Chapter 1

Differences and Backgrounds behind the Differences

1.1 Differences Emerging from the Economic Crisis

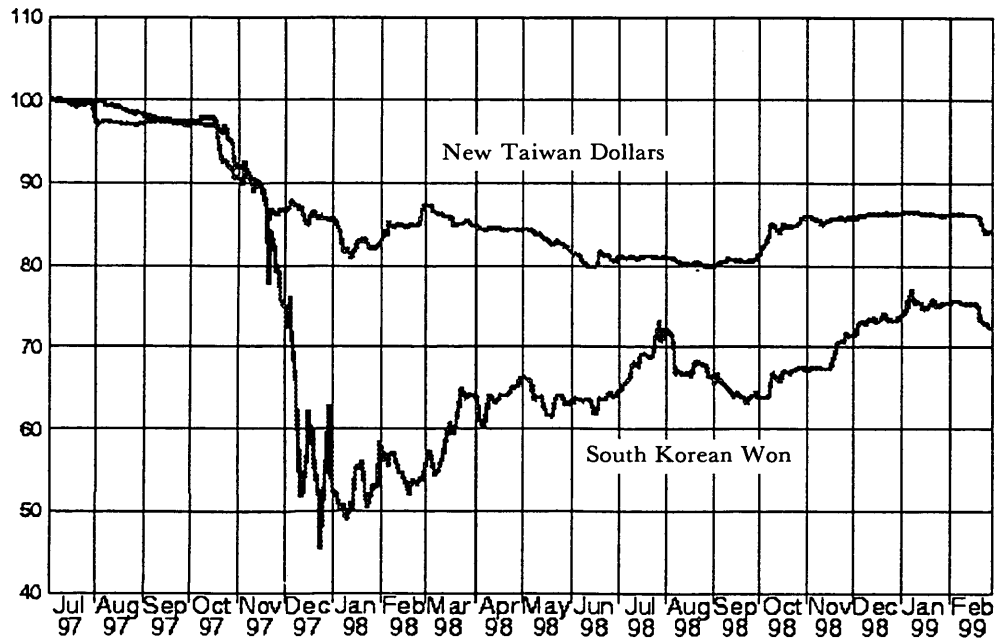
The Asian economic crisis, that originated in Thailand in July 1997 and later spread to other Asian countries, including Korea, one of the newly industrializing economies, which was not able to escape the contagion. While Taiwan was also affected by the crisis, it received only a light impact relative to Korea and other Asian countries. This section studies the differences between Korea and Taiwan that emerged after the crisis.

1.1.1 Foreign exchange rates

As the term "currency" crisis indicates, the plunge of the currency's exchange rate as a result of an outflow of foreign currencies was a prelude to what has happened in every country thrown into crisis. As indicated by Figure 1-1, the Korean won's exchange rate against the U.S. dollar showed no large fluctuations until mid-October 1997. Then, its value began to plunge, and was almost halved by mid-December, compared with the level of early July. The won took an upturn after the turn of the year, and by December 1998, had recovered to a level about 70% of what it had been worth in July 1997.

The New Taiwan dollar's exchange rate against the U.S. dollar, for its part, at first showed a pattern of movement similar to the won. The Taiwanese currency came under heavy downward pressure in the middle of October 1997 as did the won. The Central Bank of China, if it had wanted, could have defended the currency, because Taiwan had foreign exchange reserves far larger than Korea's. But the central bank decided not to defend the New Taiwan dollar, for fear of triggering a fall in stock prices, and the currency declined to about 80% of the level of July 1997. It can be assumed that the central bank was paying greater heed to the stock market than to the currency because of

Figure 1-1 Exchange Rates of Korea and Taiwan's Currencies



Source: Werner Aniweiler, University of British Columbia, Vancouver BC, Canada.

the widespread belief that the governing party faced an uphill battle in the imminent local elections. At any rate, the New Taiwan dollar was devalued by over 10%, but stopped declining further, in stark contrast with the Korean won. Thereafter, the New Taiwan dollar remained relatively stable, and gradually but steadily firmed from the autumn of 1998, as did the Korean won.

1.1.2 Stock prices

In the countries that experienced currency crisis, the outflow of foreign currencies brought about a sharp fall in stock prices. Moreover, all attempts to defend the currency resulted in higher interest rates, which then put further downward pressure on stock prices.

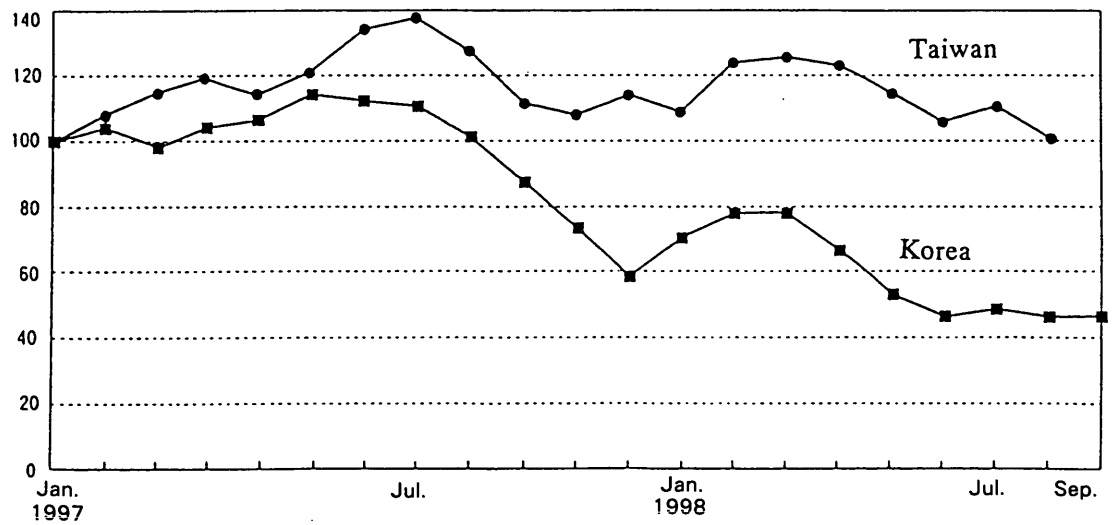
The Korea Composite Stock Price Index dropped moderately in the immediate aftermath of the Thai currency crisis, but quickened its pace of decline from early autumn and, by December, stood at 60% below the level seen at the beginning of 1997 (Figure 1-2). In 1998, the stock index rose in the first quarter, declined in the second, marked time in the third and advanced substantially in the fourth quarter, recovering by year's end to about 86% of where it had stood at the beginning of 1997. But the recovery of the stock price index has not immediately indicated a recovery of the economy, as evidenced by the country's growth rate and jobless rate, which will be reviewed later.

In Taiwan, meanwhile, stock prices posted large gains in the first half of 1997, supported by optimistic expectations about its economy, though they turned downward after the currency crisis hit Thailand. Even after Taiwan eased its stance on the defense of the New Taiwan dollar in October, stock prices remained at relatively stable levels. The monthly average of the main index of the Taiwan Stock Exchange did not fall below the January 1997 level through the first half of 1998, demonstrating the stability of the economy. In the second half of 1998, however, the stock market was unsettled by failures of some corporations and business groups as well as some financial institutions.

1.1.3 Growth rates

For countries experiencing it, the currency crisis began with an outflow of foreign currencies and a decline in the country's currency, with this then developing into an economic crisis with a fall in overall economic activity. Korea's growth rate had been on a declining track from 1996, and the outbreak of the crisis in late 1997 plunged the economy into minus growth from the first quarter of 1998 (Table 1-1). The economy has not yet recovered to positive growth, and in fact registered a

Figure 1-2 Monthly Average of Stock Market Indexes of Korea and Taiwan (Jan. 1997=100)



Source: Taiwan: DGBAS, Excutive Yuan, *Monthly Bulletin of Statistics of the Republic of China.*
Korea: National Statistical Office, *Monthly Statistics of Korea.*

serious contraction of 5.2% for the whole of 1998.

In Taiwan, on the other hand, the economic growth rate in 1997 was the highest of the 1990s up to then, with the exception of 1991. Even in 1998, Taiwan achieved growth of around 5%, though it was not able to stay completely clear of the fallout from the economic crisis in neighboring countries. Taiwan's growth rate not only contrasted strikingly with Korea's, but also was surpassed only by China and Vietnam among the principal countries of East and Southeast Asia. Given the relatively low development stages of the economies of China and Vietnam, and the fact that they are still in the process of transition to market-based economies, the Taiwanese economy's stability is particularly noteworthy.

Table 1-1 Real GDP Growth Rates for Korea and Taiwan (%)

	Korea	Taiwan
1991	9.1	7.6
1992	5.1	6.2
1993	5.8	6.2
1994	8.6	6.1
1995	8.9	5.9
1996	7.1	5.4
1997	5.5	6.5
1Q	5.7	6.0
2Q	6.6	6.2
3Q	6.1	7.1
4Q	3.9	6.6
1998	−5.2	5.1
1Q	−3.9	5.5
2Q	−6.6	5.1
3Q	−5.0	4.7
4Q	−5.2	4.9

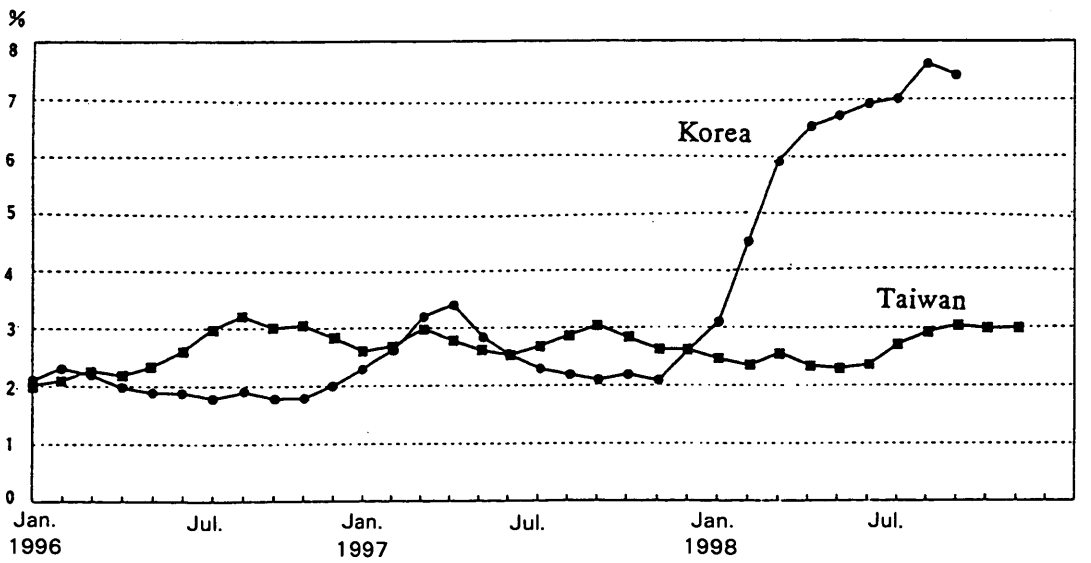
Source: Same as Figure 1-2.

Note: Year-on-year growth rates for the fourth quarter of 1998 and the whole of 1998 are estimates by the Institute of Developing Economies.

1.1.4 Unemployment rates

In the Asian countries, the economic crisis caused corporate activities to slacken, leading to reduced demand for labor. In other words, unemployment increased due to corporate bankruptcies and dismissals. While some chaebols had collapsed in Korea even before the crisis, the unemployment rate was still low. Once the crisis broke out in the late 1997, however, the jobless rate surged (Figure 1-3). Since there is still no optimism about an early recovery of the overall economy, the employment situation is likely to continue to be severe for some time to come. By contrast, Taiwan's unemploy-

Figure 1-3 Unempolyment Rates in Korea and Taiwan



Source: Taiwan: DGBAS, *Monthly Bulletin of Statistics, Taiwan Area, R.O.C.*
Korea: *National* Statistical Office, *Monthly Statistics of Korea.*

ment rate has remained in the range from 2% to 3.5%, reflecting the stability of overall economic conditions. The jobless rate did rise up in the second half of 1998, but this change should be considered well within the range of cyclical movements, at least in comparison with the past two years.

1.2 Backgrounds of the Differences

In this section, we will make a general survey of the macroeconomic conditions, industrial and trade structures, and corporate management indicators of Korea and Taiwan from the 1980s up until now, in order to examine the background of the economic crisis and the factors that led to different developments in the two countries.

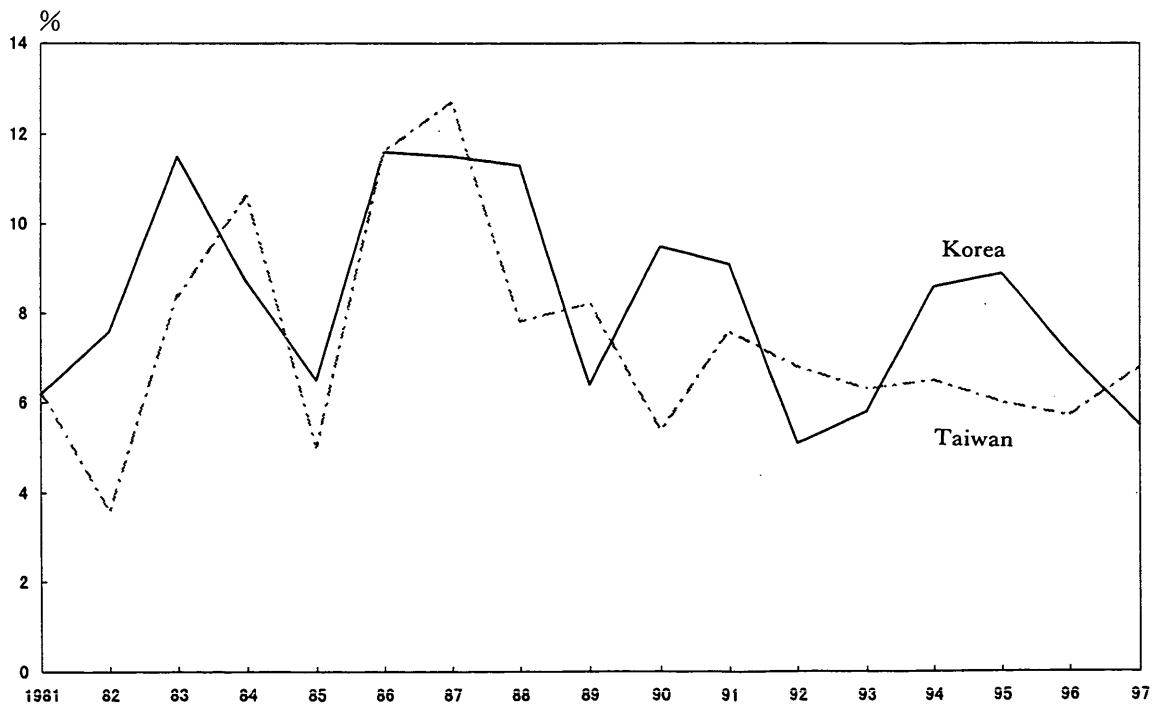
1.2.1 Macroeconomic conditions and exports and imports

1.2.1.(1) Economic growth and prices

Figure 1-4 shows changes in the economic growth rates of Korea and Taiwan. Both have achieved high growth, despite some upturn and downturns. Noteworthy is the slight but visible downtrend of their growth rates in the 1990s. Also, while Korea's growth rates have continued to show rather large fluctuations in the 1990s, Taiwan has maintained a relatively stable pattern of growth.

Table 1-2 shows how each of the components of gross domestic product has contributed to growth rates in the two countries. The high growth averaging over 10% achieved by both Korea and Taiwan in 1986-1988 evidently was made possible by strong exports. In 1989-1991, the contribution of exports contracted markedly in both economies, and private consumption took over as the driving force of growth. Investment played a major part in Korea, though the contribution of this factor was not so large in Taiwan. In 1992-1994 and 1995-1997, the contributions from consumption and investment declined in Korea, with exports reasserting their role. In 1995-1997, it also became apparent that increased imports were taking a large slice from Korea's GDP growth rate. In Taiwan as well, exports had replaced private consumption as the leading force of growth in the mid-

Figure 1-4 Changes in GDP Growth Rates



Source: Same as Figure 1-2.

Table 1-2 Contribution to GDP Growth by Each Component Sector (%)

1. Korea

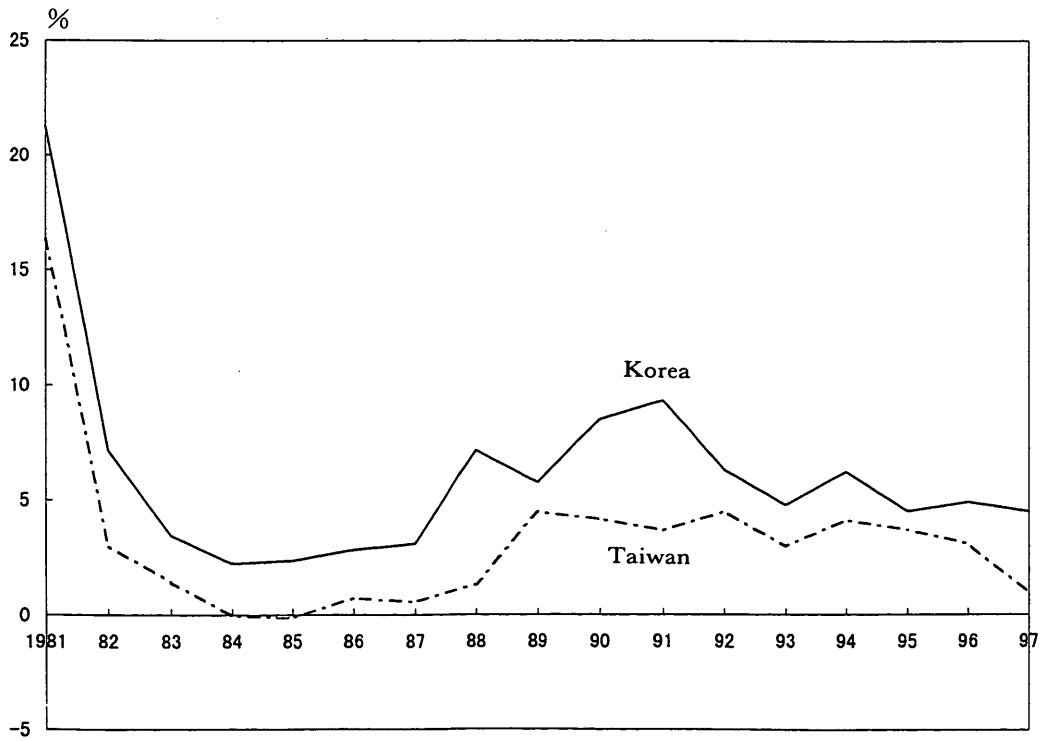
	1982−85	85−88	88−91	91−94	94−97
Private Consumption Expenditure	4.47	4.66	5.26	3.56	3.27
Government Consumption Expenditure	0.4	0.85	0.82	0.50	0.47
Fixed Capital Formation	2.78	3.83	5.33	2.02	1.81
Exports of Goods and Services	2.77	5.58	1.31	3.94	7.31
Imports of Goods and Services (-)	1.53	3.88	4.41	3.62	4.97
GDP (Gross Domestic Product)	8.89	11.45	8.33	6.45	7.16

2. Taiwan

	1982−85	85−88	88−91	91−94	94−97
Private Consumption Expenditure	4.06	5.49	4.84	4.68	3.75
Government Consumption Expenditure	1.15	1.25	1.61	0.22	0.59
Fixed Capital Formation	−0.19	2.61	2.12	2.07	1.33
Exports of Goods and Services	4.51	7.01	2.97	2.84	4.49
Imports of Goods and Services (-)	1.97	6.41	4.15	3.39	4.29
GDP (Gross Domestic Product)	7.97	10.72	7.05	6.54	6.17

Source: Same as Figure 1-2.

Figure 1-5 Consumer Price Rises



Source: Same as Figure 1-2.

1990s. In general, it can be said that the two economies had common patterns of export-led growth in the latter half of the 1980s, domestic demand-led growth in the period around 1990 and export-led growth again in the mid-1990s.

Figure 1-5 shows changes in consumer price increases in Korea and Taiwan. Both experienced rampant price increases until the 1970s, with Korea experiencing almost constant double-digit inflation. After the second oil shock, however, the price increases calmed rapidly, and both countries have for the main part maintained stable price levels, despite some increases seen in and after the latter half of the 1980s.

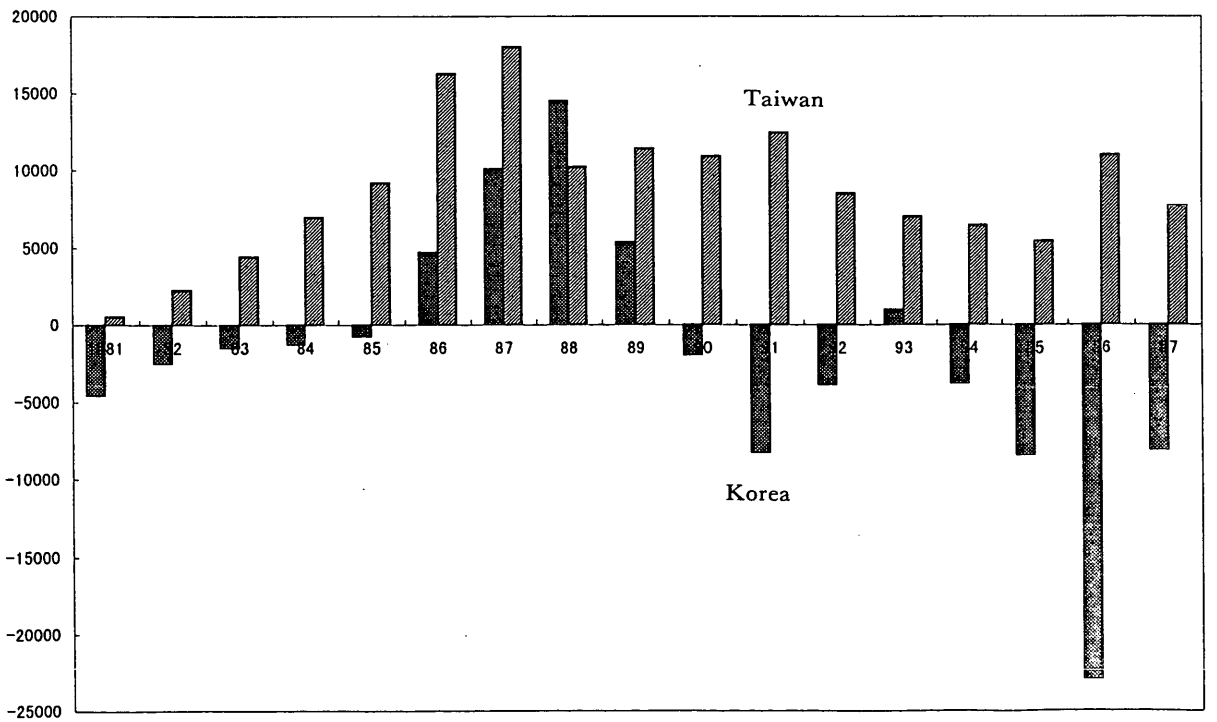
1.2.1.(2) Current account balance and fluctuations in exports/imports

Clear differences emerged between Korea and Taiwan in the 1990s regarding current-account balances. One difference was that Taiwan maintained a surplus, and Korea a deficit, and the other was a difference in the extent of fluctuations.

Taiwan established a pattern of constant current-account surpluses in the 1970s, while Korea was never able to rid itself of its deficits. In the 1980s, as indicated by Figure 1-6, Taiwan expanded its surpluses, whereas Korea steadily narrowed its deficits and managed to shift to a surplus by the latter half of the 1980s. In the 1990s, however, it reverted to a deficit position, with erratic fluctuations in these deficits, while Taiwan basically maintained its surplus position, despite an occasional narrowing[1]. In 1996, Korea marked a record current-account deficit of $23 billion. This huge deficit contributed to a widening of the country's external debts, and planted the seeds for the currency crisis.

For a more detailed view of the short-term fluctuations in the current-account balances, Figure 1-7 shows changes in exports and imports. Throughout the period under review, exports and imports rose and fell almost in parallel in the two countries. Import growth outstripped export growth in Taiwan in 1987-1988 and in Korea in 1989-1991, attesting to a bulge in domestic demand following export-led growth. In the 1990s, Taiwan displayed diminishing fluctuations in both exports and imports, whereas Korea continued to experience large fluctuations. The changes in their

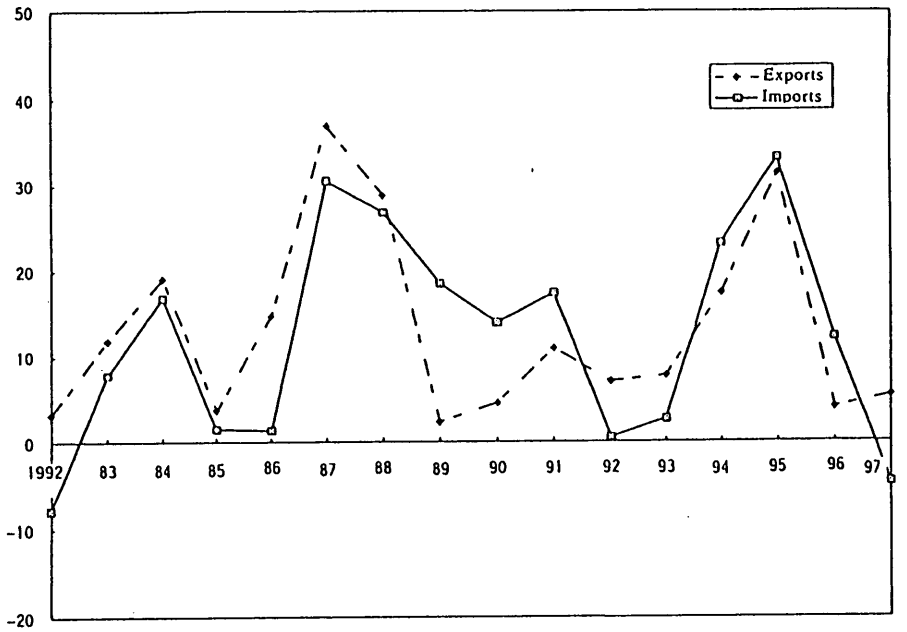
Figure 1-6 Current Account Balances



Source: Same as Figure 1-2.

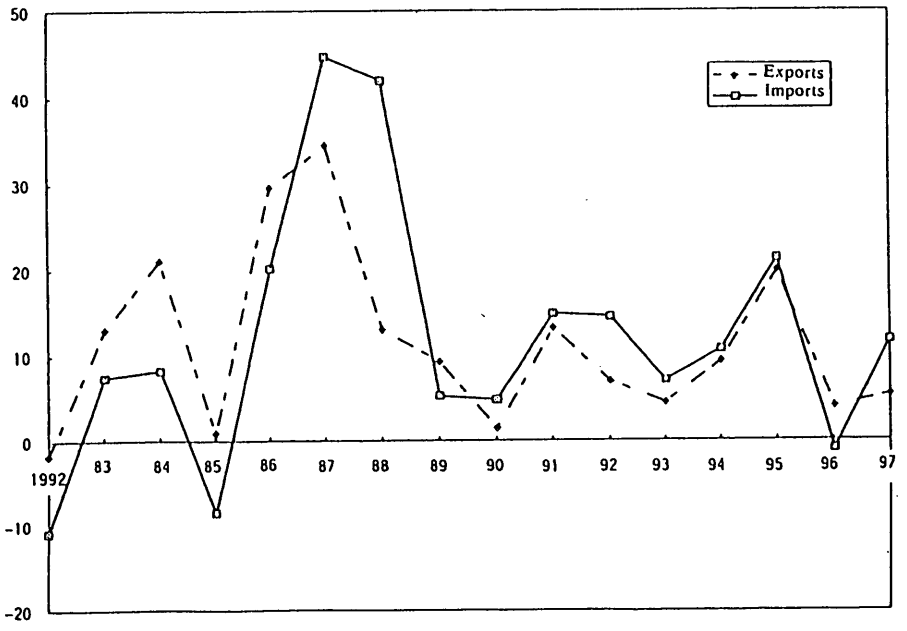
Figure 1-7 Growth of Exports and Imports

(1) Korea



Source: Same as Figure 1-2.

(2) Taiwan



Source: Same as Figure 1-2.

current-account balances accurately reflected this difference. Korea registered sharp rises in both exports and imports in 1994 and 1995, but import growth exceeded that of exports, and in 1996, exports plunged more sharply than imports. This caused the sharp deterioration in Korea's current-account position that year.

1.2.2 Industrial and trade structures

1.2.2.(1) Industrial structure

Table 1-3 shows changes in the industrial structures of Korea and Taiwan. They shared in common a steady decline of primary industry, a weakening of manufacturing after its advance until the latter half of the 1980s, and a continuous rise of tertiary industry, particularly in the shares of the financial and services sectors. These findings indicate that both Korea and Taiwan, after experiencing high growth in the latter half of the 1980s, saw their economies reach a certain measure of maturity, and are now in transition to an economic society where services take on greater importance compared to goods. But there also are differences between them. Taiwan was ahead of Korea in terms of the expanding shares of its financial and services sectors, with a combined gap of over 10 percentage points for 1997. Korea, meanwhile, saw the share of its construction industry grow enormously in the 1990s, with Korea over 10 points ahead of Taiwan in this sector in 1997.

Table 1-4 provides a breakdown of manufacturing industries. Both Korea and Taiwan experi-

Table 1-3 Industry-by-Industry Share of GDP (%)

1. Korea

	1982	1985	1988	1991	1994	1997
Agriculture/Fisheries	14.4	12.5	10.2	7.7	7.0	5.7
Mining	1.4	1.1	0.8	0.5	0.4	0.3
Manufacturing	28.1	29.3	32.1	28.5	26.8	25.7
Utilities	2.3	3.0	2.7	2.1	2.3	2.3
Construction	7.5	7.6	7.6	13.9	13.5	14.6
Wholesale/Retail	13.3	13.6	13.8	12.2	11.7	11.3
Transportation/ Communication	8.3	7.3	6.9	6.7	7.3	7.3
Banking/Insurance/Real Estate (*)	8.9	11.5	13.3	15.3	17.2	17.6
Services to Society, Individuals	2.8	3.4	3.2	3.6	4.0	4.2
Government Services	7.9	7.2	6.6	7.4	7.9	8.3

2. Taiwan

	1982	1985	1988	1991	1994	1997
Agriculture/Fisheries	7.7	5.8	5.0	3.8	3.6	2.7
Mining	0.8	0.6	0.5	0.4	0.3	0.5
Manufacturing	35.2	37.6	37.1	33.3	29.0	27.7
Utilities	3.3	4.0	3.0	2.7	2.6	2.4
Construction	5.0	4.1	4.2	4.7	5.3	4.4
Wholesale/Retail	13.3	13.3	13.3	14.6	15.4	16.6
Transportation/ Communication	6.0	6.4	6.3	6.2	6.5	6.7
Banking/Insurance/Real Estate (*)	13.7	13.8	15.1	17.8	20.9	23.0
Services to Society, Individuals	4.8	5.2	5.6	6.6	7.4	8.6
Government Services	10.9	10.3	9.5	11.1	10.6	10.4

*Note: Includes services provided to businesses.

Source: Korea: Bank of Korea; Taiwan: DGBAS, Executive Yuan.

Table 1-4 Industry-by-Industry Share of GDP, Manufacturing (%)

1. Korea

	1982	1985	1988	1991	1994	1996
Foods/Beverages/Tobacco	19.7	16.1	12.9	12.4	12.3	11.5
Fibers/Clothing/Leather	16.7	15.8	14.0	10.3	6.5	4.4
Lumber/Wood Products	1.0	0.8	0.8	0.8	0.7	0.6
Paper/Paper Products/Printing and Publishing	4.0	4.6	4.1	4.2	4.8	4.6
Nonmetal Mining Products	4.5	5.1	4.9	5.8	4.5	4.3
Furniture/Other Manufacturing	2.7	2.8	3.4	2.7	1.9	1.6
Light Industries Subtotal	48.6	45.2	40.1	36.2	30.7	26.9
Chemicals/Coal and Petroleum/Rubber	18.0	17.0	17.3	17.1	19.1	19.9
Primary Metals	7.7	7.9	9.4	9.3	8.3	8.0
Metal Products/Machinery	17.8	20.2	23.8	24.1	25.3	27.0
Transportation Equipment	7.9	9.7	9.4	13.2	16.7	18.2
Heavy Industries and Chemical Industries Subtotal	51.4	54.8	59.9	63.8	69.3	73.1
Manufacturing Total	100.0	100.0	100.0	100.0	100.0	100.0

2. Taiwan

	1982	1985	1988	1991	1994	1996
Foods/Beverages/Tobacco	13.2	12.7	10.4	9.3	9.0	8.8
Fibers/Clothing/Leather	18.0	16.8	13.1	11.6	9.7	8.8
Lumber/Wood Products	1.7	1.7	1.7	1.2	0.7	0.6
Paper/Paper Products/Printing and Publishing	4.1	3.9	4.1	3.8	3.5	3.2
Nonmetal Mining Products	4.2	3.8	3.8	4.2	5.1	3.8
Furniture/Other Manufacturing	7.1	6.7	6.2	4.5	3.2	2.8
Light Industries Subtotal	48.2	45.6	39.3	34.6	31.1	27.9
Chemicals/Coal and Petroleum/Rubber	21.3	22.3	24.0	24.0	23.8	23.5
Primary Metals	5.8	5.9	6.6	6.5	7.2	7.2
Metal Products/Machinery	17.9	20.7	23.8	27.4	30.1	33.9
Transportation Equipment	6.7	5.5	6.3	7.4	7.8	7.5
Heavy Industries and Chemical Industries Subtotal	51.8	54.5	60.7	65.4	68.9	72.1
Manufacturing Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Same as Table 1-3.

enced a sharp expansion in the shares of heavy and chemical sectors, which may reflect the changes in comparative advantage resulting from wage rises as well as the sophistication of consumption. Overall, seen from this industrial classification, Korea and Taiwan had very similar industrial structures, despite some differences such as the higher shares of metal products and machinery in Taiwan, and the high share of transport equipment in Korea.

1.2.2.(2) Trade structure

1.2.2.(2)(1) Exports by type of goods

Table 1-5 shows item-by-item shares of exports and imports for the two economies, providing

Table 1-5 Commodity-by-Commodity Shares in Exports and Imports

	Korea Exports			Taiwan Exports		Korea Imports			Taiwan Imports	
	1988	1991	1995	1991	1995	1988	1991	1995	1991	1995
0 Foodstuff, etc.	3.92	3.00	2.12	4.15	3.35	4.44	4.82	4.39	4.30	3.68
1 Beverages, Tabacco	1.14	1.37	1.43	0.06	0.06	0.17	0.28	0.40	0.55	0.91
2 Raw materials	1.14	1.37	1.43	0.58	0.70	14.97	10.92	8.67	8.46	6.37
3 Fuel, etc.	0.96	2.10	1.98	0.02	0.03	11.55	15.64	14.07	9.33	7.01
4 Animal and vegetable oil, etc.	0.00	0.00	0.02	0.02	0.03	0.34	0.30	0.29	0.18	0.23
5 Chemical products	3.10	4.44	7.15	4.60	6.77	12.10	10.16	9.74	13.61	13.46
51 Organic chemicals	0.81	1.28	2.13	0.58	1.03	6.10	4.25	3.97	5.74	6.36
52 Inorganic chemicals	0.17	0.21	0.23	0.19	0.23	0.89	0.96	0.93	1.15	0.84
53 Dyestuffs, paints	0.20	0.29	0.34	0.45	0.61	0.93	0.83	0.69	1.01	0.83
54 Medical pharmaceuticals	0.14	0.19	0.21	0.07	0.05	0.38	0.43	0.49	0.53	0.59
55 Cosmetics, etc.	0.08	0.07	0.11	0.27	0.25	0.31	0.37	0.39	0.50	0.64
56 Fertilizers	0.39	0.23	0.10	0.02	0.02	0.13	0.15	0.11	0.14	0.11
57 Plastic materials	0.66	1.44	2.91	1.63	2.94	1.66	1.28	1.14	2.07	1.87
58 Plastic products	0.48	0.52	0.69	0.98	0.97	0.37	0.41	0.46	0.42	0.50
59 Others	0.17	0.20	0.33	0.42	0.68	1.32	1.47	1.56	2.04	1.73
6 Products by material	20.83	22.35	22.04	21.52	23.23	15.38	16.43	15.74	17.59	17.95
61 Leather, leather products	0.24	0.72	1.24	0.39	0.83	1.15	0.85	0.67	0.43	0.33
62 Rubber products	1.45	1.42	1.21	0.65	0.63	0.32	0.30	0.24	0.43	0.33
63 Wood products	0.15	0.11	0.09	1.05	0.57	0.38	0.67	0.68	0.63	0.77
64 Paper-pulp products	0.63	0.6	0.94	0.84	0.86	0.51	0.67	0.66	1.13	1.33
65 Fibers	7.99	10.15	9.85	9.65	10.67	3.07	2.97	2.93	2.17	1.74
66 Other nonmetal mining products	1.21	0.89	0.54	1.54	0.93	1.06	1.46	1.15	1.11	1.16
67 Steel	5.25	5.38	4.33	1.22	1.97	4.51	5.62	4.84	6.54	6.45
68 Nonferrous metals	0.67	0.50	0.88	0.86	1.21	3.20	2.61	3.42	4.15	4.66
69 Other metal products	3.25	2.57	2.98	5.33	5.56	1.20	1.29	1.15	1.09	1.09
7 Machinery, transportation equipment	38.65	40.75	52.49	39.10	48.09	35.20	33.78	36.59	35.57	39.52
71 Motors	0.69	0.64	0.97	0.58	0.74	2.48	2.25	2.88	1.45	1.63
72 Industrial machinery	0.75	1.11	2.12	3.18	3.09	5.00	5.75	6.03	4.98	3.92
728 Other industrial machinery	0.32	0.36	0.80	1.30	1.50	2.46	2.56	3.81	2.77	2.28
73 Machine tools	0.18	0.24	0.38	1.03	1.28	1.90	2.02	1.73	0.84	1.22
74 Other machinery	1.37	1.57	2.32	2.84	3.31	5.02	6.04	5.66	3.70	4.79
75 Office and information processing equipment	4.24	4.03	3.97	10.70	14.50	2.81	2.41	2.64	2.80	2.31
752 Information-processing equipment	3.07	2.91	3.16	6.01	7.29	1.52	1.52	1.60	1.82	1.49
759 Peripheral equipment	0.95	0.94	0.64	4.26	6.95	1.15	0.73	0.85	0.82	0.67
76 Audio-video equipment	10.23	9.02	7.10	6.62	5.62	2.66	1.83	2.26	2.59	1.91
77 Other electronic & electric machinery	10.57	13.01	22.79	9.38	14.94	10.67	9.63	10.77	12.97	17.92
776 Semiconductors	6.35	9.23	15.49	3.62	8.13	6.93	6.50	7.28	8.36	13.14
78 Road-running vehicles	7.46	5.98	8.09	4.39	4.42	1.39	1.35	1.41	4.37	4.49
781 Passenger cars	5.49	2.98	5.79	0.02	0.04	0.11	0.05	0.20	1.68	2.30
784 Automobile parts	0.31	0.38	0.53	1.10	1.20	1.04	0.77	0.96	1.39	1.51
785 Motorcycles	0.19	0.09	0.14	2.71	2.83	0.08	0.06	0.05	0.71	0.39
79 Other transportation equipment	3.16	6.10	4.74	0.39	0.19	3.26	2.52	3.20	1.88	1.32
793 Ships	2.90	5.74	4.42	0.37	0.19	0.42	0.26	1.15	0.54	0.30
8 Miscellaneous goods	30.86	24.38	10.70	28.20	15.88	5.56	6.11	8.00	6.04	7.61
81 Sanitary, plumbing, heating lighting, etc.	0.14	0.11	0.11	1.10	0.66	0.11	0.12	0.11	0.06	0.08
82 Furniture	0.42	0.30	0.17	2.21	1.57	0.08	0.14	0.18	0.18	0.30
83 Travel goods, bags	1.80	1.44	0.54	1.06	0.40	0.01	0.02	0.06	0.08	0.13
84 Clothing	14.32	10.32	3.96	5.90	2.92	0.07	0.22	0.79	0.49	0.86
85 Footwear	6.26	5.34	1.20	5.02	1.26	0.06	0.11	0.26	0.17	0.35
87 Optical, medical equipment	0.49	0.47	0.63	0.64	0.79	2.44	2.50	3.16	1.87	2.91
88 Photographic equipment, watches, clocks	0.91	0.81	0.74	1.82	1.26	1.39	1.16	1.55	1.27	1.09
89 Other miscellaneous goods	6.52	5.59	3.35	10.45	7.01	1.40	1.84	1.88	1.92	1.89
9 Special products	0.32	1.44	1.94	0.13	0.08	0.28	1.56	2.12	4.36	3.24

Note: The classification of commodities is based on the U.N. Standard International Trade Classification, third revision (SITC R3).
Source: The Institute of Developing Economies' trade data search system (AIDXT).

an examination of the changes in their structures of comparative advantage and differences between them. Because of the limited availability of data, the table lists figures only for 1988, 1991 and 1995 for Korea and for 1991 and 1995 for Taiwan.

Looking at Korea's exports, clothing ranked among the top five items in 1988 but lost that position in 1991. Footwear, miscellaneous goods and audio-visual products, all relatively labor-intensive, were also among the items whose shares shrank in exports. In contrast, semiconductors made an a major leap. Chemicals, including organic chemicals and plastics materials, as well as transport machinery such as motor vehicle and ships, also raised their shares to become the country's leading industries. Taiwan similarly saw big falls in the export shares of apparel, footwear and miscellaneous products, though the available data only shows changes during the four years between 1991 and 1995. On the other hand, major growth was recorded by data-processing machines, meaning computers and peripherals. The share of semiconductors also surged in Taiwan.

Overall, Korea and Taiwan seem to have very similar export structures. But a closer look reveals some distinct features. For Korea, the growth industries are semiconductors, transport machinery, chemicals and steel products. In Taiwan, by contrast, personal computers and peripheral equipment, as well as metal products and general machinery hold high shares. Compared with Taiwan, Korea has relative strength in processing industries, or industries where economies of scale can be put to work.

Looking at the concentration ratios of export products (Table 1-6) based on the Herfindahl index, Korea generally had a higher degree of concentration than Taiwan, with the ratios showing particularly large rises in 1995. Dependence on exports of particular items means that overall exports could be immediately affected when these items performed badly. As we will discuss in Chapter 2, we believe that such a scenario became a reality in Korea in 1996, when the country experienced a rapid expansion in its current-account deficit.

1.2.2.(2)(2) Imports by type of goods

Turning to import structures, both Korea and Taiwan were large importers of raw materials, but the shares of raw materials in total imports declined remarkably into the 1990s. As far as fuel imports are concerned, Korea had a higher share than Taiwan, and this share expanded in the last years of the 1980s. Korea, with its cold climate, needs to import oil for fuel in larger quantities than Taiwan. Even allowing for this, however, the share of fuel in Korea's imports expanded rapidly between 1988 and 1991, and even in 1995, the share did not decline as low as it did in Taiwan. It may be that Korea's industrial structure shifted to one that required massive quantities of energy in the late 1980s. Among other things to be noted, Taiwan in general had a smaller import shares than Korea for ordinary machinery, or items classified between 71 and 74 in subdivisions of SITC R3. While Taiwan had a fairly high import share of 13.14% for semiconductors in 1995, Korea's share for chips, at 8.13%, was by no means low.

Table 1-6 Concentration Ratios of Exports

	Korea		Taiwan	
	2-digit classification	3-digit classification	2-digit classification	3-digit classification
1988	0.071	0.025	n.a.	n.a.
1991	0.066	0.027	0.060	0.022
1995	0.087	0.041	0.074	0.028

Note: The Harfindahl index is used.

$H = \sum_{i=1}^{m} si^2$ $si(i = 1, 2, \cdots m)$ Share of each export item

A higher figure means a particular export item has a larger share in exports.

The three-digit classification provides a more detailed classification than the two-digit classification.

Source: Same as Table 1-5.

1.2.2.(2)(3) Trade specialization coefficient

Table 1-7 lists the trade specialization coefficients for Korea and Taiwan in order to provide a comprehensive understanding of their exports and imports. Differences between the two are obvious in Category 7 for machinery and transportation equipment. For subdivisions 71-74 of general machinery, which we referred to above, Korea, despite some signs of improvement, generally had high import specialization coefficients of under -0.5, an indication that the country's general machinery industry is lagging. Taiwan, meanwhile, had a positive coefficient for metalworking machinery, and small minus figures in other general machinery sectors. This suggests that Taiwan succeeded in substituting imports with domestic production to a certain extent, and even in developing export industries for some products. In other words, Korea has had to rely on imported machinery for investment. This suggests that there was a strong relationship between increased investment and the sharp rises in imports in the mid-1990s.

On the other hand, Taiwan had negative coefficients for subdivisions 77 and onward, meaning semiconductors and transport machinery, with exception of motorcycles, while Korea showed large positive margins for these products. For motor vehicles in particular, Korea achieved full export specialization, while Taiwan was the exact opposite, with full import specialization. For semiconductors, Korea's export specialization coefficient was still in the 0.3 range, despite a large share in total exports. As we will explain in Chapter 3, Korea has become one of the world's largest producers of DRAM chips, but it still has to depend on imports for several other kinds of semiconductors.

1.2.2.(2)(4) Exports and imports by country and region

Table 1-8 shows country-by-country and region-by-region shares in exports and imports for Korea and Taiwan. Both Korea and Taiwan saw the shares of their exports destined for the United States and other industrialized countries plunge. East Asia, centering around China and Hong Kong, considerably expanded its share as destination for their products, with Taiwan showing conspicuous dependence on the region. Considered together with the previously-discussed export structures by type of goods, we can safely state that since the late 1980s, both countries shifted from economies specializing in exports of labor-intensive products to the markets of industrialized countries, to economies that export heavy and chemical industrial products to East Asia as well as to industrialized countries.

In terms of import structures, Korea and Taiwan where relatively similar in 1988, but since then, the share of imports from Japan plummeted remarkably for Korea, while that of the United States declined substantially for Taiwan[2]. Both Korea and Taiwan saw East Asia's share rise in compensation.

The high shares held by East Asia in both the exports and imports of Korea and Taiwan are indicative of the routes through which the economic crisis spread. The trigger for the spread of the economic crisis to Taiwan, as we will discuss in Chapter 2, was a plunge in exports. Assuming that other East Asian countries also have a high dependence on intra-regional trade, there is a risk that the economic crisis will spirally deepen throughout the region via a path of trade shrinkage.

1.2.3 Corporate management

The Korean economy has dipped into crisis, while the Taiwanese economy managed to avoid crisis. What this means is that Korea faced a systemic crisis following a chain of failures of financial institutions and nonfinancial businesses, while Taiwan was able to contain such failures and prevent them from affecting the entire domestic economy. This subsection analyzes differences in nonfinancial corporate performance, as shown by financial statements, as the background for the differing situations of Korea and Taiwan, leaving problems concerning financial institutions to Chapter 4.

Table 1-9 lists a variety of financial indicators for manufacturing companies for 1995 and 1997. In 1995, the Korean economy was at its highest peak since 1992, while the Taiwanese economy was more or less languishing. At the end of 1997, meanwhile, the Korean economy faced a crisis situation. As the negative figures for profit rates indicate, the stagnancy of the Korean economy was already serious before the country plunged into crisis. On the other hand, In 1997 Taiwan registered its highest

Table 1-7 Trade Specialization Coefficients

	Korea			Taiwan	
	1988	1991	1995	1991	1995
5 Chemical products	−0.539	−0.444	−0.191	−0.418	−0.291
51 Organic chemicals	−0.732	−0.579	−0.336	−0.783	−0.698
52 Inorganic chemicals	−0.641	−0.682	−0.628	−0.663	−0.545
53 Dyestuffs, paints	−0.597	−0.522	−0.369	−0.301	−0.112
54 Medical pharmaceuticals	−0.395	−0.434	−0.436	−0.730	−0.829
55 Cosmetics, etc.	−0.521	−0.715	−0.586	−0.213	−0.410
56 Fertilizers	0.551	0.173	0.244	−0.717	−0.729
57 Plastic materials	−0.367	−0.004	0.406	−0.021	0.264
58 Plastic products	0.209	0.050	0.160	0.476	0.357
59 Others	−0.740	−0.790	−0.676	−0.600	−0.397
6 Products by material	0.227	0.091	0.129	0.195	0.171
61 Leather, leather products	−0.610	−0.141	0.259	0.042	0.466
62 Rubber products	−0.649	−0.043	0.477	0.391	0.251
63 Wood products	−0.376	−0.739	−0.775	0.337	−0.106
64 Paper-pulp products	0.184	−0.113	0.136	−0.049	−0.175
65 Fibers	0.506	0.501	0.513	0.688	0.741
66 Other nonmetal mining products	0.144	−0.299	−0.394	0.254	−0.068
67 Steel	0.154	−0.085	−0.094	−0.630	−0.499
68 Nonferrous metals	−0.604	−0.713	−0.615	−0.600	−0.558
69 Other metal products	0.522	0.275	0.411	0.713	0.696
7 Machinery, transportation equipment	0.125	0.031	0.141	0.143	0.141
71 Motors	−0.509	−0.598	−0.525	−0.344	−0.344
72 Industrial machinery	−0.702	−0.708	−0.509	−0.127	−0.075
728 Other industrial machinery	−0.739	−0.777	−0.675	−0.273	−0.163
73 Machine tools	−0.802	−0.808	−0.661	0.196	0.068
74 Other machinery	−0.515	−0.628	−0.450	−0.035	−0.139
75 Office and information-processing equipment	0.277	0.192	0.164	0.645	0.745
752 Information-processing equipment	0.406	0.255	0.293	0.602	0.685
759 Peripheral equipment	−0.016	0.067	−0.173	0.727	0.837
76 Audio-video equipment	0.636	0.626	0.488	0.513	0.525
77 Other electronic & electric machinery	0.075	0.087	0.324	−0.065	−0.047
776 Semiconductors	0.036	0.111	0.326	−0.311	−0.193
78 Road-running vehicles	0.725	0.533	0.683	0.099	0.037
781 Passenger cars	0.966	0.962	0.929	−0.967	−0.966
784 Automobile parts	−0.481	−0.396	−0.322	−0.022	−0.071
785 Motorcycles	0.481	0.183	0.423	0.646	0.777
79 Other transportation equipment	0.064	0.363	0.157	−0.600	−0.724
793 Ships	0.779	0.902	0.561	−0.087	−0.194
8 Miscellaneous goods	0.734	0.557	0.107	0.700	0.390
81 Sanitary, plumbing, heating lighting, etc.	0.226	−0.116	−0.019	0.910	0.798
82 Furniture	0.725	0.314	−0.076	0.873	0.706
83 Travel goods, bags	0.989	0.971	0.794	0.881	0.553
84 Clothing	0.992	0.952	0.644	0.871	0.575
85 Footwear	0.984	0.953	0.621	0.947	0.598
87 Optical, medical equipment	−0.620	−0.715	−0.689	−0.416	−0.541
88 Photographic equipment, watches, clocks	−0.133	−0.237	−0.389	0.271	0.116
89 Other miscellaneous goods	0.689	0.456	0.244	0.738	0.604
9 Special products	0.138	−0.102	−0.082	−0.928	−0.949

Note: The classification of commodities is based on the U.N. Standard International Trade Classification, third revision (SITC R3).
Source: The Institute of Developing Economies' trade data search system (AIDXT).

Table 1-8 Shares in Exports by Destination, in Imports by Source of Supply Exports (%)

Export

(1) Korea

	U.S.	EU	Japan	E. Asia		Other
					China/H.K.	
1988	35.4	14.7	19.8	12.5	5.9	17.7
1991	25.9	14.7	17.2	20.4	8.0	21.8
1995	19.5	13.0	13.6	33.2	15.9	20.6

(2) Taiwan

	U.S.	EU	Japan	E. Asia		Other
					China/H.K.	
1988	38.9	15.6	14.5	17.5	9.2	13.6
1991	29.4	17.4	12.1	27.9	16.3	13.3
1995	23.7	13.1	11.8	39.4	23.7	12.1

Import

(1) Korea

	U.S.	EU	Japan	E. Asia		Other
					China/H.K.	
1988	24.6	12.6	30.7	9.4	1.1	22.6
1991	23.2	13.1	25.9	14.2	5.2	23.5
1995	22.5	13.5	24.1	15.2	6.1	24.7

(2) Taiwan

	U.S.	EU	Japan	E. Asia		Other
					China/H.K.	
1988	26.2	13.4	29.8	11.5	3.9	19.1
1991	22.5	13.4	30.1	14.1	3.4	19.9
1995	19.9	14.5	29.5	18.6	4.4	17.5

Source: Same as Table 1-5

growth rate since 1992, as the economic crisis in neighboring countries failed to spread to the island republic.

What has to be recognized first is that Korean were comparable to their Taiwanese peers in terms of profitability and growth. While we cannot generalize from the 1995 readings alone, Korean firms outperformed their Taiwanese rivals in terms of ratio of operating profit to sales, ratio of recurring profit to net worth, and sales growth rate. Even in 1997, when Korea seemed on the verge of recession, the ratio of operating profit to sales was higher for its companies than for Taiwanese firms. The relatively low ratio of recurring profit to sales of Korean firms was due to small net worth, which pushes up financial costs accordingly.

Korean companies are known to be larger than Taiwanese firms, and Korea has more big corporations than Taiwan[3]. Combining these characteristics and the aforementioned financial indicators, the corporate behavior of Korean firms can be described as follows. They borrow funds aggressively to make up for insufficient owned capital, and attempt to lower average costs by expanding

Table 1-9 Business Conditions of Manufacturers in Korea and Taiwan

		1995	1997
Operating profit-sales ratio	Korea	8.3	8.3
	Taiwan	7.3	4.5
Recurring profit-sales ratio	Korea	3.6	−0.3
	Taiwan	6.6	4.1
Recurring profit-net worth ratio	Korea	14.0	−1.4
	Taiwan	9.6	10.0
Financial cost-sales ratio	Korea	5.6	6.4
	Taiwan	2.2	2.0
Rate of sales increase	Korea	20.4	11.0
	Taiwan	16.4	−
Value added rate	Korea	26.4	21.9
	Taiwan	14.7	−
Turnover ratio of total liabilities and net worth	Korea	1.0	0.9
	Taiwan	0.8	0.9
Turnover ratio of net worth	Korea	3.9	4.1
	Taiwan	1.4	1.9
Net worth	Korea	25.9	20.2
	Taiwan	53.9	53.2
Debt-equity ratio	Korea	286.8	396.3
	Taiwan	85.7	88.0
Current Ratio	Korea	95.4	91.8
	Taiwan	125.2	134.0
Ratio of fixed assets to net worth	Korea	212.5	261.1
	Taiwan	75.6	64.6
Ratio of fixed assets and long-term investment to net worth and long-term capital	Korea	102.4	99.2
	Taiwan	85.7	74.9

Note: No distinction is made between sales and operating revenue for Korea. That distinction is not made in most cases for Taiwan. But net sales, instead of operating revenue, is used for the financial cost-sales ratio for 1997, which results in a slightly higher ratio than the ratio against sales.
Profit ratios for Taiwan for 1997 are the ratios for after-tax profits.
The values for Taiwan for 1997 are the mediams, not the averages.
Source: Korea: The Bank of Korea, *Financial Statement Analysis*.
Taiwan for 1995: Office of Economic Research, Bank of Taiwan, *Report on Financial Conditions of Manufacturers in Taiwan*.
Taiwan for 1997: China Information Service, *Comprehensive Analysis of Financial Conditions of Industry and Commerce in Taiwan*.

the scale of operations. This raises the ratio of operating profit to sales, enabling them to cover the high financial costs stemming from a high dependence on borrowings and to secure profits that fully correspond to their small net worth. The behavior of Taiwanese firms, meanwhile, can be characterized as follows. Starting with limited owned capital[4], they try to control dependence on borrowing and to conduct business within their means. Because economies of scale cannot be fully put to work, their ratios of operating profit to sales tend to be lower than those of Korean companies. But they can still attain appropriate levels of recurring profit-net worth ratio due to their smaller financial costs, which in turn result from lower debt-equity ratios.

The behavioral patterns of Korean firms were considered reasonable so far as stable economic growth continued. It may be possible to argue that the corporate behavior of Taiwanese firms was unreasonable, because their conservative attitude toward borrowing made them lose opportunities for potential profits and growth.

However, the borrowing-dependent behavior of Korean companies caused distinctly large risks. There were striking differences between Korean

and Taiwanese firms in the ratio of net worth or debt-equity ratio. While the average net worth ratio of Taiwanese firms was in excess of 50%, the ratio for Korean companies was less than 30%. In other words, the debt-equity ratio was under 100% for Taiwan, but close to 300% for Korea even in 1995. The current ratio exceeded 100% for Taiwan, but was less than 100% for Korea. The ratio of fixed assets to net worth was less than 100% for Taiwan, but over 200% for Korea. As far as the ratio of fixed assets and long-term investment to net worth and long-term capital is concerned, Korea's ratio of around 100% can be termed appropriate, though it is still behind Taiwan's. This is because Korean firms have covered their shortfall in net worth with long-term liabilities.

It is obvious that the composition of assets and debts as described above makes Korean firms very vulnerable to any deterioration in the economic climate. If operating profits declined or interest rates rose, the heavy burdens of financial costs would become even heavier. If the value of liquid assets decreased amid a recession, they would run into trouble because of their low current ratios. These problems spell risks for individual companies, and at the same time show how easily chain-reaction bankruptcies can occur in Korea. Meanwhile, Taiwanese firms, with their small financial costs due to their low debt-equity ratio and relatively high current ratio, would not be driven into a life-or-death situation immediately even if some deterioration in economic conditions caused them to incur losses. Their relative financial health would also keep a single corporate failure from undermining the whole economy. Lying behind the worsening of Korea's economic crisis since 1997 has been the vulnerable financial structures of its firms. Furthermore, because of this, confidence in Korean companies and the Korean economy as a whole has declined, causing the economic crisis to deepen further.

Notes:

1. As is well known, if the fiscal balance is not taken into account, the current-account balance corresponds to the savings-investment gap of a country. In Korea, while the investment rate remained around 30% throughout the 1980s, the savings rate steadily rose from 24% in 1980, overtaking the investment rate in 1986, before stabilizing at 35-36%. From around 1989, however, the investment rate began climbing and exceeded the savings rate again, maintaining a differential of 0-3 percentage points since then. In the case of Taiwan, the investment rate, which stood at 30% in 1980, continued to decline thereafter, and slumped to around 15% in 1986. After some recovery in the subsequent years, the investment rate stayed roughly in the 20-25% range in the 1990s. The savings rate rose from around 31% in 1980 to 39% in the latter half of the 1980s, but then went on the decline, standing at around 25%, just slightly above the investment rate, in the latter half of the 1990s. Aside from the gap between the two rates, it is interesting to note that both the savings and investment rates were considerably higher in Korea than in Taiwan.
2. Korea shifted from Japan to other East Asian countries for its imports of manufactured goods of materials and machinery, while Taiwan shifted from the United States to East Asia for imports of manufactured goods of materials and also reduced purchases of raw materials from the United States.
3. Abe, Makoto and Momoko Kawakami, "A Distributed Comparison of Enterprise Size in Korea and Taiwan", *The Developing Economies*, 35 (4), 1997.
4. The low debt-equity ratio of Taiwanese firms was partly caused by conservative financing by financial institutions, especially under the system where major members were publicly-owned banks before 1990. However, despite the banks' more aggressive financing under the liberalization of the 1990s, debt-equity ratios have remained low. This means that firms themselves have cautious attitudes toward borrowing.