the hygienic band market was more effective in this sense. Nevertheless, here too, if prior notification was in place, the third party to which the problem asset could have been divested may have been identified before the merger. This would have made both the merger and remedial procedures more efficient.

Since the multinationals tend to acquire more than one firm or business units in a sequential manner, the impact of a particular multinational seems to be more pervasive in the long term than it appears at first sight. The continued vigilance of competition authority would therefore be desirable. Indeed, with the liberalization of the FDI regime, competition policy has gained greater importance. Free entry of FDI should be accompanied by strengthened competition policy. It should also be noted that open trade regime is important when proportion of foreign ownership becomes greater, since import protection protects foreign multinationals as well as domestic firms. However, when the multinational is also a dominant player in the world market (which would usually be the case), little import competition would be forthcoming. Again, dynamic, industry specific analysis would be important in these cases.

These results are based on a limited number of cases and data set at a highly aggregated level. Much improvement is to be gained from a firm level study with a larger data set, better specification of estimated equations with clearer hypotheses to test, and greater number of case studies.

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I. Introduction¹

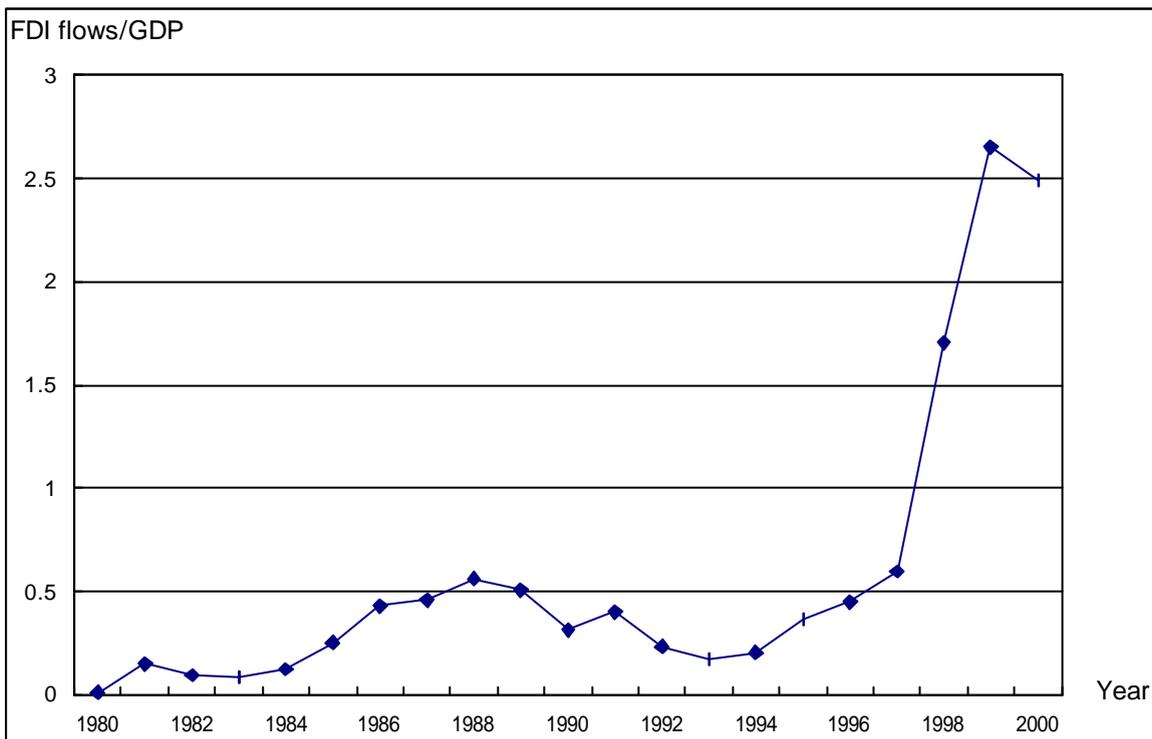
Korea has seen tremendous changes in its foreign economic relations since the outbreak of the currency cum financial crisis in 1997. One notable consequence of the crisis is a significant increase in foreign investment, following dramatic liberalization measures and aggressive solicitation of foreign investors. Ceilings on foreign equity ownership in the stock market have been eliminated, cross border mergers and acquisitions (M&As) are now allowed and foreign land ownership has been fully liberalized.

<Figure I-1> and <Table I-1> show very well, the dramatic increase of inward foreign direct investment (FDI) since 1997. FDI flows into Korea started to increase substantially since the mid-1980s. Although FDI declined in the early 1990s, it started to increase again from 1994. FDI increased throughout 1995 and 1996, expanding at more than 30 percent per year. Then, FDI increased by 69 percent from 1997 to 1998, and then by more than 100 percent from 1998 to 1999, reaching more than \$10 billion. Although there was a substantial increase of FDI withdrawn in 1999, the increase in FDI inflows more than compensated for the amount withdrawn. The increasing trend

¹ This study draws from various previous studies by the author, especially Yun (2000) in general, Lee & Yun (2000) for case studies, and earlier drafts of Yun (forthcoming) for FDI trends and literature review. The econometric analysis is new to

of FDI inflow continued into the year 2000, on notification basis, though slightly decreasing on arrival basis.

<Figure I-1> FDI Flows As Share of GDP: 1980-2000



Note: Both FDI and GDP figures are in US dollars. The high FDI flow to GDP ratio in 1998 also reflects the contraction of GDP in this year

Source: FDI data from Ministry of Industry, Commerce and Energy, and GDP figures from Bank of Korea.

<Table I-1> FDI Flows into Korea

(unit: US \$million, %)

Year	FDI Inflows ¹⁾			Withdrawn
	Notification basis	Arrival basis	Balance of Payment Basis	
1962-1981 ²⁾	93.305	73.893	67.83 ³⁾	10.205
1982-1986 ²⁾	353.546	231.560	188.2	38.280
1987-1988 ²⁾	1,173.542	759.826	815.2	34.887
1989	1,090.279	812.315	1,117.8	75.054
1990	802.635	895.397 (10.23)	788.5 (-29.46)	136.201 (81.47)
1991	1,395.996	1,177.245 (31.48)	1,179.8 (49.63)	47.291 (-65.29)
1992	894.476	803.311 (-31.76)	728.3 (-38.27)	240.159 (407.832)
1993	1,044.274	728.148 (-9.36)	588.1 (-19.25)	193.091 (-19.60)
1994	1,316.505	991.565 (36.18)	809.0 (37.56)	205.032 (6.18)
1995	1,947.229	1,361.925 (37.35)	1,775.8 (119.51)	114.215 (-44.29)
1996	3,202.580	2,309.978 (69.61)	2,325.4 (30.95)	308.464 (170.07)
1997	6,970.915	3,088.356 (33.67)	2,844.2 (22.31)	449.910 (45.85)
1998	8,852.527	5,221.249 (69.04)	5,412.3 (90.29)	250.270 (-44.37)
1999	15,541.547	10,597.857 (103.05)	9333.4 (72.45)	1,370.611 (447.65)
2000	15,689.857	10,185.169(-3.9)		1,442.010 ⁵⁾
2001.1~2	61,210.520	167.728 ⁴⁾		-
Cumulated 1962~2001.2	68,435.299	42,495.878 ⁴⁾		4,515.103 ⁵⁾

Notes: Figures in brackets are percentage growth from the previous year.

- 1) Equity investment of more than 10% of equity capital by a single person or firm, and intra-company loans with maturities of five years or more are considered foreign direct investment. Notification and arrival basis measures (composed of equity purchased and long-term, intra-company loans) are from administrative records of the MOCIE. The notified amount of investment does not necessarily coincide with the actual capital that arrives at the time the notification is made, resulting in the large difference between the notification and arrival based measures. The balance of payments measure is collated by the Bank of Korea (BOK), using both foreign exchange receipts and payments statistics maintained by the BOK and the MOCIE data. This measure combines three elements (purchase of equity, retained earnings, and net lending from parents to subsidiaries) and is close to the arrival based measure for most years.
- 2) Figures are annual averages for 1962-1981, 1982-86, and 1987-1988.
- 3) Annual average for 1976-1981. This figure is calculated from IMF 1999. *Balance of Payment Statistics Yearbook*
- 4) Includes up to January 2001
- 4) Includes up to October 2000

Source: Ministry of Commerce, Industry and Energy (MOCIE) February 2001. *Trends in Foreign Direct Investment*. Balance of payment basis figures are from Bank of Korea 2000. *Balance of Payment Statistics*.

The manufacturing sector is the largest recipient of FDI, constituting more than 60 percent of total FDI until 1994. But since then, the service sector has gained greater importance, consistently receiving about 40 percent of total FDI. Among manufacturing industries, electric and electronics, chemicals, and machinery consistently attract a high proportion of total FDI. Sectoral liberalization also accelerated greatly after the crisis, with more than 30 sectors liberalized in 1998 and 1999. <Table I-2> shows that FDI in services rose after 1997, especially in finance and insurance as restructuring of the financial sector progressed. Finance and insurance accounted for more than 10 percent and 20 percent of total FDI in 1998 and 1999, respectively. Although it is not clear from <Table I-2>, services also include the newly liberalized sectors such as telecommunications and electricity, which received high proportions of FDI.

<Table I-2> FDI Inflows by Sector and Home Country: 1962~2001.1
(Arrival basis)

(Unit: US\$ million, %)

	'62-'81	'82-'94	1995	1996	1997	1998	1999	2000	2001.1	Cumulated 1962-2001.1
Total	73.9	621.9	1,357.1	2,308.3	3,085.9	5,155.6	10,335.5	10,185.2	167.7	42,495.9
Manufacturing	52.6 (71.2)	396.6 (63.8)	585.6 (43.2)	1,296.8 (56.2)	1,832.6 (59.4)	2,831.6 (54.9)	6,091.3 (58.9)	5,777.2 (56.7)	27.7 (16.5)	24,744.4 (58.2)
Food	1.9 (2.6)	26.1 (4.2)	15.5 (1.1)	42.2 (1.8)	463.9 (15.0)	629.8 (12.2)	291.2 (2.8)	78.5 (0.8)	9.9 (5.9)	1,907.8 (4.5)
Chemicals	14.7 (19.9)	95.9 (15.4)	136.0 (10.0)	233.9 (10.1)	255.8 (8.3)	429.1 (8.3)	752.5 (7.3)	192.8 (1.9)	5.1 (3.0)	3,548.5 (8.4)
Electric & Electronics	110.1 (13.2)	76.7 (12.3)	137.8 (10.2)	281.2 (12.2)	219.3 (7.1)	231.7 (4.5)	2,515.2 (24.3)	1,948.3 (19.1)	2.0 (1.2)	6,565.1 (15.4)
Transport Equipment	104.5 (3.9)	56.4 (9.1)	45.8 (3.4)	250.0 (11.2)	358.4 (11.6)	154.0 (3.0)	425.7 (4.1)	911.8 (9.0)	0.0 (0.0)	2,955.7 (7.0)
Service	305.3 (27.9)	223.7 (36.0)	770.3 (56.8)	1,010.7 (43.8)	1,202.4 (39.0)	2,139.8 (41.5)	4,191.0 (40.5)	4,404.4 (43.2)	139.9 (83.4)	17,422.7 (41.0)
Hotel	176.6 (13.9)	97.0 (15.6)	58.7 (4.3)	115.8 (5.0)	95.6 (3.1)	0.0 (0.0)	64.5 (0.6)	4.7 (0.0)	0.6 (0.4)	1,806.7 (4.3)
Wholesale & Retail	1.2 (0.0)	5.0 (0.8)	58.1 (4.3)	330.4 (14.3)	256.2 (8.3)	519.6 (10.1)	437.1 (4.2)	408.2 (4.0)	45.0 (26.8)	2,247.6 (5.3)
Trading	20.7 (0.0)	26.3 (4.2)	108.3 (8.0)	111.5 (4.8)	195.0 (6.3)	243.0 (4.7)	93.0 (0.9)	238.6 (2.3)	12.2 (7.3)	1,454.0 (3.4)
Financing & Insurance	100.0 (7.6)	70.7 (11.3)	410.2 (30.3)	194.3 (8.4)	309.6 (10.0)	544.4 (10.5)	1,156.4 (20.8)	1,971.6 (19.4)	14.1 (8.4)	6,640.3 (18.0)
Home Country										
Japan	813.6 (55.1)	226.5 (36.4)	337.5 (24.9)	279.4 (12.1)	197.2 (6.4)	413.6 (8.0)	805.6 (7.8)	1,098.3 (10.8)	9.6 (5.7)	6,968.0 (16.4)
Malaysia	0.0 (0.0)	0.4 (0.1)	119.7 (8.8)	666.1 (28.9)	431.4 (14.0)	263.4 (5.1)	1,337.8 (12.9)	1,430.0 (14.0)	40.1 (23.9)	4,298.3 (10.1)
U.S.A.	377.6 (25.6)	182.0 (29.3)	342.0 (25.2)	393.5 (17.0)	390.6 (12.7)	1,450.5 (28.1)	1,882.3 (18.2)	1,686.5 (16.6)	65.3 (38.9)	9,048.6 (21.3)
Europe	6.4 (8.7)	176.1 (28.3)	437.8 (32.3)	861.5 (37.3)	1,734.6 (56.2)	2,676.4 (51.9)	5,054.3 (48.9)	3,231.2 (31.7)	28.6 (17.1)	16,442.0 (38.7)
U.K.	1.5 (2.0)	20.0 (3.2)	50.1 (3.7)	48.0 (2.1)	94.3 (3.1)	47.7 (0.9)	476.0 (4.6)	58.3 (0.6)	3.9 (2.3)	1,097.4 (2.6)
France	16.6 (1.1)	20.0 (3.2)	33.2 (2.4)	90.0 (3.9)	501.2 (16.2)	2,676.4 (51.31)	348.6 (3.4)	413.2 (4.1)	0.9 (0.5)	2,042.4 (4.8)
Netherlands	28.6 (1.9)	58.6 (9.4)	123.9 (9.1)	252.1 (10.9)	316.1 (10.2)	1,218.1 (23.6)	3,062.7 (29.6)	1,277.4 (12.5)	10.3 (6.1)	7,081.6 (16.7)
Germany	29.4 (2.0)	35.0 (5.6)	45.6 (3.4)	47.0 (2.0)	396.8 (12.9)	643.9 (12.5)	763.8 (7.4)	1,240.3 (12.2)	2.5 (1.5)	3,634.0 (8.6)
Ireland	0.0 (0.0)	9.5 (1.5)	115.5 (8.5)	358.7 (15.5)	331.1 (10.7)	90.1 (1.7)	21.4 (0.2)	18.2 (0.2)	0.0 (0.0)	1,030.2 (2.4)

Note: 1962-1994 figures are annual averages. Figures in parentheses are percentage share of the sector or the source country

Source: MOCIE February 2001. *op. cit.*

M&A's have become an increasingly popular means of investing in Korea. Cross border mergers increased significantly after they were allowed in 1997. M&A's by foreign firms have increased especially after the Asian crisis, in response to deregulation of laws restricting hostile M&As, but also to lower asset prices and depreciation of the won. In many cases, rescue funds flowed in from existing foreign partners to ease liquidity constraints. Common forms of M&A have included buying out joint venture partners, existing investors expanding through acquisition and the creation of new establishments in collaboration with Korean partners to acquire existing business units. <Table I-3> shows that in 1997, foreign acquisition of outstanding shares amounted to about \$699 million, accounting for 10 percent of total FDI (on notification basis). This figure increased to \$1,244 million or 14 percent of total FDI in 1998 and \$2,333 million or 15 percent of total FDI in 1999.²

² Official statistics considerably underestimate the extent of cross border M&As because acquisition of assets and business units are counted as acquisition of new shares. Some studies have shown that M&A constitutes around 50% of total FDI flowing in after 1997 (Kim, J.D. 1999: 16. Rhee, D.K. 1999:32). More detail on cross border M&A is given in Section II.

**<Table I-3> FDI Flows by Mode of Entry
(Notification Basis)**

(unit: US\$ million, cases)

		1997	1998	1999	2000	2001-2
Acquisition of Newly Issued Shares	Cases	944	1,106	1,835	3,800	465
	Amount	6,207.5	6,525.0	12,570.8	14,066.8	463.9
Acquisition of Outstanding Shares	Cases	92	236	241	314	37
	Amount	699.6	1,244.1	2,333.4	1,277.3	3,127.7
Long Term Intra-Firm Loans	Cases	19	57	28	26	5
	Amount	63.6	1,083.3	637.4	345.7	113.9
Total FDI	Cases	1,055	1,400	2,104	4,1409.9	507
	Amount	6,970.9	8,852.5	15,541.5	15,689.9	3,705.6

Source: MOCIE February 2001. *op. cit*

The benefits of FDI are well established in the literature. FDI induces not only stable, long term capital, but also spillovers in technology and managerial know-how, employment creation and regional development. For example, Blomstrom (1989) shows that multinationals promote innovative capacity in domestically owned sectors in Mexico. Cantwell (1991) shows that new foreign entry can contribute to agglomeration economies affecting both the extant foreign and indigenous manufacturing sector. According to Dunning (1993), the presence of foreign multinationals has a positive impact on labor productivity, largely through increased

competition.³

The World Bank (1998) shows that FDI into the Asian nations affected by financial crisis in 1997 were more stable than other forms of international financial flows.⁴ In the case of Korea, recent studies by Kim (1997, 1999) show that FDI played an important role in transferring technology and know-how, especially in industries such as semiconductors, pharmaceuticals and retailing. Foreign investment has an added significance for post-crisis Korea: it can be a source of funds for restructuring firms which cannot find qualified domestic investors, both in the financial and managerial sense. Even if not directly involved in the workout process of distressed firms, the larger presence of foreign firms in the Korean economy can encourage the adoption of international best practice and promote better corporate governance.

FDI is seen by some as providing the only viable competition for dominant domestic *chaebols*, both in managerial and product markets. In fact, the domination by *chaebols* is seen by some to have inhibited foreign investors in the past.⁵ There may be some truth to this claim, as *chaebol* firms have been extremely reluctant to sell to

³ See Driffield and Munday (1998) for a brief review of literature on positive and negative effects of FDI.

⁴ Although foreign direct investors can be expected to withdraw liquid funds in times of financial crisis (Graham and Wada 2000).

⁵ Lawrence (1993) argues that domestic concentration effectively deters foreign entry citing Japan as the relevant case. However, Noland (1999) tests this hypothesis and finds that policy variables, rather than market structure (i.e., concentration) as such, are more important in deterring FDI.

foreign investors in their restructuring efforts. However, Samsung Heavy Industry's sale of its construction equipment operation to Volvo, Philips' acquisition of LG's LCD division, and Renault's investment in Samsung Motors show that sectors such as heavy equipment, electronics and automobiles, previously dominated by top *chaebol* firms, are increasingly open to foreign investment.

Serious concerns remain, however, regarding the concentrating effects of multinationals, especially because recent FDI has entered through mergers and acquisitions rather than green-field investment. Critics suspect that foreign monopolies may simply substitute for domestic ones. Clearance of large M&As in the name of restructuring, which might not have been allowed under normal circumstances, certainly fuel such concerns.

Numerous media reports point out the rapid penetration of FDI, replacing national champions in many industries. The *Korea Economic Daily* (10 July 2000) reports that multinationals have acquired 80 percent of the aluminium market, 75 percent of newsprint paper, and more than 50 percent of the petroleum market. Elevator, automotive components, food and advertising are other industries often quoted to be dominated by multinationals. Media had turned friendly eyes to foreign investors some time after the crisis, reporting the positive impacts and the co-operative,

informal nature of foreign CEOs (*Korea Economic Daily* 7 Oct. 1999). But more recently, *Munwha Daily* reports that “foreign capital is gobbling up the Korean food industry,” and how the alcoholic beverage market is being “monopolised” by multinationals (*Munwha Daily* 25 June 2001). If these arguments are about competitive effects of FDI on the economy, then there is a certain fallacy to such arguments. The “multinational companies” are usually taken as a single entity, whereas the 80 percent, the 75 percent or the more than 50 percent of the market is usually shared by more than one foreign invested firms, some of which are not wholly foreign owned (even though foreign investors may have managerial rights). For example, in <Table I-4> which shows the sectors in which foreign firms have more than 50 percent market share in 1997, only in acetic acid and beer were there one major multinational operating. And in both cases, the firms were not wholly foreign owned. The competition among foreign firms is therefore, usually ignored. Further, it should be noted that in many cases, parts of large *chaebol* firms have been divested to a number of different foreign entrants, generally increasing the number of players in the economy. Thus, discussions in the popular press is more about ownership (national vs foreign), rather than about market power and mitigation of competition *per se*.

<Table I-4> FDI Dominant Markets

Markets	Domestic Market Share(%)	Largest Market Share Holding Foreign Firm	Investing TNC (Share of Ownership: %)	Nationality
Acetic acid	83.8	Samsung BP Chemical	BP chemicals(67)	England
Rolled aluminium	80.0	Alcan Korea	Alcan	Canada
		Aluminium of Korea	Alcoa	USA
Paper diaper	76.8	Yuhan Kimberly	Kimberly (70)	Canada
		Ssangyong Paper	P&G (99)	USA
		P&G MFG Korea	P&G (99)	USA
Hygienic band	75.6	Yuhan Kimberly	Kimberly (70)	Canada
		Ssang Yong Paper	P&G (99)	USA
		P&G MFG Korea	P&G (99)	USA
Polyurethane Material(MDI)	73.6	Kumho Mitsui chemicals	Mitsi (50)	Japan
		BASF Korea	BASF (100)	Germany
Carbon Black	69	Carbon Black Korea	Degussa (100)	Germany
		Columbia Chemical Korea	Columbian Chemical (75)	USA
Seeds	59.2	Hungnong Co.	Seminis Vegetable Seeds INC. (70)	USA
		Seoul Seeds Co.	Novatis Produkte A.G. (100)	Switzerland
		Chung Ang seeds Co.	Seminis Vegetable Seeds INC. (100)	USA
		Chongwon seeds Co.	Sakata Seeds Corp.	Japan
Disposable Battery	58.9	Gillette Korea	Gillette (100)	USA
Film	57.8	Kodak Korea	Kodak (100)	USA
		Agfa Ind.Korea	Agfa (100)	Belgium
Cola	57.1	Cocacola Bottling Korea	CC KBC Holdings B.V. (100)	Netherlands
Newsprint paper	56.2	Papco Chonju, Papco Chongwon	Hansol, Abitabi, Norske skog	Canada, Norway
Copier	55	Lotte Canon	Canon Inc. (50)	Japan
		Fuji Xerox Korea	Fuji Xerox (64.3)	Japan
			FXAP (35.7)	Japan
Beer	51	OB Brewing Co.	Interbrew (51)	Belgium

Source: Korea Foreign Company Associates <http://www.kofa.org>.

Although the kind of fallacy and sensationalism pointed out above should be avoided, the possibly concentrating effect of FDI cannot be summarily dismissed. FDI may induce greater competition initially. But because of their financial and technological advantages, foreign firms may quickly take dominant positions in the domestic market with adverse welfare consequences for the economy as a whole (higher prices, profit transfers out of the country, etc.).

This study focuses on the issue of how FDI impacts on market structure and competition in Korea. In the next Section, the study undertakes an empirical analysis to investigate the impact of FDI on concentration and price cost margin in Korean manufacturing industries during the pre-crisis years of 1991-1997. Even though FDI as a proportion of total capital formation was not large, FDI consistently increased during this period following several liberalization measures and played a significant role in some sectors. Therefore, it would be meaningful to explore how competition was affected by FDI entry during this period. The economic ramifications of the financial crisis are still unfolding, and the post-crisis years would be less amenable for a quantitative study.⁶ However, the massive inflow of FDI after the crisis, especially in the form of M&As, has raised particular concern regarding anti-competitive effects of

⁶ Consistent series for concentration data is not readily available for post crisis years. Moreover, economic structure would have changed substantially, changing structural relationships, and it would not be wise to pool pre and post crisis year data

multinationals. Therefore it would be important to analyse post crisis impact of FDI. This issue is explored through two detailed case studies on the seed and paper industries in Section III. Case studies would show more in detail the process through which FDI affects the competition process and provide a useful complement to the quantitative analysis. Implications from the results are discussed in the final section.

together.

II. Impact of FDI on Competition: 1991-1997

1. Literature Review

Concerns about anti-competitiveness of multinationals mostly stem from early theories of FDI based on oligopolistic competition theory. In a seminal study, Kindleberger (1969) argued that foreign direct investment resulted from oligopolistic competition in home countries, and would not exist in a world of perfect competition. Going further, Hymer (1970), Vernon (1970) and Newfarmer (1979) took the position that FDI was a device for restraining competition. Knickerbocker (1973) argued that oligopoly propels outgoing FDI and that inward FDI recreates the oligopolistic industrial structure in the host countries, as the same firms competitively invest abroad and compete there in similar ways. Subsequently, research agenda shifted towards exploring the impact of FDI on competition in host countries rather than explaining the motivation of outward FDI.⁷

Most empirical studies of developed countries show a negative correlation between FDI and concentration, indicating that FDI entry has pro-competitive effect in these economies (see Goreski 1976, Frischtak and Newfarmer 1994). When there is

⁷ Theories of FDI has been subsequently developed by Buckley, Casson and Rugman, who explained the emergence of multinationals as an effort to internalize imperfect factor markets and then by Dunning who offered an eclectic theory of FDI. These theories are well known and it would not be necessary to give a full review of this literature here. See Frischtak and Newfarmer 1994 and Nelson and Silvia 1985: 97. For our purposes, empirical results of prior studies would be more important.

entry barrier (eg, high sunk cost, economies of scale, technology etc), multinational companies (MNCs) may be the best qualified to enter, and their entry may actually lower concentration and increase competition.

Similar studies for developing countries show opposite results. Lall (1979) finds a positive correlation between FDI and concentration in Malaysia, after controlling for other determinants of concentration such as capital intensity, advertising, market size, economies of scale and R&D. Blomstrom (1986) finds that MNC presence is an independent source of concentration in Mexico, and Willmore (1989) offers similar results for Brazil.

On the other hand, Newfarmer and Marsh (1992) show that while both Brazilian and foreign firms in concentrated industries were more profitable than those in less concentrated industries, Brazilian firms tended to be more profitable than foreign ones. Whether this result is due to market power on the part of Brazilian firms or because of their superior efficiency, or because of transfer pricing by foreign firms, is not clear.

These studies are not entirely conclusive. For one, they do not take simultaneity effects into consideration. Concentration can cause higher profitability, but higher profitability can itself cause concentration. Similarly, FDI can cause greater concentration, but it can also be attracted to more profitable markets, or try to avoid

concentrated markets. When simultaneity is taken into account, Gupta (1983) shows that some of the significant results found in previous studies disappear and that even in developed countries FDI can lead to higher concentration. Using Canadian data, he finds that upward effects of R&D on concentration disappear. Similarly, the upward effect of concentration on price-cost margin becomes insignificant, refuting the traditional concentration-profitability hypothesis. At the same time, FDI is shown to exert a direct downward impact on price-cost margin, but this is countered by an indirect upward effect through FDI's upward influence on advertising, which is positively related to concentration.

These empirical studies are mainly based on the structure-conduct-performance paradigm. Although still useful, this paradigm does not provide a good theoretical basis on which to distinguish concentration based on market power from that based on superior efficiency, whether simultaneity is accounted for or not. Demsetz (1973) argues that firms in concentrated industries earn higher profits not because they abuse their monopolistic power to set prices above marginal cost but because they are more efficient. Sutton (1991) shows that tougher competition between incumbent firms may itself cause higher concentration, because competition leads to lower prices, ultimately forcing out marginal producers, while offering less favorable prospects for new

potential entrants. In this case, higher concentration would be accompanied by lower prices and concentration would not necessarily imply lack of competition.

Modern industrial organization theory highlights the importance of understanding the types of competitive weapons firms use rather than market structure *per se*. Where goods are differentiated and/or technologically sophisticated, competition may encourage heavy and escalating outlays on advertising and R&D as incumbent firms strive to enhance the quality of their product and new innovative firms enter the market (Davies and Lyons et. al. 1996, World Investment Report 1997). Although this type of competition has a welfare enhancing effect because consumer welfare depends on quality as well as on price, these types of expenditures are invariably sunk costs, making the market less amenable to new entry. Davies and Lyons et al (1996) show that in Europe, some concentrated industries are highly multinational if endogenous sunk costs are due to R&D and if there is trade integration. That is, unlike Gupta's findings, R&D acts as an effective entry barrier, and does so even in expanding markets.

Thus, merely showing the relationship between FDI and concentration at a particular instant does not necessarily throw light upon how FDI affects the competitive process. The more relevant questions to ask are whether entry through FDI leads to

higher prices and/or greater innovation, and whether foreign firms earn super normal profits due to superior managerial performance or for other reasons (e.g., predatory pricing followed by mark-ups). Nevertheless, persistence of concentration and super normal profit would indicate absence of entry and effective competition and may suggest strategic entry deterrence behaviour by incumbent firms.⁸

The initial level of concentration before FDI enters and the mode of FDI (e.g., merger as opposed to green-field investment) are two other important factors for analyzing FDI's impact on competition. If concentration is initially high, as it has been in Korea, new entry by a foreign investor may enhance competition at entry. However, there is also the possibility that the multinational has financial and technological advantages and quickly displaces local firms, leading to greater concentration over time. If the initial concentration level is not very high, entry by a large multinational may induce greater concentration and inhibit new entry.

The effect of mergers is also not always straightforward. Mergers among firms within a market usually increase concentration, but if there is sufficient potential entry

⁸ Another strand of relevant literature is that on "international contestability." The term refers to genuinely open markets, where non-border measures, such as trade and investment policies, government procurement, corporate governance, standard setting, tax and competition policies do not constitute artificial barriers against foreign entry (see OECD 1996 and Graham and Lawrence 1996). This terminology has become current in policy circles in the mid-1990s, primarily to critique the closed Japanese markets. However, the way the concept has been applied has important differences from the original theory of contestability, and needs care in its application. The terminology introduces unnecessary confusion without adding much new insight. For this reason, and also because this study does not incorporate policy variables emphasized in the international contestability approach, the terminology is avoided here.

within a reasonable amount of time, higher post-merger profits can have an entry-inducing effect. Further, when the acquiring firm is a foreign one entering the market for the first time, the effect on concentration should be neutral, especially if it is a small MNC which is not dominant in the international market. Moreover, in times of restructuring, acquisition of firms or mergers between firms that would otherwise exit the market has a competition enhancing effect in terms of the number of competing firms, as the acquisition of Samsung Motors by Renault can testify. Moreover, M&A can also occur for efficiency reasons and not simply to bolster market dominance. Sometimes, the increased efficiency arising from the synergy between merging parties can offset anti-competitive effects of a merger.

Nevertheless, M&A would be an easy way to acquire large market share in a short period of time. The successive acquisitions of Seminis Vegetable Seeds Inc., through which the firm came to control about 45 percent of the Korean market within two years, is a good example. Another example is the auto components industry. Major foreign component producers such as Delphi and Bosch have begun to develop a constellation of joint ventures and fully owned subsidiaries, either established through M&As or newly establishing independent subsidiaries. Delphi already has 50 percent

share in five suppliers in addition to the two 100 percent owned ones recently acquired.⁹ These changes have turned the bargaining power to these major foreign suppliers, and according to media reports, friction over component price has already occurred in a number of cases. For example, Delphi Korea stopped supplying financially troubled Daewoo Motors Co., after Daewoo requested a price freeze in July 2000. TRW is said to have unilaterally increased price of components that only TRW supplies to KIA (*Chosun Daily* 11 Aug. 2000).

2. Empirical Study

Studies relating foreign investment to domestic market structure using Korean data are quite rare. Two recent masters thesis report some preliminary results. Chung (1994) shows that in general, FDI entry is positively correlated with concentration for the period 1977-1993. There were some industry differences: in chemicals and metals, FDI seemed to have provided greater competition than in other sectors. The time series study, however, is based on an extremely small sample of 17 years. More recently, Choi (1999) assesses the effect of concentration (ratio of value added of firms with capital asset greater than 500 billion won to total value added) on FDI (number of

⁹ Delphi Automotive Systems Corporation acquired Daewoo Precision Industries, Ltd. & Daewoo HMS, Co., Ltd. in 1998, and Delphi Diesel Systems Korea, Ltd. acquired Lucas Diesel Korea in 2000. (Hong, Y.S. and Yun, M. 2000)

cases or amount) and found positive correlation between the two variables for the years 1994-1996. However, the coefficient was not significant. Again, the sample is quite small, with 11 industries and three years.

The current study presents a very simple econometric analysis, investigating the impact of FDI on two conventional measures of market power, the three firm concentration ratio and price cost margin through a simultaneous estimation, under the traditional IO framework. The simultaneous estimation technique is adopted since the foregoing discussion suggests that concentration, price cost margin, and FDI are all likely to affect each other, being determined simultaneously.¹⁰

A. The Data

This study employs a pooled data set on a cross section of 13 industries for the years from 1991 to 1997. All nominal values are converted to 1995 prices, using producer price index, and for the trade data, export and import price index, published by the Bank of Korea. Data on concentration, midsize and shipment was provided by the Korea Development Institute. They are calculated from the *Report on Mining and Manufacturing Survey*, published by the National Statistics Office. This is census data at the 8-digit establishment level, using the Korea Standard Industry Classification

¹⁰ Hausman specification error test shows that indeed, simultaneity is present.

(KSIC). All other financial data are from *Analysis of Financial Data* published annually by the Korea Development Bank.

The FDI data was acquired from *World Investment Directory 2000* published by UNCTAD. Because stock data was not available, cumulative FDI is used as a proxy. The export and import data are from *Korea Trade Information Services (KOTIS)* internet database. The trade data uses the HS code.

FDI and trade data is converted into won using *Bank of Korea's* standard market average exchange rate of the relevant year. Standard market-average exchange rate is the ratio of sum of daily inter-bank exchange rate to total traded amount. Since the exchange rate was not on a free floatation system before 1997, the exchange rate fluctuation would not have been great during the period under the study, and this would be a reasonable exchange rate to use.

A big problem is that published FDI data is desegregated into only 13 industries. Thus, the concentration ratio used in this study was averaged, using industry shipment as weights, to match the FDI classification, which is a mixture of industries at the 2 digit and the 4 digit level. This has led to a great loss of information, but was unavoidable. Similarly, the trade data which uses the HS code, is regrouped according to the FDI industry classification (see <Table II-1> for comparison of

different industry classification systems).

<Table II-1> Comparison of Industry Classification Systems

FDI	KSIC Code	HS Code
Food, beverages and tobacco	D15 , D16	02,0302~0307,04,06,07,08,09,11,12,13,15,16,17,18,19,20,21,22,23,24
Textiles, leather and clothing (including chemical fibers)	D17, 18, 19, 243	41,42,43,5002~5007,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65
Wood and paper	D20, 21	44,45,46,47,48
Basic Chemicals (except fertilizers and nitrogen compounds)	D24 (2411, 2422, 2424), 25	2801~28.43,2846~2851,2901~2908,2910~2935,2942,3201~3215,3302~3307,3401~3407,3701~3707,38,39,40,7104
Fertilizers and nitrogen compounds	D2412	3101~3105
Pharmaceuticals, medicinal chemicals, and botanical products	D2423	2909,2936~2941,30
Coke, petroleum products and nuclear fuel	D23	2704,2706~2708,2710~2713,2844~2845
Non-metallic mineral products	D26	2714~2716,68,69,70,7101~7105,74,75,76,78,79,80,81
Basic metals and metal products	D27, 28 ¹⁾	7106~7112,72,73,82,83
Machinery and equipment	D29	8401~8468,8474 ~8485
Electrical and electronic equipment and apparatus	D30, 31, 32, 33	8469~8473,8501~8548,90,91
Motor vehicles and other transportation equipment	D34, 35	86,87,88,89
Other manufacturing (includes toys, furniture etc., and publishing, printing, data replication)	D36, 37, 22	4003~4004,4707,49,66,67,7113~7118,7204~7205,7404,92,93,94,95,96, 97

Note: 1) D28 in KSIC includes some machineries and equipment.

Source: Report on Mining and Manufacturing Survey; Interview with Chang, K.T. of KISC. Korea Customs Research Institute. *Tariff Schedules of Korea*.

B. Hypothesis and Variables

1) Concentration

Concentration is held to be a linear function of entry barrier variables such as economies of scale, capital intensity and advertisement, growth rate of the market, and excess profit. These variables have been extensively tested in the literature. FDI is a relatively new addition to the list:

$$CR3 = f(MID, CAPIN, ADV, GROWSH, FO, PCM),$$

where CR3, the dependent variable, represents concentration, measured by the conventional three firm concentration ratio.¹¹ Concentration ratio is not the best index for market power because it does not reflect the relative market power among the top firms and the number of firms in the industry as a whole are not accounted for. Further, the determination to base the ratio on top *three* or *four* or *ten* firms is arbitrary, and concentration ratios will differ, depending on the number of top firms chosen. However, the index is commonly used because it is simple to measure and easy to interpret.

In general, the Korean market has been heavily concentrated. The top three firms accounted for more than half of the sales in 76 percent of the markets and 9

¹¹ The weighted average concentration ratio is given by $(\sum CR_{3ij} \cdot S_{ij}) / (\sum S_{ij})$, where CR_{3ij} is the three firm concentration ratio of the i^{th} sub-industry in the j^{th} industry; S_{ij} is the size of the i^{th} sub-industry in the j^{th} industry, and n_j , number of sub-

percent of the markets were monopolies in 1994 (World Bank 1999: 67-69). However, over time, the level of concentration has abated. Top three firm concentration was on average 49 percent during the 1990s, with small variation from year to year (see <Table II-2>), compared to the average of 59.3 percent during the 1980s.¹² There is however, large sectoral variations, ranging from the heavily concentrated petroleum and fertilizer (with average CR₃ of 78.9 and 75.8 respectively) to the competitive textiles and other industries including furniture, toys and publishing (with average CR₃ of 27.3 percent and 30.2 percent, respectively) as <Figure II-1> shows.

<Table II-2> Concentration Ratio: Annual Averages of 13 Manufacturing Industries

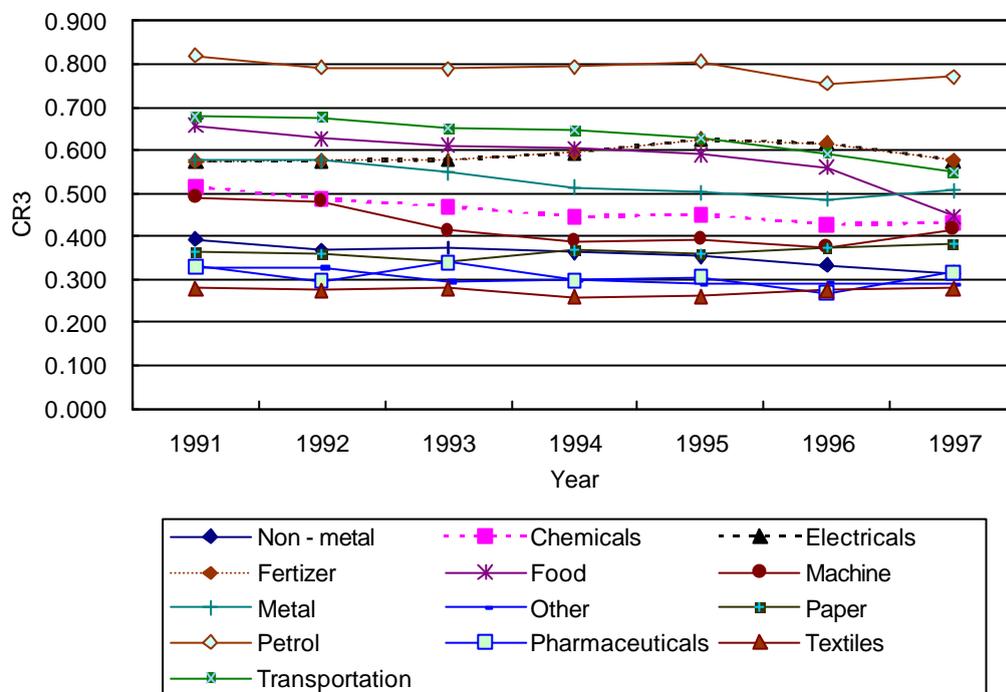
(unit: %)

	1991	1992	1993	1994	1995	1996	1997	Average: 1991-1997
CR3	52.4	51.1	49.8	48.6	48.6	46.7	45.9	49.0

industries in the jth industry (Lee, Y.K. et al 1984: 91)

¹² There is some difficulty in directly comparing the figures from the two decades. See KDI 1999 for detail.

<Figure II-1> Concentration Ratio by Sector: 1991-1997



MID represents economies of scale, or the optimal plant size, measured by the ratio of the “mid-point” plant size to total industry shipment. CAPIN represents capital intensity, measured by fixed asset per employee. ADV represents advertisement intensity, measured as a ratio of advertisement expense to sales. These three variables are proxies for entry barriers. If there is economies of scale, larger firms will be more cost efficient; if capital requirement is greater, larger firms with better access to capital would be more advantaged; and product differentiation with advertising induces brand loyalty, increasing required advertising expenses and

inhibiting new entry. The greater these barriers to entry, the greater market concentration will be and therefore, their coefficients are predicted to carry positive signs.

GROWSH represents market growth, measured as year on year growth of shipment. Large, leading firms usually do not grow as rapidly as smaller firms, and if these leading firms do not grow as fast as industry growth, they will be negatively correlated with industry growth, and would mitigate concentration effect. Therefore, this variable is expected to carry a negative sign. However, as discussed above, Davies and Lyons et al. (1996), show that market expansion or growth (ie, trade integration in EU) in R&D intensive industries lead to greater competition and ultimately, to greater concentration. If this effect is greater, the coefficient will be positive.

FO represents foreign presence or degree of foreign ownership, measured by the ratio of cumulative FDI to fixed asset. As explained earlier, FO usually shows a negative relationship with concentration in developed countries, while it shows a positive relationship in developing countries. How it would affect Korean industries, which are fairly highly concentrated, is an empirical question.

FDI is not the only foreign source of competition. In an open economy, imports would affect the competition process and concentration levels. However, it

would not be appropriate to introduce a variable representing imports directly in the concentration equation since the concentration ratio used here does not include imports, and exports are not subtracted. This study therefore focuses on the impact of FDI on concentration. The choice of a multinational to service a market through FDI or imports, however, is taken account of in the FDI equation.¹³

PCM represents price cost margin, or super normal profit. This variable is measured by the ratio of value added less wage and salary to sales. The positive correlation between price cost margin and concentration is fairly well established in the literature, although the direction of causality is not very clear. Most probably, there is a positive feed back mechanism, with higher profitability leading to greater concentration and concentration leading to higher profitability.¹⁴ Its coefficient is therefore expected to be positive.

2) Profitability

Price cost margin, or the Lerner Index of monopoly power (the inverse of

¹³ Generally, one would expect imports to increase competition and lower concentration levels. However, this process is likely to be complex, the ultimate market impact being different depending on the channel and types of imports. For example, if a large, dominant incumbent in a differentiated market imports a certain foreign brand through exclusive licensing to sell in the domestic market, this would probably not lower market share of the incumbent. There would be competition between domestically and foreign produced products but there is no increased competition among firms in the domestic market. An estimation of the concentration equation including import penetration returns an insignificant coefficient, which is positive in the OLS model and negative in the 2SLS model. This result is not reported separately.

¹⁴ For a comprehensive survey of empirical work relating concentration and profitability, and discussion of related measurement problems, see Hay & Morris (1993), Chapter 8.

demand elasticity) is often considered to be a better proxy for market power than concentration ratios. Following previous studies, price cost margin is held to be a linear function of advertisement, efficiency, debt, foreign presence, and concentration:

$$PCM = f(KOR, ADV, VPE, DEBT, FO, CR3),$$

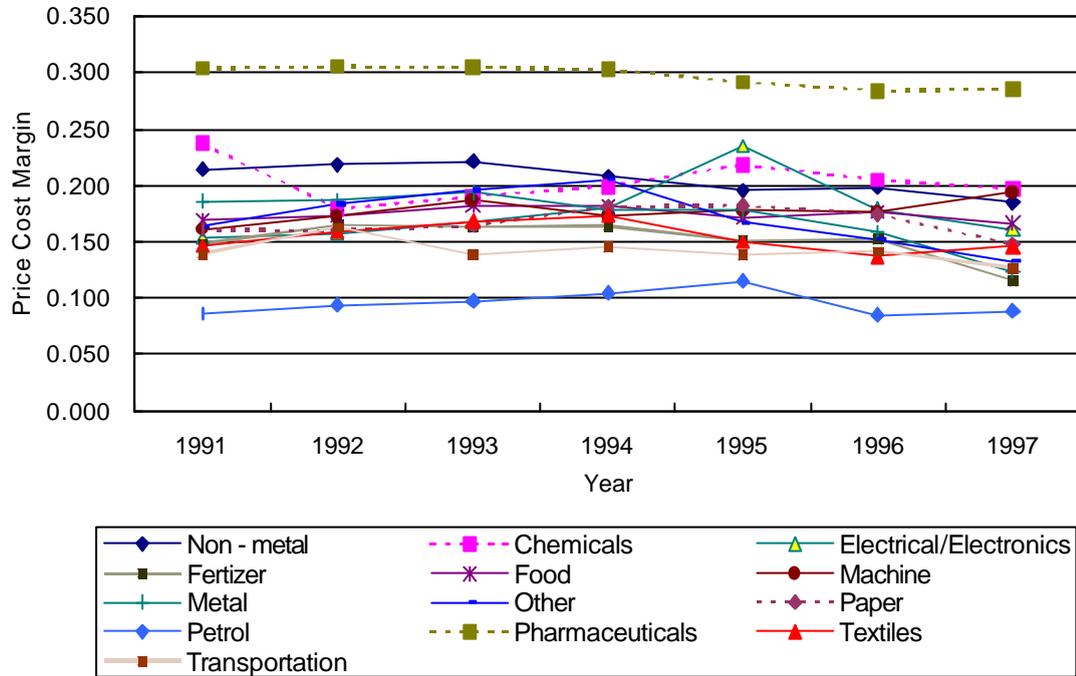
where as before, PCM represents price cost margin, measured in the same way.¹⁵ The average price cost margin is 0.176. It increases slightly between 1993 and 1995, but falls thereafter, especially in 1997 (see <Table II-3> and <Figure II-2>). Price cost margin is largest in the pharmaceuticals, whereas it is lowest in the petroleum.

<Table II-3> Price Cost Margin: Annual Averages of 13 Industries in Manufacturing

	1991	1992	1993	1994	1995	1996	1997	Average: 1991-1997
Price Cost Margin	0.174	0.178	0.183	0.184	0.182	0.171	0.159	0.176

¹⁵ For price cost margin, most empirical studies use accounting measures, usually the ratio of profit to sales revenue. This can be given by $(P_t Q_t - AC_t Q_t) / P_t Q_t$. If average costs are constant, this equals $P - MC / P$. In turn, $P - MC / P = [1 - (1/P) MC] / 1 = (1 - 1/P) \cdot [P + Q (dP/dQ)] = (Q/P) \cdot (dP/dQ) = 1/|\epsilon|$, where $MR = MC = P + Q(dP/dQ)$ and $|\epsilon|$ = demand elasticity. A monopolist operates where $|\epsilon| > 1$. Therefore, the Lerner Index, $1/|\epsilon|$ ranges from 0 to 1. The market approaches perfect competition as $1/|\epsilon|$ goes to 0, and approaches monopoly as the index goes to 1 (Lee 1984: 64. Hay & Morris 1993: 220)

<Figure II-2> Price Cost Margin by Sector: 1991-1997



KOR represents capital to output ratio, here measured by capital to sales ratio.

This variable is a control variable, taking account of risk-taking costs of capital not reflected in accounting measures of profit. Since return on sales measure will be systematically biased upwards for more capital intensive industries, this variable is predicted to be positively correlated to price cost margin.

VPE, measured by value added per employee, is a productivity measure to represent firm efficiency. This variable was incorporated in an effort to distinguish the impact of efficiency and concentration on excess profit, and is expected to be positively

correlated with super normal profit. The claim is that higher profit is a rightful return to greater efficiency (lower costs, higher quality, greater technological development, better management, etc).

DEBT represents the degree of corporate leverage, measured by debt to equity ratio. Following Gupta (1983), this variable is introduced as an important explanatory factor for price cost margin. By including this variable, Gupta attempts to test the theory of cost of capital against the risk premium hypothesis. The former holds that debt is cheaper than equity, and predicts leverage to be positively correlated with price cost margin whereas the latter interprets debt as an inverse measure of business risk and therefore predicts it to be negatively correlated. Given the high level of leverage of Korean corporations, it would be interesting to see how this term behaves.

FO and CR3, again represent proportion of foreign ownership in the industry and three firm concentration ratio, respectively. As in the concentration equation, FO would be negatively associated with price cost margin if it acts as a competitive force as in developed countries, or positively correlated if it acts as a concentrating force as in developing countries. CR3, as previously noted, is predicted to have a positive impact on price cost margin.

3) Foreign Ownership

Foreign ownership is taken to be a linear function of host country market size, tariff barriers, factor cost, asset advantages, concentration level and profitability:

$$FO = f(DEM, IMPEN, WAGE, RD, PCM, CR3),$$

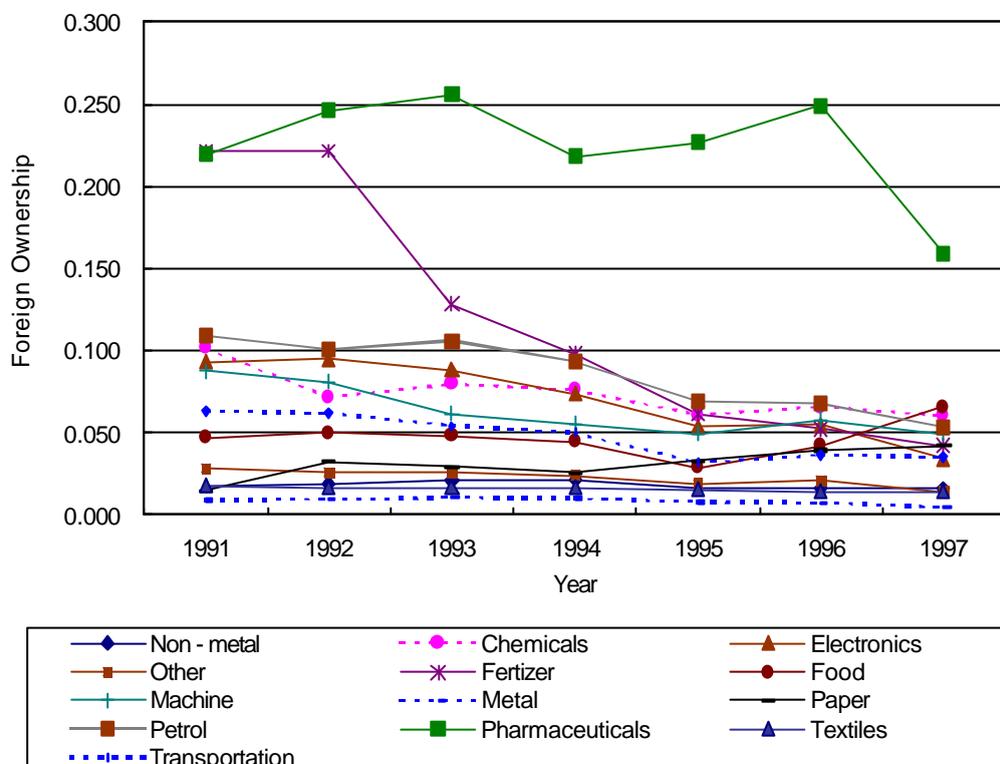
where FO represents foreign ownership as before. FDI formed a relatively low proportion of total gross capital formation in Korea. During 1986-91, FDI's contribution to total gross capital formation was 1.1 percent. Looking at the manufacturing sector alone, the ratio of cumulative FDI to fixed asset is not small, reaching an average of 7.92 percent in 1991. This ratio, however, shows a steady decline, falling to 4.5 percent in 1997. By industry, the proportion of foreign ownership was highest in pharmaceuticals (22 percent) during the period under study. Fertilizer, chemicals, petroleum and electrical and electronic equipment also show high proportions of FDI (see <Table II-4> and <Figure II-3>).

<Table II-4> Foreign Ownership: Annual Averages of 13 Manufacturing Industries

(Unit: %)

	1991	1992	1993	1994	1995	1996	1997	Average: 1991-1997
Foreign Ownership	7.922	7.938	7.119	6.213	5.190	5.577	4.550	6.358

<Figure II-3> Cumulative FDI to Fixed Assets by Sector: 1991-1997



Large and profitable markets are likely to attract multinationals. The variable DEM represents domestic market size measured by shipment less exports, and plus imports. PCM represents price cost margin as before. These variables are, therefore expected to be positively correlated to foreign ownership.

IMPEN represents import penetration, measured by ratio of imports to shipment plus imports, less exports. This is a proxy for effective tariff rate. If trade barriers such as tariffs are high, MNCs will prefer to invest directly than import; ie, FDI

and imports are substitutes and the coefficient for this variable should be negative. However, tariff jumping is not the only consideration for foreign investors. A foreign investor may generally prefer an open trading regime, particularly if it is an export oriented firm producing in a developing country, importing most of its intermediate goods. The sign for this variable therefore cannot be determined *a priori*.

Wage represents wage per employee, and reflects the most important factor cost of a host country. Since high factor cost would inhibit FDI, the coefficient of this variable is expected to be negative. Modern theories of FDI attribute the success of multinationals to having some advantageous assets that are corporate specific, such as technology. Such firms are expected to engage in greater level of R&D, and this is represented by the variable RD, which is the ratio of R&D expenses of the firm to total shipment. All the variables are summarised in <Table II-5>.

<Table II-5> Summary of Variables

Variable	Explanation	Predicted signs
CR3	Three firm concentration ratio. Sum of market shares of top three firms to total industry shipment.	+ (PCM), +/- (FO)
MID	Ratio of size of the mid-plant firm to industry shipment.	+ (CR3)
CAPIN	Capital intensity. ((Tangible Fixed Asset – Construction in Progress)/ Number) of Employees.	+ (CR3)
ADV	Advertising intensity. (Advertising expenses / Sales)	+ (CR3), + (PCM)
RD	R&D intensity. (R&D expenses/ Total shipment)	+ (FDI)
GROWSH	Relative growth of shipment from the previous year $((S_t - S_{t-1}) / S_{t-1})$	+/- (CR3)
FO	Cumulative FDI / Fixed asset.	+/- (CR3), +/- (PCM)
KOR	Ratio of capital to sales.	+ (PCM)
VPE	Value added per employee.	+ (PCM)
DEM	Domestic demand. (Total industry shipment – exports + imports)	+ (FO)
PCM	Price-cost margin. ((Value added-(wage + salary))/ Sales)	+ (FO), + (CR3)
DEBT	Debt to equity ratio.	+/- (PCM)
IMPEN	Import penetration. (Imports/ DEM)	+/- (FO)
WAGE	Wage per employee.	- (FDI)

C. Estimation Results

Price cost margin, concentration and foreign ownership are all likely to be endogenous variables, being determined simultaneously. To directly take this into account, a simultaneous estimation of concentration, price cost margin and foreign

ownership equations, has been undertaken. The estimation is done in first difference form, to remove correlation between the explanatory variables and the error term, and therefore to remove any spurious correlation. All three equations are over-identified.

Both OLS and 2SLS results are presented in <Table II-6>. In the 2SLS, one period lagged variables of concentration ratio, price cost margin and foreign ownership are used as instruments. A constant is also added as an instrument. Taking first differences and using lagged variables as instruments resulted in reduction of the sample size from 91 to 65, causing a significant loss of degrees of freedom.

In the OLS model, the only significant variable in the concentration equation is price cost margin. This variable is positively correlated with concentration ratio as expected. Other variables are all insignificant. Therefore, focusing just on the signs, entry barrier variables such as mid-plant size and capital intensity are positive as expected, but advertisement and market growth carry unexpected signs. This result indicating that market expansion would induce greater concentration is interesting, and would lend support to the result of Davies and Lyon et al (1996) with respect to market integration in the EU for R&D intensive industries. Foreign ownership is negatively signed, indicating that greater competition from foreign investment reduces concentration.

<Table II-6> Simultaneous Estimation Results

A. OLS

Dependent Variables	Independent Variables														Goodness of Fit	
	MID	CAPN	ADV	GROWSH	FDI	PCM	DEM	IMPEN	WAGE	RD	CR3	KOR	DEBT	VPE	Adj. R ²	DW
CR3	0.086 (1.239)	0.002 (0.043)	-0.008 (-0.100)	0.026 (0.718)	-0.092 (-0.564)	0.408* (2.291)									-0.148 (0.026)	1.660
FDI						-0.025 (-0.191)	-3.43x10 ⁻⁴ (-0.522)	0.081 (1.175)	-0.002* (-1.694)	0.180 (0.550)	-0.092 (-1.064)				-0.061 (0.019)	1.992
PCM			0.008* (1.654)		0.114 (1.250)						0.206** (3.259)	0.035* (1.661)	-7.66x10 ^{-5**} (-2.794)	5.51x10 ^{-4**} (3.321)	0.309 (0.015)	2.287

B. 2SLS

Dependent Variables	Independent Variables														Goodness of Fit	
	MID	CAPN	ADV	GROWSH	FDI	PCM	DEM	IMPEN	WAGE	RD	CR3	KOR	DEBT	VPE	Adj. R ²	DW
CR3	-0.01 (-0.093)	0.007 (0.071)	-0.018 (-1.378)	0.054 (0.805)	1.233** (2.015)	0.473 (1.352)									-1.1 (0.038)	1.459
FDI						-0.256 (-1.040)	4.21 x10 ⁻⁴ (0.426)	0.052 (0.551)	-0.001 (-0.968)	0.448 (0.941)	0.470 (1.543)				-0.729 (0.025)	1.635
PCM			0.013 (1.507)		-0.459 (-0.870)						0.740** (2.483)	0.045 (1.185)	-4.14x10 ⁻⁵ (-0.894)	5.51x10 ⁻⁴ (1.552)	-0.985 (0.024)	1.365

Note: ** Significant at 1% or 5%. *Significant at 10%. Figures in () are t-ratios.

In the price cost margin equation, all the variables are significant except foreign ownership, which is positively signed. Capital-output ratio, advertisement, and value per employee and concentration ratio all carry the expected positive signs. Debt carries a negative sign, lending support to the risk premium hypothesis, (ie, high level of debt signifies lower risks, and therefore lower profits). The coefficient for this and the efficiency variable is very small. By far the greatest factor positively affecting price cost margin is concentration.

In the foreign ownership equation, only wage is significant, which is negatively signed as expected. Again, focusing only on the signs, market size and R&D is positively signed as expected, while IMPEN is positively signed, indicating that import and FDI are complements rather than substitutes in the Korean case. That is, multinationals in Korea seems to prefer a generally open trade and FDI regime rather than choosing FDI or imports as two alternative ways to service the Korean market.

Concentration and price cost margin are negatively correlated with foreign ownership. While it would be reasonable that multinationals should be attracted to less concentrated markets, it is not obvious why they would be attracted to markets with lower price cost margin. It might be explained in the following way. Since the estimation is done in the first difference form, this may mean that multinationals prefer

stable markets. In other words, MNCs would avoid markets where profitability fluctuates widely. The pharmaceutical industry may be a good example of this. As Figures II-2 and II-3 show, level of foreign ownership is highest in the pharmaceutical sector, and so is the level of price cost margin highest in this sector. However, fluctuation in price cost margin for pharmaceuticals is very small over time, compared to other sectors. At the same time, concentration is relatively high in this sector. The relationship between foreign ownership and price cost margin cannot be said with certainty however, because the coefficients are not significant.

Almost all variables become insignificant in the 2SLS model, which is frequently the case in simultaneous estimations. However, foreign ownership becomes significant in the concentration equation, and now carries a positive sign. This indicates that when simultaneity is taken account of, foreign ownership has a significant concentrating effect. At the same time, the concentration ratio in the FDI equation is also positive. That is, foreign investment seems to be attracted to markets with greater concentration. This is possibly because concentration is an indication of higher profits, as the concentration ratio in the price cost margin equation is positive and significant. The reverse relationship is also positive, though not significant. Thus there is strong indication that there is positive feedback between concentration and price cost margin.

On the other hand, greater foreign ownership leads to lower price cost margin, which is an opposite result from when simultaneity is not taken account of, although the sign is not significant. The reverse relationship is also negative, again indicating that FDI is attracted to markets where price cost margin is lower. The relationship between foreign ownership and price cost margin cannot be said with any certainty however, because the coefficients are not significant either in the OLS or the 2SLS model.

All the other market structure variables are insignificant, though the signs show similar patterns to the OLS results. In the FDI equation, market size R&D, and wage are all insignificant, but they carry expected signs. Import penetration, also insignificant, again carries a positive sign, indicating that import and FDI are complements rather than substitutes in the Korean case.

Summing up, FDI is more likely to increase concentration than not, since the positive relationship is significant in the 2SLS model. Concentration leading to higher price cost margin also seems to be a strong result. From this one can infer that FDI would contribute to increasing price cost margin indirectly, through its upward impact on concentration. The direct impact of FDI on price cost margin is not conclusive, as this correlation is not significant. However, focusing only on the signs and relying on 2SLS results, FDI seems to be negatively correlated with price cost margin in both

directions. This can be interpreted as multinationals being attracted to markets where profits are stable (and probably high), but competing profit away as they enter these markets.

D. Limitations

This study is a preliminary one and its results cannot be regarded as conclusive. The estimations are limited in many ways. First of all, the industries are at a highly aggregate level, and may not accurately reflect competitive dynamics at the firm level. This may be particularly damaging for estimation of the price cost margin equation, variables of which are mostly measurements of firm level performances. A firm level study would be an obvious improvement.¹⁶

Most of all, the estimated equations are quite *ad hoc*, and not strongly grounded on a theoretical model, though it follows conventional IO framework, and includes variables held to be important in numerous prior studies. A theoretical model describing the interaction between concentration, excess profit and FDI, and a more direct measure of market power (eg, demand elasticities) would lead to a better designed behavioral equation to be estimated. Including a policy variable in the FDI equation

¹⁶ A similar study using firm level data is under progress by the authors.

would also be important, since changes in the FDI regime has powerfully influenced FDI entry. Exchange rate risks and asset prices are other relevant factors affecting FDI not taken into account of in this study. These variables would be even more important for post crisis analysis, as asset prices plummeted and exchange rate fluctuation has become greater. Further, dynamics and non-linearities have not been tested. A dynamic model would be particularly useful, as concentration seems to lead to greater concentration in the next period. This also implies that market dominance by multinationals may be built up over time after entry, and once dominance is established, it may be difficult to dislodge.

This section looked at the impact of FDI on competition during the pre-crisis period, at a highly aggregated level. Apart from the limitations discussed above, the empirical study does not take into account the following three factors:

- 1) it does not take into account the differences between M&A and green-field FDI;
- 2) it does not analyse post-crisis impact of FDI; and
- 3) it does not show the *process* through which FDI affects competition.

The next section attempts to correct for this weakness through two detailed case studies (both of which are M&A cases). It is hoped that these case studies will provide a useful complement to the quantitative study. The introductory part of the next section also provides some insight on the characteristics of cross border M&As in Korea since

1995 when it was allowed, and the M&A review mechanism of the Korea Fair Trade Commission (KFTC).

III. Impact of M&A by Foreign Multinationals on Competition

1. Cross-border Merger Trends and Application of Competition Law

In the introductory Section, it has been shown how M&A has become an increasingly popular channel of FDI inflows to Korea¹⁷. The Korea Fair Trade Commission (KFTC) statistics inform us in more detail, about the nature of the recent cross border M&As. <Table III-1> shows that in 1997, only 4.5 percent (19 cases) of total M&As were cross border. This increased rapidly to 27.2 percent (132 cases) and 30.2 percent (168 cases) in 1998 and 1999 respectively. Asset and business acquisitions formed 10.5 percent of each in 1997. This increased significantly to 29.5 percent and 22 percent respectively in 1998 and 36.3 percent and 29.2 percent respectively in 1999. On the other hand, establishment of new firms through mergers decreased from 68.4 percent in 1997 to 39.4 percent and 22 percent in 1998 and 1999 respectively.

Most of the cross border M&As in 1997 (92.9 percent) were vertical mergers, indicating that the merging firms were trying to expand their sales operations in the

¹⁷ For a general discussion of M&A, comparing it to green-field FDI, see *World Investment Report 2000*.

Korean market. The trend reversed in 1998 and 1999, with horizontal (44.7 percent in 1998 and 26.2 percent in 1999) and combination (40.2 percent in 1998 and 67.9 percent in 1999) mergers constituting the bulk of total cross-borders. Since horizontal mergers tend to have greater anti-competitive effects than vertical mergers, this reverse in trend suggests that mergers involving foreign firms may have increasingly concentrating effects (KFTC 1998: 109, KFTC 2000).¹⁸

<Table III-1> Trends in Cross Border M&A by Type

(unit: number of cases, %)

Year	M &A Type	Total Cases	Stock Acquisition	Mergers	Business Acquisition	Interlocking Directorate	New Establishment
1997	Total M&A Cases	418	130	75	23	27	163
	Cross-border M&A	19 (4.5)	2 (10.5)	1 (5.3)	2 (10.5)	1 (5.3)	13 (68.4)
1998	Total M&A Cases	486	92	151	81	32	130
	Cross-border M&A	132 (27.2)	39 (29.5)	9 (6.8)	29 (22.0)	3 (2.3)	52 (39.4)
1999	Total M&A Cases	557	146	145	111	42	113
	Cross-border M&A	168 (30.2)	61 (36.3)	11 (6.5)	49 (29.2)	10 (6.0)	37 (22.0)

Source: Korea Fair Trade Commission (KFTC) 2000.

Note: Figures in brackets are share of cross-border M&As.

Interestingly, the three orders for corrective measures by the KFTC in 1998 all involved M&As by foreign parties. In the case of P&G's acquisition of Ssangyong Paper Ltd, the KFTC ruled that the merger would adversely affect competition in the

¹⁸ How M&A may affect competition process differently from greenfield FDI was discussed in section II.1

hygienic band market, and ordered the sales of manufacturing facilities and industrial property rights to a third party. When a joint venture of three companies, Hansol Pulp and Paper, Abitibi Consolidated (Canada) and Norske Skog (Norway), acquired Hansol's paper manufacturing business, the KFTC concluded that the acquisition would limit competition. The merging parties were ordered to maintain the market share of the joint venture to be below 50 percent until 2004, when import tariffs on newsprint would be lifted. For Gillette Company's acquisition of Rocket Korea Ltd, the KFTC ruled that it would limit competition in certain segments of the battery market and ordered that the product price of the acquired firm should not rise above a certain level for the next five years (Yun 2000).

Three cases out of 132 cases do not warrant excessive concern about economic concentration increasing through cross-border M&As. Further, the *quality* of competition (i.e., competition from firms with better technology or managerial practices) is as important as the *degree* of competition. Nevertheless, it is clear that in particular sectors, the presence of an individual multinational can be large. In the long run, increased concentration levels may allow dominant multinationals in a given industry to raise prices. The following case studies demonstrate some of these aspects related to post crisis cross border mergers.

2. Case I: The Seed Industry – Investment by Seminis¹⁹

A. The Vegetable Seed Industry

The vegetable seed industry is a case where acquisition by foreign firms has been extensive after the crisis. There were 48 major seed producing companies in Korea as of 1998 and the number of firms increased to 52 by 1999. Besides these, there are known to be hundreds of very small seed producing companies. Of these, top five firms were Hungnong, Choong Ang, Dongbu-Hannong Chemicals, Seoul Seed Co., and Nong-Woo. After the crisis, three of the top five, Hungnong, Choon Ang, and Seoul Seed Co. have been acquired by foreign multinationals. A non top five firm, Chung-Won, was also acquired by a foreign firm (see <Table III-2>).

¹⁹ The case study mainly relies on an interview with a Seminis executive and Annual Report, as well as other PR materials of Seminis, if not otherwise cited.

<Table III-2> FDI in the Seed Industry: 1997-1999

(unit: US\$1000, %)

Acquiring Firm (country of origin)	Target Firm	Notification Date	Investment Amount (ownership share)	Type of Investment	Product
Sakata Seed Corporation (Japan)	Chungwon Seed Co. Ltd.	1997.3.6	10,472 (100)		Vegetables
Novatis Produkte A.G. (Switzerland)	Seoul Seed Co. Ltd.	1997.10.9	38,078 (100)		Vegetables
Seminis Vegetable Seeds.Inc (US)	Hungnong Seed Co. Ltd.	98.6.26	80,000 (58.81)	New stock	Vegetables
		98. 6.30	14,855 (11.19)	Outstanding stock	
		98.12	8,800 (5)	Outstanding stock	
		99.8.12	46,600 (25)	Outstanding stock	
		Total	148,518 (100)	Total equity capital	
Seminis Vegetable Seeds.Inc (US)	ChungAng Seed Co. Ltd.	1998.9.24	18,376 (100)	Outstanding stock	Vegetables
Seminis Vegetable Seeds.Inc (US)	Seminis Asia Co.	1999.12.9	1000 (100)	Greenfield	Research, Packaging and Distribution

Source: MOCIE 1999. *Internal Database.*

Prior to these mergers, the Korean seed industry was known to be seriously inefficient. The seed companies did not need to engage in much innovation or increase production efficiencies because their growth had mainly depended on the expanding market as farmers buying seed commercially were rapidly increasing. By the late 1990s, however, market expansion had come to a virtual stop, and yet seed companies had not adjusted to changing circumstances. Moreover, at this time, there were no

legal means to protect new varieties, and therefore, there was little incentive for technological development.²⁰ Very small firms were also used to copying the new varieties introduced by bigger firms and selling them at a “dumping” price. Financial positions of bigger firms became increasingly precarious, and yet no managerial efforts were made to correct the situation. Restructuring through M&As among bigger firms were simply not considered as a viable option, and only when the financial crisis exacerbated liquidity problems, most of the major firms had come to selling their companies to avoid bankruptcy.

Meanwhile, the international seed market is also showing a trend of consolidation. Rapid developments in biotechnology and its commercial application has increasingly escalated R&D expenses in the industry, which has led to increasing conglomeration among existing firms. In the vegetable seeds market, top six firms have 75 percent share of the international market, and as market growth has slowed in Western countries, seed multinationals are increasingly turning to emerging markets such as East Asia, where their market shares remain at low levels (Korea Seed Association). Intense competition among these oligopolistic multinationals in East Asia is therefore expected. Multinationals consider Korea to be an appropriate center

²⁰ The Seed Industry Act became effective in 2000. The Act protects breeder’s rights in conformity with the UPOV Convention.

for their Asian operations. They regard highly the available human resources, and necessary infrastructure such as transportation, communication and seed raising conditions. In addition, they consider indigenous seed varieties, as well as technology peculiar to these varieties to be complementary to their own resources. Given this underlying interest, the crisis which led to active encouragement of foreign investment as well as liquidity constrained domestic firm's willingness to sell, and favourable exchange rates which lowered asset values for foreigners became the catalyst for their active investment in Korea. On top of this, the passage of Seed Industry Act (effective 2000) as part of the TRIPS Agreement, also seems to have encouraged their participation in the Korean market.

B. Seminis Vegetable Seeds Inc.

Seminis Vegetable Seeds Inc. is headquartered in California, US, but it is a majority owned subsidiary of Mexico-based conglomerate Savia, which has leadership position in financial services, packaging and fresh foods. As of 1999, Seminis had a total asset of US\$ 993.3 million, and total sales of US\$530.6 million. It is quoted on the NASDAQ, and grew through a series of mergers. The strategy of Seminis has

been to keep the acquired firms as separate entities, each specialising in particular brands or regions. Three core subsidiaries, Asgrow, Petoseed, Royal Sluis have full product lines, whereas Bruinsma Seeds, California Quality Seeds, Genecorp, DiVine Ripe specialize in specialty brands in particular regions. Its recent acquisitions are Hungnong and Choong Ang in Korea, and Agroceres in Brazil. Together, these brands have captured an approximate 23 percent market share world-wide. Seminis has 70 research institutions and production facilities in 19 countries and its retail network is spread over 120 countries. Seminis is known to have developed 60 species and 8000 distinctive varieties of fruit and vegetable seeds.²¹

C. Investment of Seminis in Korea

Seminis has been studying the Korean market for two to three years before its investment, considering her an appropriate center for its East Asian operations. The multinational has entered the Korean market through three channels: 1) acquisition of Hungnong, 2) acquisition of Choong Ang and 3) establishment of Seminis Asia Corporation.

²¹ Seminis Annual Report 1999 and other public relations pamphlets. According to the World Seed Organization (<http://www.worldseed.org>), Seminis ranked as the 8th in the world seeds market, with a 4% market share of commercial

1) Acquisition of Hungnong Seed Co., Ltd.

Prior to the acquisition, Hungnong was the very top Korean firm in the vegetable seeds market, with a market share of 32 percent. Its main products are radish, cabbage, and chilli seeds. Hungnong is a medium-sized firm, with total asset of 143.7 billion won, total sales of 56.7 billion won, and 387 employees, as of 1997. Prior to the crisis, this firm had a very high debt to equity ratio of 611 percent, and therefore suffered from serious financial constraints, especially due to post-crisis hike in the interest rates. It had implored the Ministry of Agriculture for rescue but when this failed, had decided to sell to Seminis. Because the owner had wished to keep the firm in spite of worsening situation, it had only sold 70 percent (consisting of new and old shares) in the first instance in June 1998 but later sold the remaining 30 percent in three stages during 1998 and 1999 (see <Table III-2>). The total sales amounted to almost US\$150 million. This deal included Hungnong's debt, and turning over of all assets, including intellectual property owned by Hungnong. At the same time Seminis provided a loan of US\$ 35.6 thousand to Hungnong's subsidiary, Young-II Chemicals.²² In line with strategy of Seminis, Hungnong remains as a separate entity, specializing in

seeds market, based on 1996 sales.

²² Young-II was able to repay the loan in whole in 1999, and Seminis used part of this to acquire the remaining 30% of

particular products for a particular region, and prior management remains in full control of its operations. No personnel in managerial positions were dispatched from Seminis. However, restructuring of the firm was undertaken post acquisition, resulting in lay off of 10 percent of total employment. Further, as part of the contract, the selling party is prevented from engaging in seed business in Korea or abroad for the next seven years.

The selling party was quite satisfied with the deal. Although the sale price was low, this was mainly the effect of the exchange rate at the time of acquisition, and the interviewee believes that the asset evaluation process was thorough and fair. The constraint of 7-year moratorium on engaging in seed business was also accepted as reasonable by international practice. The selling party emphasized four basic benefits from the deal: **1) financial liquidity:** Hungnong resolved its most immediate financial problem and reduced its debt to equity ratio to below 100 percent; **2) exports:** it now has a channel through which to enter the international market. It had no exports prior to the acquisition, but after 1998, it had exported 3.1 billion won and in 1999, 12.2 billion won. On the other hand, while imports rapidly increased immediately after the acquisition, it declined to pre-acquisition levels by 1999. (7.7 billion won in 1998, 4.1 billion won in 1999); **3) technology transfer:** Hungnong had already acquired

Hungnong.

substantial level of technology over the years for developing varieties of indigenous seeds for radish, cabbage and chilli on a trial and error basis. However, it lacked systematic, or scientific research capabilities to develop new species. Neither did it have any technical cooperation with foreign institutions or firms from which to absorb new trends or technical information. Technological input from Seminis is therefore a valuable asset; **4) corporate governance and managerial know how:** new and transparent accounting and inventory system has been adopted. All expenses are now accounted for, of which the employees are duly informed. At the same time, compensation based on performance will slowly be instituted. Forecasting and inventory management is particularly important in the seed industry and therefore efficient managerial and financial techniques are particularly important. Until now, Hungnong had depended on expanding markets for its growth, unheeded by inefficient management. Further growth, however would not be possible without change. Investment of Seminis has therefore improved corporate governance in general, and managerial efficiency in particular.

2) Acquisition of Choong Ang Seed Company

Choong Ang ranked second in the domestic seeds market with a market share of around 13 percent prior to the acquisition. The sale of Choong Ang contrasts sharply with that of Hungnong. In this case the management no longer had interest in remaining in the market, though it too, had sold the firm due to financial constraints. Choong Ang sold 100 percent of its shares at one go in 1998 to Seminis, at US\$ 18.376 million.

As in the former case, Choong Ang remains as a separate establishment. However, Choong Ang was the strongest competitor of Hungnong, and Seminis had some difficulty in coordinating their operations. Seminis resolved this problem by a market sharing mechanism, under which each firm would specialise in different products. For example, Hungnong has exclusive rights to produce foreign varieties of cabbages while Choong Ang has exclusive rights in egg plants. Further, the former is partnered with Asgrow, while the latter with Royal Sluis for close cooperation, with the strict principle that partners do not compete, unless the market is sufficiently large to sustain competition. Simultaneously, seeds for vegetables in which Korean firms lack competitiveness, will be imported by Seminis. In effect, the two acquisitions resulted

in a complete restructuring of product portfolios of the two acquired companies.

3) Establishment of Seminis Asia Corporation

In August 1999, Seminis invested US\$ 10 million to establish Seminis Asia Corporation. This firm would concentrate on research and retailing, but would in fact act as the Asian headquarters, coordinating between Seminis and its subsidiaries in Korea. More specifically, the firm would undertake basic research, seed selection, packaging, retailing and quality control. Main technologies that Seminis Asia is expected to bring in are those relating to plant disease, pollution elimination and germination.

D. Competitive Impact.

Under normal circumstances, acquisition of Seminis would have been subject to M&A regulations under the *Monopoly Regulation and Fair Trade Act* (MRFTA).²³ However, until February 1999 amendment when all industries became subject to the Act,

²³ See Appendix for details on the merger regulations under the MRFTA.

the seed industry was exempt from the law, and was not screened by the KFTC.²⁴

Even though the acquisition of remaining shares of Hungnong took place after the amendment, the KFTC was not notified

The competitive effect of a merger is mainly assessed in terms of increased market share (concentration) and prices. <Table III-3> shows the changing market shares of the major seed producers. Hungnong remains as the first ranking firm after the acquisition, although its market share hardly changed before and after the acquisition. But its first ranking position, and 30 percent market share does give it a dominant position in the market, though not reaching the bench mark of 50 percent used to determine market dominant firms under the MRFTA. When the second ranking Choong Ang's market share is considered together, the total market share comes to around 45 percent, almost reaching the 50 percent benchmark. Although Hungnong and Choong Ang remain as separate entities, Seminis controls both, and their product portfolios have been restructured so that they can no longer be considered as competitors.

Meanwhile, total market share of top three firms comes to 49-57 percent, and this again is below the threshold adopted by the competition law, and the difference

²⁴ Although the KFTC had initially opened an investigation, it had subsequently abandoned the case.

between market shares among the top three are not regarded as sufficiently large to inhibit competition in the market using current competition law guidelines. In the long term however, the possibility of increasing market share or dominance of Seminis can be expected to be very high, when its own imports, operations of Seminis Asia and shares of the two subsidiaries are considered in conjunction.

<Table III-3> Changing Market Shares of Top Seed Producers

(unit: %)

	1997*	1998		1999*
		A*	B**	
Hungnong	32	30	26	32
ChungAng				12-13
Hungnong + ChungAng				44-45
Novatis Seed Co. Ltd.			19	13-4
Dongbu-Hannong Seed Co Ltd.			11	10
Others			44	

Note: The difference in the figures may arise from interview figures being based on the vegetable seed market only, while the KFTC figures being based on the seed market in general.

Source: * Based on interview figures. ** Based on KFTC 1999 figures.

To examine whether merging firms enjoy super normal profits through price increases post-merger, detailed information on product prices and production cost of relevant firms are required. However, these data are not readily available. The best readily available proxy for seed prices would be prices of vegetables, since prices of vegetables and vegetable seeds are known to move together. <Table III-4> shows the

price changes in radish, cabbage, and chilli, which are the three main products of the acquired firms. Prices for cabbages show a declining trend until 1999, but has increased enormously since 2000. Radish prices show an incremental, though consistently increasing trend since 1998. In the case of chilli, prices have increased substantially in 1999, but has stabilised in 2000, though the decline is small compared to past increase in prices. It seems that then, prices have generally increased post the merger. It is difficult to tell however, whether the increases were specifically due to mergers. Vegetable prices are largely determined by other factors such as weather and seasonal effects, so that such price information does not give sufficient insight for our purposes.

<Table III-4> Consumer Price Changes in Vegetables

(unit: won, %)

Product	Product Variety	Unit of Sales	1997	1998	1999	2000
Cabbage	Spring	1 unit	1774	1764 (-0.6%)	1032 (-41%)	2870 (178%)
	Fall	1 unit	1737	2133 (23%)	1369 (-36%)	3790 (177%)
Radish	Spring	1 unit	1072	1075 (0.3%)	1261 (17%)	1450 (15%)
	Fall	1 unit	638	815 (28%)	674 (-17%)	1140 (69%)
Chilli	Fire-dried	600g	4099	4020 (-2%)	6495 (62%)	5020 (-23%)
	Sun-dried	600g	5020	5093 (1%)	7572 (49%)	5950 (21%)

Note: Vegetable prices are based on April as the base month. Figures in brackets are percentage change from the previous year.

Source: Agriculture Forestry Fisheries Information Service 2000.

One incident, nevertheless lead us to suspect the increased market power of the merged entity. In July of 1999, the KFTC investigated a resale price maintenance case of Hungnong. Hungnong had unilaterally declared to all its retail outlets that if they sell under a consumer price limit it has set for “Hungnong Chilli,” it would stop its supplies. At the same time, it had reported to its mother company that this has enabled it to maintain the price of a new variety of seeds at a certain level, and that it had withdrawn its supplies from outlets where its policy had been violated.²⁵ It can be concluded from the above discussion that although the combined market share of Seminis and its subsidiaries does not technically reach the 50 percent market share bench mark, Seminis has established effective dominance in the vegetable seed market, and has price setting abilities at least in certain sub-product lines.

Considerations other than market shares (in absolute amount and in comparison to close competitors), and prices in examining competitive effects of mergers are possibility of new entry and competition from abroad. The seed industry in Korea is currently undergoing a consolidation process, and new entry is not expected. However, exports and imports are showing increasing trends and therefore competition from

²⁵ KFTC decision document, September 1999. Case No. 9907 *kyungchok* 1010

imports is expected to a certain extent. Nevertheless, most of these imports would be coming from multinationals such as Seminis, which has already established production facilities in Korea and therefore this cannot be seen to have real pro-competitive effect.

3. Case II: The Paper Industry – Investment by Pan Asia Paper and P&G

A. The Newsprint Paper Market

1) Background

The paper industry comprises almost 2 percent of total manufacturing in Korea as of 1999. At the same time, Korea was the 10th largest producer of paper products in the world. Thus, the paper industry is not an unimportant part of total manufacturing sector in Korea (see <Table III-5>). This industry is both energy and capital intensive, and is highly concentrated in most countries. The market structure in Korea was also highly oligopolistic, with four major producers operating prior to the acquisitions.

<Table III-5> Trend of Production in the Paper Industry by Major Countries

(unit: billion tons)

Country	1996	1997	1998	1999
U.S.A	82,161	86,225	85,855	88,064
Japan	31,012	31,034	29,888	30,631
China	26,430	27,440	27,800	29,608
Canada	18,419	18,968	18,723	20,208
Germany	14,733	15,930	16,310	16,742
Finlands	10,422	12,149	12,703	12,947
Sweden	9,018	9,756	9,880	10,071
France	8,531	9,143	9,161	9,603
Korea	7,681	8,364	7,750	8,875
Italy	6,954	8,031	8,245	8,568
Total	282,693	299,322	301,012	315,709

Source: Korea Paper Manufacturers' Association (KPMA) 2000. *Paper and Coated Paper Statistics Yearbook*

It was a growing market where demand exceeded supply until 1997. Consequently, firms had competitively invested in facility expansion and this resulted in heavy excess capacity as the financial crisis hit. The crisis caused large drop in demand and appreciation of the won, with adverse effect on cost of raw materials, 85 percent of which was imported. Even so, this was expected to be temporary, and the industry maintained stable profit levels. The paper subsidiaries were mostly sold off by conglomerates, which generally suffered from serious financial distress. They sought to alleviate its debt levels with proceeds from selling off this profitable part of their operation. Ssanyong, for example, paid back approximately 80 billion won of its debt with the proceeds. Corporate leverage of Hansol Paper decreased from 380

percent to 198 percent , after disposing of the Hansol Chonju factory (Jin 1999). Foreign investors were attracted to the Korean market because they expected it to resume strong growth, with paper consumption being only 45 percent of that in the US, and because Korea was a major exporter to China and Hong-Kong, the fastest growing markets in the world (*ibid*). In addition to new entry, incremental investment to acquire 100 percent ownership in existing local partners was also undertaken. Foreign investment is concentrated in the newsprint and hygienic band market because of the large proportion of domestic market in total sales (see <Table III-6>). The case study focuses on these two segments.

<Table III-6> FDI in the Paper Industry

(Unit: US\$ thousand, %)

Acquiring Parties(nationality)	Selling Parties (notification date)	Invested Amount (share)	Investment Type	Market Segment
Proctor & Gamble (Germany)	Ssangyong Paper Inc.(1978-1999)	197,076 (100)	Outstanding stocks	Hygienic band
Proctor & Gamble (U.S.)	Korea P&G(1992)	97,200 (100)	Newly issued stocks	Hygienic band
Kimberly-Clark Co.(U.S.) and 1 firm	Yuhan Kimberly Inc.(1969-1998)	53,780 (70)	1969: New investment (new stock) 1998 : Intra-firm loans, & outstanding stocks	Hygienic band
UNI-CHARM Co. (Japan)	Ssangyong UNI-CHARM .(1994-1999)	10,923 (90)	1994: New investment, (new stocks) 1999: New and outstanding stocks.	Hygienic band
Ahlstrom Pimex Holdings Pte.(Singapore)	Ahlstrom Paper Inc.(1999)	133 (80)	New investment, (new stocks)	Hygienic band, Trading
Bowater Incorporated(U.S)	Bowater-Halla Paper and pulp Inc.(1998)	223,000 (100)	New investment, (new stocks)	Newsprint, Pulp, Paper products Retailing, Trading

Pan Asia Paper Company Pte.Ltd. (Singapore)	POPCO Chongwon Inc.(1998)	60,000 (100)	New investment, (new stocks)	Newsprint, Trading Brokerage
	POPCO Chonju Inc.(1998)	940,037 (100)	Newly issued stocks.	Pulp, Newsprint, Paper board
Total		1,696,311		

Source: MOCIE 1999 *op.cit.*

2) Pan Asia Paper's Acquisitions of Chongwon and Chonju Plants.

Pan Asia Paper Co. Pte. was jointly established in Singapore in August 1998, by Hansol Paper, Abitabi-Consolidated, and Norske Skog with 33.3 percent share each of total capitalisation of 6 billion dollars. This firm established a Korean subsidiary, Pan Asia Paper Korea Ltd., to acquire Hansol's Chonju plant. Pan Asia Paper Korea Ltd. also forms a part of the Hansol Group, along with Pan Asia Paper Chongwon Co. Ltd., Hansol Paper, and Hansol CSN. The joint company took over Pan Asia Paper Chongwon Co. Ltd, which was initially Chongwon plant of Shino Paper, acquired by Norske Skog Korea, Norske Skog's Korean subsidiary. At the time of the merger, the Chongwon plant was operated as an independent subsidiary, with a view to merge in time.²⁶

The parties involved were large players in the market. Hansol Paper, the first ranking company had about 45 percent of the Korean newsprint market prior to the

²⁶ Norske Skog newly entered the Korean market in 1998 by establishing the subsidiary to acquire Shinho Paper (Chongwon plant). The KFTC approved the merger, considering it would provide effective competition against the top producers

acquisitions. Abitabi Consolidated, with head office in Canada, is the largest newsprint firm in the world, and its total sales amounted to 45,262 billion won in 1997. Norske Skog Industrier is a Norwegian firm, ranking 7th in the world market (first in the European market) in terms of production. Its sales amounted to some 31,509 billion won in 1997 (KFTC Press Release 5 June 1998). The joint company established in Singapore became the largest newsprint paper producer in Asia, with 30 percent of the market (excluding Japan). The company also has subsidiaries in Thailand and China.

3) Competitive Impact²⁷

The Korea Fair Trade Commission (KFTC) reviewed the acquisition (ie, the consolidation of Chonju and Chongwon plants under Pan Asia Paper) in November 1998. KFTC concluded that it would have significant anti-competitive effect. The market share of the merged entity was 56.2 percent on 1997 sales basis, which was also significantly larger than that of the second largest producer. Similar conclusion would apply based on market share (53.4 percent) as of January 1998 (see <Table III-7>). Under the Korean merger review criteria, this constitutes suppression of effective competition. The HHI increased by 952 from 2,783 to 3,735. Normally, an increase of

(KFTC Press Release November 26, 1998).

²⁷ This relies on KFTC's merger review document (November 1998). KFTC Decision No. 98-26/ Case No.

HHI by more than 100 raises competition concerns in major jurisdictions.

<Table III-7> Market Share Trends in the Newsprint Paper Market

(unit: tons,%)

	1996	1997	1998	1999 ¹⁾	2000 ¹⁾
Hansol Paper	728(56.2)	618(45.8)	186(41.9)	790,568(46.0) ²⁾	828,300(46.8) ²⁾
Shinho Paper	92(7.1)	141(10.4)	51(11.5)	-	-
Daehan Paper	191(14.8)	204(15.1)	67(15.1)	238,698(13.9)	251,275(14.2)
Saepoong Paper	224(17.3)	197(14.6)	58(13.1)	242,186(14.1)	249,090(14.1)
Bowater-Halla		155(11.5)	66(14.9)	243,938(14.2)	246,113(13.9)
Sampoong Paper	25(1.9)	21(1.6)	16(3.6)	19,875(1.2)	6,850(0.4)
Others ³⁾				183,845 (10.7)	190,222 (10.7)
Total	1,295	1,350	444	1,718,499	1,769,857

Note: 1) Figures for 1996-1998 are total sales based on KFTC data. Figures for 1999-2000 are production based on KPMA data. The two series are therefore not directly comparable but the shows similar trends.

2) Production of Pan Asia Paper, including that of Chongwon plant.

3) Others includes imports. For 1999 and 2000, imports constitutes only a very small, 0.03% and 0.1% respectively.

Source: KFTC 1998. KPMA 2000. *op. cit.*

There was less concern for price increases due to the merger. Although domestic price of the newsprint paper increased greatly after the price deregulation in 1994, domestic price was lower than the world price, and since domestic supply exceeded demand at the time of the acquisition, KFTC considered market environment not congenial for firms to raise prices.

Nevertheless, the capital intensity of the industry constituted a serious barrier

against new entry, and there was little import competition. Imports formed only 1 percent of total domestic demand in 1997, and none in 1998. Further, because of the 8 percent tariff to be scrapped only in 2004, no major increase in import was foreseen for a considerable period of time. At the same time, KFTC did not consider the merger to enhance efficiency or industrial competitiveness in a considerable way, nor contribute to public interest, under the pre-1998 exemption criteria.

Circumstantial evidence other than those considered by KFTC suggests that the merger would have considerable anti-competitive effect in the world newsprint paper market at large. The interviewee of Pan Asia Paper observed that Pan Asia Paper would be able to control prices, and in fact, the merger resulted in segmenting the world market into non-overlapping regions where the parties agreed not to compete. This came as part of an accompanying agreement. The three parties, therefore no longer competes in the world market as well as in the Korean market (Interview, at Pan Asia Paper, March 2000).

Despite all these indications of anti-competitive effect, the merger was approved, though on a conditional basis. KFTC ordered that the combined quarterly market share of Pan Asia Paper and Norske Skog Korea should not exceed 50 percent of the domestic market until 2004 when tariff would be eliminated, and to report to KFTC

every half year from 2000.

B. The Hygienic band Market²⁸

1) The Acquisitions

Proctor & Gamble GmbH (P&G hereafter) acquired 24.99 percent of Ssangyong Paper Ltd. from the Ssangyong Group, and then acquired 59.4 percent of Ssangyong Paper Ltd. through a public tender in November 1997, becoming a majority shareholder. P&G consecutively acquired remaining shares to accumulate 91.6 percent share by December 1997 (see <Table III-6>).

Proctor & Gamble GmbH (P&G) produces diapers, shampoo, soap, toothpaste, and hygienic band. It is a German subsidiary of US Proctor & Gamble Company, which holds 49.3 percent share of the former. Although a separate Korean subsidiary was established earlier in 1992, P&G preferred to acquire Ssangyong Paper through its German subsidiary

Ssangyong Paper produces diapers, shampoo, soap, toothpaste, hygienic band, toilet paper, and packing paper for industrial use. Some of Ssangyong Paper's diapers and sanitary napkin production is supplied by Ssangyong UNI-CHARM Ltd, through an

²⁸ This relies mostly on KFTC merger review document May, 1999. KFTC Decision No. 98-84/ Case No. 9801kikyul0063.

exclusive contract. Ssangyong Paper holds 45 percent share of UNI-CHARM and has the right to name half of the members of its board.

2) Competitive Effect

The KFTC regarded diapers, hygienic band, paper napkins and industrial packing paper as the relevant market, but considered the merger to have anti-competitive effect only in the hygienic band market. The diaper market was dominated by Yuhan Kimberly, Ssangyong Paper and LG Chemicals, and P&G Group's combined market share rose from a mere 6.6 percent to 31.5 percent consequent to the acquisition. However, this came short of the 50 percent bench mark, and the merged entity was expected to provide effective competition to Yuhan Kimberly, the largest market share holder. The P&G Group had no prior production in other market segments in Korea (see <Table III-8>).

<Table III-8> Market Share Trends in the Hygienic Band Market

(Unit: %)

Company	1995	1996	1997.1-3	1998	1999	2000
Korea P&G	47.9	47.3	40.7	63.8	-	-
Ssangyong Paper	18.4	16.5	15	-		-
Ssangyong UNI-CHARM	9.0	10.0	11.0	-	-	-
Yuhan Kimberly	20.7	21.8	32	96.4	77.1	78.1
Daehan paper	11.6	13.1	11.4	3.6	22.9	21.9
Others	1.4	1.3	0.9	0.0	0.0	0.0

Source: Market share for 1995-1997 is from KFTC 1999, and market share for 1998-2000 is calculated from KPMA 2000.

In the hygienic band market, three dominant producers (P&G Korea, Yuhan Kimberly and Ssangyong Paper) and a lagging fourth, Daehan Paper Co. Ltd operated prior to the acquisition. Consequent to the acquisition, P&G's combined market share increased from 47.3 percent to 63.8 percent, going over the critical 50 percent benchmark (see <Table III-8>. It also satisfied other pre-1998 merger review criteria for determining effective suppression of competition. At the same time, the exit of Ssangyong Paper left the market a virtual duopoly between P&G and Yuhan Kimberly, increasing the HHI by 1561 from 3,158 to 4719.

The KFTC considered the market to have high entry barriers. High level of technology and capital investment would be required. Product differentiation is extensive and with short life cycles for each brand. P&G has accumulated more than 300 patents, and Kimberly Clark, Yuhan Kimberly's mother company, possesses more than 400 patents. Brand image is very important and incumbent firms invested about 5-12 percent of sales in advertisement and marketing in 1996. Having independent distribution network is also important, the development of which would be extremely expensive.

The merger did not satisfy the exemption criteria of industry rationalization, technology development or significant quality improvements and price cuts, under the

old merger regulation rules. Nevertheless, the KFTC approved this merger, also on a conditional basis. The KFTC ordered divestiture of the hygienic band operation and relevant industrial property rights to a third party with no special relations within a year. P&G was also ordered to divest Ssangyong Paper's shares in Ssangyong UNI-CHARM within one year.

IV. Conclusion and Policy Implications

Since the outburst of the financial crisis, FDI flows into Korea have dramatically increased. Consequently, there has been great concern regarding the rapid penetration of FDI and its concentrating effects on the economy. This study started with the premise that although much of popular criticism of FDI's anti-competitive impact is misplaced, the possibility that FDI would increase concentration levels cannot be completely ignored. This study attempted to explore in general, how FDI has impacted on market structure and competition in Korean manufacturing industries during the 1990s, both before and after the crisis. Due to data limitations, quantitative study was confined to the pre-crisis years. For the post-crisis years, the study relied on case studies.

Although the empirical study in Section II is limited in many ways, the results from this study provide some perspective on how FDI affected competition in Korean manufacturing industries during the 1990s, pre crisis. According to the estimation results, FDI seems to have an upward influence on concentration, confirming earlier studies for Korea. At the same time, concentration leads to higher price cost margin, and through this channel, FDI would indirectly contribute to increasing price cost margin. The direct impact of FDI on price cost margin is not conclusive, but seems to

suggest that multinationals are attracted to markets where profits are stable (and probably high), but compete profit away as they enter these markets.

Implication of these results for competition policy is threefold. First, FDI dominant sectors can be highly concentrated and firms in this sector may enjoy supernormal profits. This would warrant continuous vigilance with respect to FDI dominant sectors on the part of the competition authority.

Secondly, because of the strong positive feedback mechanism between concentration and price cost margin, persistence of concentration would be a reasonable indication of presence of excess profit and market power, although at what level of concentration market power is achieved cannot be discerned from the empirical study.

Thirdly, although MNCs may have an upward impact on price cost margin over time through raising concentration, they may also lower price cost margin at entry, offsetting anti-competitive effects to a certain degree. Thus, it would be important to examine industry specific competition dynamics carefully to determine the competitive impact of FDI in that particular sector, rather than to merely consider concentration level at a given point in time. For example, in the Seminis case, given the backwardness of domestic seed industry, foreign investment seem to have played a positive role in upgrading technology and efficiency in general, as well as providing

export opportunities through formation of international networks. In addition, since this sector does not form a large part of the economy and no chaebol firms are in operation, the repercussions to the economy as a whole should not be large. On balance, the positive impact of the acquisition may have been stronger than anti-competitive effects at the time of entry.

The case studies in Section III throw more light upon the process through which a multinational company can gain market dominance over time. And, in some cases, such dominance has given them the power to influence prices, even at market shares lower than the 50 percent threshold, and competition was drastically reduced where the multinational has segmented not only the national market but also the world market among its non-competing subsidiaries.

For example, although the Seminis case does not cause serious competition concerns when viewed using merger regulation guidelines, especially at the time of entry, the market segmentation arrangement between Hungnong and Choong Ang and their ability to control prices gave rise to substantial market dominance.²⁹ It is plausible that their market share and dominance may increase in the long term. Further, the abuse of such market dominance was evident in the resale price

²⁹ The two firms may not compete in the product market, but they compete in another way. They compete for Seminis resources (technology, finance, etc) and in doing so, they have to prove their worth in terms of managerial competence.

maintenance policy of Seminis.

The paper industry seems to be the more worrisome case. The mergers have led to substantial concentration, with merging party market share increasing rapidly over the 50 percent benchmark. In the newsprint paper market, because continued market growth is expected, consolidation through mergers to correct temporary excess capacity would be ill advised. The dominance of merging parties in the international market, especially with the regional market segmentation agreement, has also been substantially enhanced.

Some lessons for merger regulation can be drawn from these case studies. Although concentration and market share levels may be reasonable indication of market power as results from the econometric study suggests, the use of 50 percent benchmark to determine effective suppression of competition may be inappropriate, and should be complemented by greater analysis of price changes specific to the mergers.

Further, the use of market share ceiling as a remedial measure is not very effective. In general, behavioural remedies such as market share restrictions or price ceilings do not fundamentally address competition concerns, and are more difficult to monitor than structural remedies. The remedial measure required in the hygienic band market was more effective in this sense. Nevertheless, here too, if prior notification

was in place, the third party to which the problem asset could have been divested may have been identified before the merger. This would have made both the merger and remedial procedures more efficient.

Since the multinationals tend to acquire more than one firm or business units in a sequential manner, the impact of a particular multinational seems to be more pervasive in the long term than it appears at first sight. The continued vigilance of competition authority would therefore be desirable. Indeed, with the liberalization of the FDI regime, competition policy has gained greater importance. Free entry of FDI should be accompanied by strengthened competition policy. It should also be noted that open trade regime is important when proportion of foreign ownership becomes greater, since import protection protects foreign multinationals as well as domestic firms. However, when the multinational is also a dominant player in the world market (which would usually be the case), little import competition would be forthcoming. Again, dynamic, industry specific analysis would be important in these cases.

These results are based on a limited number of cases and data set at a highly aggregated level. Much improvement is to be gained from a firm level study with a larger data set, better specification of estimated equations with clearer hypotheses to test, and greater number of case studies.

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Appendix I: The Merger Review Regulation³⁰

Mergers are regulated by Article 7 and 12 of the *Monopoly Regulation and Fair Trade Act (MRFTA)*. Article 7 prohibits mergers that substantially restrain competition in the relevant market. The prohibition covers purchase of shares, mergers and acquisitions, joint establishment of a new company and interlocking directorate. A merger is presumed to substantially restrain competition in the relevant market according to the following two criteria.

(1) *Market share criteria*: Combined share of merging firms is the largest in the relevant market and;

a) combined share of the merging firms meets either one of the criteria of a

“dominant enterprise.”³¹

b) the ratio of the difference between the combined market share of the

merging firms and that of the second largest producer *to* the combined

market share of the merging firms exceeds 25 percent.

(2) *Consideration of SMEs*: The merger involves a large company (with sales or assets

³⁰ [MRFTA Law No. 6371. MRFTA Enforcement Decree No. 17176. Public Notice on Guidelines for Merger Reviews.

Also see, Shin *forthcoming*, and Yun 2001.

³¹ An enterprise is dominant when its domestic sales or procurement exceeds one billion won and its market share is greater than 50% of the relevant market or the combined share of the top three firms exceeds 75%.

of over two trillion won) leading to a share of more than 5 percent in a market where small and medium enterprises constitute 2/3 of the market.

In addition, possibilities for new entry, import competition, collusion among and with non-merging firms, and availability of substitutes are considered in the competition analysis. All industries are subject to merger control, as of 1999. Prior to this, financial and agricultural industries had been exempt from competition law.

There is an exemption provision designed to allow mergers with large efficiency effect or mergers involving failing firms. The efficiencies arising from the merger must be specific to that merger, and the benefits from increased efficiencies must be greater than the harmful effects of restraint of competition due to the merger. In the pre-1999 guideline, efficiency was mainly couched in terms of industry rationalization and enhancement of international competitiveness. Even though the 1999 amendment to the merger review guidelines attempted to sharpen the meaning of efficiency by incorporating greater economic concepts, benefits from increased efficiencies are still interpreted broadly. It includes not only firm-level efficiencies in production, sales and R&D but also contributions to national or public welfare (eg, employment creation, support for local economy or related industries, environmental protection and provision of essential goods). The failing firm defence applies when

the failing firm's assets are unlikely to be utilised without the merger and less anti-competitive mergers are unlikely.

Article 12 deals with notification. Any merger involving a company with assets or sales (including those of its subsidiaries) over 100 billion won must notify the KFTC within 30 days of transaction. The merging parties can opt to request KFTC review before the completion of the transaction, however. In this case, the KFTC must deliver its decision within 30 days, with the possibility of extension for 60 days. For large firms with sales or asset over two trillion won must notify the KFTC before the transaction is completed and must not consummate the merger within 30 days of notification. That is, pre-merger notification is mandatory for large firms but optional for others. Through a recent amendment, notification obligation is made not to apply when other central government ministry has already consulted with the KFTC about the merger.

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