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Abstract

By the late 1980s Korea’s interventionist and export oriented development model had contributed to a number of serious structural weaknesses in the economy. Ongoing government involvement in the banking and corporate sectors, weak prudential supervision of financial institutions, and restricted financial market and corporate competition created moral hazard, as banks and corporates believed they would not be held accountable for their actions due to their close relationship with government. This resulted in financial sector risk mismanagement and highly leveraged growth of the *chaebols*. After 1988, when the new democratically elected civilian administration removed long-standing restrictions on union activity, rapid wage growth, in excess of productivity gains, eroded profitability. These structural weaknesses, and policy errors and mismanagement, made Korea increasingly vulnerable to external shocks during the 1990s. In mid-1995, a rapid depreciation of the Japanese yen and a world semi-conductor glut and price fall provided the trigger for a rapid slowdown in exports and industrial output, and an unprecedented wave of *chaebol* bankruptcies that undermined the solvency of financial institutions. Korea’s long period of sustained economic growth, low inflation, strong investment and balanced budgets had lulled policy makers into complacency. They failed to act decisively to tackle the growing structural weaknesses. Korea’s high exposure to short term foreign debt and loss of foreign exchange reserves through a vain and unsustainable attempt to defend the won further undermined foreign investor and creditor confidence.

This paper discusses in some detail these developments and their contribution to the financial and economic crisis experienced by the country during 1997-98. It also identifies key lessons for countries contemplating similar rapid development, and key warning signs that need to be heeded to avoid similar happenings to that which occurred in Korea.

1. Introduction

Few countries in history have attained such a high level of development so rapidly as Korea. In a single generation this poor nation, consisting primarily of subsistence farmers in the 1950s and early 1960s, had been transformed into the world's largest producer of home appliances, the second largest producer of semi-conductor chips, the second largest ship builder, the fifth largest car maker, the 11th largest economy in the World and the third largest in Asia, and the 12th largest exporter and trading nation by 1996 (Harvie and Lee (2003a)). Koreans became accustomed to rapid economic growth and development and low unemployment driven by very high rates of saving and investment and a strong emphasis on education, which boosted the share of youth enrolled in universities to amongst the highest levels in the OECD[1] area. Since the early 1960s per capita income doubled every eight years rising from US$80 to US$10,000 by 1996 (Australian Department of Foreign Affairs and Trade (1999)), equalling 50 per cent of Australian per capita GDP and 35 per cent of US per capita GDP. Income remained relatively equally distributed. Living standards for ordinary Koreans increased dramatically with life expectancy increasing from 47 in 1955 to 72 years[2]; and with its 98 per cent adult literacy rate and 83 per cent gross educational enrolment ratio it could match industrial country standards. The country's attainment of OECD membership in December 1996[3], the Paris based club of the world's richest industrialised nations, signified the culmination of 35 years of extraordinary growth and the economy's coming of age. Its model of economic development, state directed capitalism, became the envy of other developing economies wishing to replicate such rapid development. Yet, less than a year after its accession to the OECD, the country experienced a traumatic and severe financial crisis.

Despite these remarkable achievements, structural weaknesses and an inability of the country's political and economic organisations to keep pace with the country's material achievements began to undermine the economy. The structural and inherent weaknesses of the state-led industrialisation strategy became especially evident by the late 1980s and early 1990s as the country entered into the stage of a middle-income country (see Harvie and Lee (2003a)), and hence its markets became bigger and more complicated such that a handful of elite government officials were no longer able to manipulate the entire economy. Reform and liberalisation was urgently required in a number of key areas: the industrial sector; financial markets and the banking sector; the labour market; the small and medium sized enterprise sector; and in trade and investment. At the core of these problems was the close relationship between the government, banks and the *chaebol*, which created moral hazard as the banks and corporations believed they would not be held accountable for their actions (Joh (1999) and Chang, Park and Yoo (1998))). In particular, the state guided banks' habit of lending on the basis of political whim rather than proper risk assessment resulted in a severe mis-allocation of resources, and a substantial accumulation by the banks of non-performing loans (Borzenstein and Lee (1999)). Government backed industrial policy resulted in an overly close relationship between the government and the business conglomerates, which resulted in corruption, a sapping of entrepreneurial creativity and

[1] Organisation for Economic Cooperation and Development.
[2] The OECD average was 76 years.
[3] An officially stated objective of the government since 1993.

growth, and an unwillingness to open up the economy to foreign trade and investment, despite intense pressure from its trading partners, due to the *chaebols* wishing to protect their own interests and dominance over domestic markets[4] (Smith (1998)). Also, after 1988, when the new democratically elected civilian administration removed long standing restrictions on union activity, rapid wage rises, in excess of productivity, contributed to an erosion of profitability. This was compounded by unhealthy industrial relations characterized by hostile confrontation and union militancy (Australian Department of Foreign Affairs and Trade (1999)).

This system led to excessive and ill utilised loans to the *chaebol*, with little concern for adequacy of return and risk, and resulted in: over-capacity in many sectors of the economy; dangerously over-leveraged *chaebol*; a crowding out of small firms; less innovation and flexibility in the economy; and the accumulation of non-performing loans by the banking system (Harvie and Lee (2003a)). This was exacerbated by capital market opening from 1993 that led to a rapid increase in capital inflows, over-borrowing, particularly in the form of short-term debt, and an appreciation of the domestic currency (Australian Department of Foreign Affairs and Trade (1999)). During 1997 the country's financial fragility was exposed and problems multiplied considerably, and the unsustainability of this situation became only too apparent. An unprecedented eight conglomerates were declared insolvent or sought protection from their creditors, leading to increasing bad debts for the banking system which then tightened credit and caused more corporate difficulties and failures. The situation was exacerbated by the dramatic slide of the won, the domestic currency, against the US dollar towards the end of October 1997, as the domestic demand for US dollars increased and confidence in the domestic currency waned. The banking and corporate sectors' need to service foreign loans primarily denominated in US dollars in exchange for domestic currency, as well as currency dealers questioning the ability of the country to pay back its US$153 billion in foreign loans of which two-thirds was shortly maturing debt, put downward pressure on the currency. By the end of 1997 it was clear that major restructuring of the economy had to take place, focusing upon that of the financial, industrial, labour market and external sectors. The old model of economic development appeared to have run its course (Harvie and Lee (2003a)). The build up to this crisis during the crucial period of the 1990s provides the focus of this study.

The remainder of the paper proceeds as follows. Section 2 conducts a brief overview of Korea's macroeconomic performance during the period of the 1990s. International trade, investment, debt and exchange rate developments are discussed in more detail in section 3. Developing structural weaknesses in the economy are investigated in section 4. Section 5 reviews other deficiencies in the economy during this period. Policy weaknesses are discussed in section 6. Section 7 identifies the key lessons from the experience of the Korean economy during the period of the 1990s. Finally, section 8 presents a summary of the major conclusions from this paper.

2. Korea's macroeconomic performance during the 1990s

[4] Efforts had been made by the government from the early 1980s to reduce the dominance of the chaebol within the economy, but without success.

From the mid 1960s to the late 1990s the Korean economy was one of the fastest growing in Asia, with an average annual rate of economic growth of 9 per cent. Over the shorter period 1990-97 the country achieved an average annual real GDP growth rate of 7.3 per cent (see Table 1 and Table 13)[5]. From Table 1 it can be seen that real GDP growth was 9 per cent or over during 1990 and 1991, driven by strong growth in investment[6] and consumption expenditure. It then experienced a sharp decline during 1992-93 due, primarily, to a significant slowdown in investment expenditure, as well as a decline in consumption expenditure, as part of a stabilisation policy to reduce inflationary pressure. Growth increased again in 1994 and 1995 due to: the implementation of an expansionary economic plan under the new government led by Kim Young Sam; the opening of domestic markets to increased foreign competition; the liberalisation of foreign capital inflows; a strong export performance, assisted by a high yen which gave Korean exporters a competitive advantage over Japanese exporters; a boom in construction and domestic infrastructure investment; and steadily rising private consumption. The business cycle peaked in 1995 and the economy began to slow in 1996 and 1997 due to a rapid decline in both consumption and investment expenditure and particularly weak export growth in 1996. The primary source of growth over the entire period was derived from industrial production and more specifically from that of the manufacturing sector (Table 1), however its contribution declined in 1996 and 1997. The services sector also made a significant contribution to economic growth during the period 1990-97.

By the last quarter of 1995 the economy began to enter a downward phase of the business cycle, and during 1996 its performance noticeably deteriorated. The major specific causes of this business cycle downturn were:

- downturns in the semi-conductor, metals and petrochemical businesses. Korea was hit by its worst terms of trade conditions since the oil shock of 1979, with a drop in export prices beginning in the second quarter of 1995. This had a profound effect on Korea's macroeconomic performance. The effect of the world semi-conductor glut and decline in prices of 1996 can be placed on a par with the first (1973) and second (1979) oil shocks. The spot price of the industry standard 16M DRAM chips[7], fell from US$54 to US$8 over the course of 1996 and continued around this level in 1997. The share of semi-conductor exports as a share of total Korean exports fell from a record 21 per cent in 1995 to 18.9 per cent in 1996. While the volume of its exports continued to grow the prices received were much lower, and hence export value growth was reduced,
- a weakening yen from mid 1995 and into 1996 significantly eroded the price competitiveness of Korean products in world markets where Korean and Japanese firms competed head on, leaving many Korean producers in a situation where they had to compete against similarly priced, but better quality, Japanese products. The lower value of the yen reduced the prices of Japanese exports on world markets and forced similar cuts in Korean export prices. This was absorbed in reduced corporate profits and

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[5] For a review of the performance of the economy from the mid 1960s to the late 1980s see Harvie and Lee (2003b).

[6] A major contribution to this was the construction of 2 million new houses under a house construction plan over the period 1988-91. This ultimately contributed to excess demand in the economy, and a bubble in both land and stock prices from 1992-94.

[7] Korea is the world's largest manufacturer of such chips.

contributed to an adverse impact upon the trade and current account balances (see Table 2),

- the equipment and infrastructure investment boom of 1994 and 1995 ended leading to excess capacity, and was exacerbated by an unanticipated softening of global demand. These created a weak investment climate in 1996. In addition, the completion of several large-scale projects during 1994 and 1995 accounted for part of the lower growth of equipment investment and building construction in 1996. There was global over-supply in Korea's major export sectors such as steel, cars and petrochemicals that also suppressed prices after 1996. As a result, Korea's export volumes increased substantially in 1997 but company incomes fell dramatically. This had major financial implications for a number of the country's over-leveraged *chaebols* (Australian Department of Foreign Affairs and Trade (1999), Harvie and Lee (2003a), and Smith (1998)),
- structurally, Korean businesses were increasingly suffering from the so called three highs: high wages, high interest rates and high land prices. These factors resulted in Korea becoming the highest cost country among the Asian tigers (Federation of Korean Industry (1996)). In addition, relatively low efficiency, particularly in some sectors such as banking, and excessive government regulations created an increasingly difficult and less competitive business environment (Kim (1999) and Kim (1995)). This not only had adverse implications for prospective foreign investors but contributed to a shift of Korean companies to off-shore production locations.

Macroeconomic conditions continued to deteriorate into the early part of 1997, when the country experienced its worst labour unrest in history. Over a number of weeks workers across the nation went on strike to protest against the introduction of a new law making lay-offs easier, in conjunction with restricting union activities. The work stoppages caused an estimated US$3.15 billion in lost output. Soon after this the country experienced the Hanbo debacle. On 23 January South Korea's second biggest steel company imploded under a US$5.9 billion debt, which took out its entire parent group, the then 14th largest Korean conglomerate, amidst allegations of corruption involving chaebol owners and government officials. The Bank of Korea's swift injection of 6 trillion won (US$7 billion) in liquidity prevented a possible chain reaction of bankruptcies. This made South Korea's already shaky financial system even more so, with many banks becoming loan shy. In addition, with the additional liquidity in the system, inflationary concerns deepened, and the government's CPI target of 4.5 per cent for 1997 appeared unlikely. These developments contributed to a generally gloomy economic outlook during the early part of 1997. However, the economic climate turned decidedly pessimistic by late October 1997 amidst increasing concerns about Korea's ability to service its foreign debt[8], 60 per cent of which was of short term maturity of 12 months or less, and the deteriorating situation of the corporate and banking sectors. The currency contagion afflicting East Asia finally hit the Korean currency and stock markets (Park (1998), Park and Rhee (1998), Park and Song (2000) and Radelet and Sachs (1998a). This, in conjunction with the implementation of necessary reforms under the conditions of the IMF rescue program, contributed to GDP growth slowing to 5 per cent for 1997.

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[8] Estimated at this time to be US$130 billion.

Despite the fluctuating growth of GDP the unemployment rate remained low during the period of the 1990s, at between 2-3 per cent. The unemployment rate declined to only 2 per cent at the business cycle peak in 1995, and despite the downturn of the economy from the third quarter remained at this rate in 1996. Only in 1997 did the unemployment rate increase, and this by some 0.6 percentage points[9]. Considering that the natural rate of unemployment in Korea was estimated at 2.3-2.5 per cent, the actual unemployment rate had, therefore, remained low during the period of the 1990s[10].

Productivity in Korea appeared to vary with the nature of the business cycle. It improved with the growth of the economy and declined during the downward phase of the cycle. Unit labour costs also varied with the growth cycle. Unit labour costs grew noticeably during the high growth periods of 1990-91 and 1994-95, but slowed during the downturns in 1992-93 and 1996-97.

A major and growing strength of the Korea economy, particularly since the mid 1980s and even more so during the period of the 1990s, was the country's high level of savings. As noted previously, an important source of growth for the economy during the period of the 1990s was its high level of investment. Table 1 shows that the country's saving rate remained at around 33-37.5 per cent of GNDI during the period of the 1990s. This enabled the country to maintain its very high level of investment. The country's investment rate remained at a slightly higher level of around 34-40 per cent of GNDI. Hence a substantial proportion of its investment requirements were met from domestic sources. However, the efficiency of usage of such funds remained a pertinent issue (Harvie and Lee (2003a)).

Consumer price inflation (CPI) was generally on a downward trend during the period of the 1990s, from relatively high rates in 1990 and 1991, with the exception of 1994. Price stability was the government's primary focus during 1996. The inflation (CPI) rate was a stable 4.9 per cent in 1996, up 0.4 percentage points from the previous year, and in the upper range of the government's target. Stable agricultural prices, increased competition from imports and subdued consumption led to lower price increases in 1996, particularly in the second half of the year. The deterioration of macroeconomic conditions in 1997 resulted in a further fall in inflation to 4.5 per cent.

The government's fiscal position was also strong throughout the 1990s. Starting with modest deficits during 1990-92, this turned into modest surpluses from 1993-97. This development was a reflection of the prudent monetary and fiscal policies pursued by the

[9] This slow increase in the unemployment rate reflected the fact that labour laws made worker lay-offs extremely difficult (Kim and Lee (1997)). However with the introduction of labour market reforms and the establishment of the Tripartite Commission in January 1998, a body composed of representatives from labour, management and government, the Tripartite Social Accord was signed in February 1998 making lay-offs easier.

[10] However, with the financial crisis in 1997 and subsequent agreement on legalising lay-offs, in conjunction with structural change from labour intensive technology intensive industries, resulted in a significantly higher unemployment rate of some 6.8 per cent in 1998.

authorities during this period. In 1996, for example, Korea's general government outlays and government gross debt were the lowest of all the OECD countries (see OECD (1998), p.43). Its financial balance was in surplus and its net debt was actually negative[11]. Korea's public sector is small, with the ratio of government outlays to GDP only half the OECD average. Budget management was sound. During 1990-95, total government receipts remained at 23 per cent of GDP while outlays were 20 per cent of GDP. Its position as a net creditor was shared by few other OECD countries. Unlike other OECD countries where social security transfers averaged more than 15 per cent of GDP, before the economic crisis in Korea such transfers were a little over 2 per cent of GDP (Australian Department of Foreign Affairs and Trade (1999)).

Korean interest rates, nominal and real, remained relatively high during the period of the 1990s, a reflection of the country's heavily protected domestic financial markets (Kim (1997), and Park (1996))). The corporate bond yield varied between 11.8-18.9 per cent over this time. Fluctuating nominal interest rates in conjunction with generally declining inflation rates contributed to quite volatile real interest rates during the period of the 1990s, and particularly so during the latter half of this period. Such fluctuations resulted in major problems for the heavily leveraged *chaebols,* and represented a further financial burden on less favoured small and medium sized enterprises during periods where real interest rates were rising. The deterioration in financial markets from late October 1997, and the terms of the IMF rescue package, resulted in interest rates rising to over 25 per cent, creating even more problems for the heavily leveraged corporate sector.

Domestic stock markets also experienced a roller-coaster ride during the period of the 1990s. The stock market price index remained relatively stable in the early part of the 1990s before increasing dramatically in 1993-1994, with an equally spectacular sustained decline thereafter until the crash in 1997 (Harvie and Lee (2003a)).

3. External developments

International trade for Korea, as with the other tiger economies, has been the key to its economic development (Cho (1994), Economist (1998), Harvie and Lee (2003a), Harvie and Lee (2003b), Sohn, Yang and Yim (1998), Westphal (1990), and World Bank (1993)). By the mid 1990s Korea emerged as a major trading nation, being the world's twelfth largest exporter by value in 1996 at US$129.7 billion, with a 2.4 per cent share of world exports, and the world's eleventh largest importing nation by value at US$150.3 billion equivalent to 2.8 per cent of world imports (see Table 2). This section briefly reviews the country's international trade and investment developments during the period of the 1990s.

[11] Of all the OECD economies only Norway also had a negative government net debt, which was larger than Korea's, and only Norway had a government financial surplus which was again larger than Korea's. This position, however, deteriorated considerably from 1998 with the onset of the economic crisis and the fiscal commitments required by the government to re-capitalise the banking sector in particular.

International trade flows

During the 1990s Korea sustained a high growth of exports, with the exception of the general slowdown in 1996 and 1997. However, this rapid growth of exports occurred in conjunction with an equally rapid growth of imports (see Table 2). Consequently, the country ran persistent trade and current account deficits during the period of the 1990s with the exception of 1993. After 1995 there was a noticeable deterioration in the current account deficit from US$8.5 billion (1.9 per cent of GDP) to a blow-out level of US$23 billion (4.7 per cent of GDP) in 1996. While export growth slowed so too did import growth, but by a much smaller amount.

The country's dependence on heavy industry at the expense of light industry, and manufacturing at the expense of services, is most clearly demonstrated by over-dependence for its exports on a few key industries such as cars, ships, steel, petrochemicals and semi-conductors[12] (Australian Department of Foreign Affairs and Trade (1997 and 1998)). This made the country particularly susceptible to changes in global prices for these goods. As indicated in Table 3 exports are dominated by machinery and transport equipment, manufactured goods and chemicals. In 1990 these alone contributed 93.4 per cent of total exports, and their contribution remained around 90 per cent of total exports by 1996-97[13]. During 1995-96, the decline in demand and prices of global (DRAM) semi-conductors, as well as lower prices for steel, rising labour costs, declining per capita productivity and the weakening of the Japanese yen, all combined to reduce the growth of export values and competitiveness and contributed heavily to the current account deficit in 1996 as well as the slowdown in GDP growth (Australian Department of Foreign Affairs and Trade (1999)). The impact on Korea's economy of the decline in the spot price for the industry standard 16M DRAM chips from US$54 to US$8 in 1996 has been placed on a par with the first (1973) and second (1979) oil price shocks. Many Korean firms were hit hard. For instance, Samsung's profits on semi-conductors fell from US$3 billion in 1995 to a mere US$190 million in 1996, a drop in profits of 93 per cent. The LG Economic Research Institute estimated that 90 per cent of the increase in the current account deficit in 1996 was attributable to the drop in export prices. While export values improved modestly in 1997, the slowdown in the economy in this year reduced imports and significantly reduced the current account deficit to US$8.2 billion (1.8 per cent of GDP).

Imports, with the exception of 1992 and 1993, also grew rapidly during the 1990s, but most noticeably over the period 1994-95. Imports increased in 1995 by 32.1 per cent to the value of US$135.1 billion, fuelled by increased imports of capital goods (32.5 per cent), industrial materials (32.6 per cent) and consumer goods (27.8 per cent). Substantial imports of machinery and equipment were apparent for the economy during the period of the 1990s, and as a proportion of total imports they were increasing. Such imports had been essential

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[12] Industries in which the *chaebols* concentrated their development (Lee and Lee (1996), Sohn, Yang and Yim (1998) and Westphal (1990)).

[13] For example, the top ten export items accounted for 53 per cent of the total value of shipments in 1995, up from 50 per cent in 1994. These, in addition to other manufactured goods, accounted for 85 per cent of exports.

to the expansion and upgrading of production facilities, but they contributed considerably to the country's worsening trade balance (OECD (1996, 1998, 1999)). A reduction in tariff barriers over the period 1988-96 also contributed to this surge in imports. Economic reforms, as well as a further reduction in tariff barriers, were seen as being vital to enhance the international competitiveness of domestic companies, and to enable the economy to take the fullest advantage of its further integration into the global economy (see Table 4). As with exports, imports of machinery and equipment, in addition to other manufactured goods, dominated total imports, contributing, for example, some 55 per cent of the total in 1997 (see Table 3). This, in conjunction with imports of commodities and consumer goods, contributed to the record US$23 billion current account deficit in 1996. Developments in Korea's import structure, therefore, reflected the country's restructuring efforts (OECD (1998)). As its production capability shifted to a higher value added scale so too did its import items become higher value added, a phenomenon that caused rising trade deficits with developed countries. In 1995 Korea's trade deficit with developed countries stood at US$29.1 billion compared with a trade surplus of US$19.2 billion with developing countries. Import growth decelerated to 11.3 per cent in 1996 from 32.1 per cent in 1995, in response to weaker investment and slower export growth. However, imports of consumer goods rose by 22 per cent in part due to: the removal of import barriers; increasing affluence; and a declining loyalty to domestic products. With the onset of the financial crisis in 1997, import growth became a negative 3.8 per cent[14].

Direction of trade flows

The country's major trading partners during the period of the 1990s are shown in Table 5. These consisted primarily of the developed economies of the USA, Japan and the EU, which together constituted about a half of Korea's total trade in 1996 but falling to about 46 per cent of total trade in 1997. The increasing significance of China as a trading partner is also worthy of note. Despite the dominance of the three major economic superpowers in Korea's trade, a clear trend began emerging in Korean exports away from the mature markets of the US and Europe, where Korean products faced severe competition, towards emerging markets such as China, Eastern Europe, south-east Asia and South America (Australian Department of Foreign Affairs and Trade (1997 and 1998)). In 1996 developing countries emerged as Korea's largest export destination, accounting for 50.9 per cent (US$62.6 billion) of total exports (see Table 6). Another key feature of Korea's trade is the large deficits it has with advanced countries (specifically the US, the EU and Japan) and the large surpluses it has with developing countries (OECD (1998)). For example, Korea's total trade with ASEAN countries in 1996 reached US$32.3 billion, with exports of US$20.2 billion and imports of US$12.1 billion. The ASEAN countries now represent Korea's fourth largest trading partner after the USA, Japan and the EU. Also, Korea enjoys the second largest bilateral trade surplus in trade with the ASEAN countries, second only to its surplus with China. The ASEAN region is also a major destination for Korean investment and technological cooperation, which drives exports of machinery and electronic components. It is also an important destination for Korea's construction orders that totalled US$4 billion in 1996. Hence developments in this market had become of critical importance. The financial

[14] During the depth of the economic crisis in 1998 imports collapsed dramatically.

and economic crisis in the ASEAN countries during 1997 and 1998 was, therefore, of particular concern and importance to Korea.

Imports have, like exports, shown a trend away from the industrialised economies to the developing countries (see Table 7). However, in this case, overall imports are still dominated by the industrial economies and particularly that from the USA, Japan and the EU (Australian Department of Foreign Affairs and Trade (1998)). Given the efforts by the country during the 1990s to enhance its global competitiveness and move into higher value added production, this has required the importation of higher value added, more technologically advanced, equipment and machinery which could only be obtained from these technologically advanced economies.

International investment

The extent of foreign direct investment in Korea and Korean investment overseas is contained in Tables 8 and 9. Table 8 indicates that the extent of foreign direct investment in Korea has been very small, and certainly by comparison to that observable elsewhere in the region, and is indicative of the general perception by overseas investors that Korea is not an attractive country within which to invest (OECD (1998)). Among the reasons cited for this perception are: high wage rates; high land prices; expensive finance; abuse of intellectual property rights; requirements that profits be reinvested; and excessive government regulation (see also Table 10). These problems required urgent attention by the authorities, given the important role that such investment could play in attracting and upgrading the technology used in the country.

Historically, Korea has also been less than receptive to foreign direct investment (Australian Department of Foreign Affairs and Trade (1999)). Korea's home-grown development utilised domestic savings, foreign borrowings by the financial sector, and state directed loans to industry (Borensztein and Lee (1999), Lee and Lee (1996), Sohn, Yang and Yim (1998) and Westphal (1990)). The policy resulted in a very low rate of FDI penetration and its cost has been that Korea missed out on the direct transfer of technology, management and marketing know-how that such FDI can bring. Since the mid 1990s, however, FDI has emerged as a central pillar of economic policy, addressing the goals of developing new Korean industries and facilitating technology transfer. In an effort to restructure industry by inducing strategic high tech transfers from advanced countries, Korea attempted to attract FDI and encourage Korean corporations to enter into strategic alliances with foreign companies. In late 1994 the government reaffirmed its policy of encouraging foreign investment in Korea by reducing corporate tax on foreign invested firms, relaxing regulations on foreign ownership of land, and simplifying approval procedures (Australian Department of Foreign Affairs and Trade (1999)). Particular effort was concentrated on attracting more Japanese investment in the area of auto parts, electric/electronic parts, and machinery industries, as Japanese manufacturers diversified their production bases in the mid 1990s to overseas countries in order to reduce increased production costs arising from the strength of the yen. Subsequently, the liberalisation of FDI policy resulted in a rapid increase of inflows of foreign investment into Korea from the mid 1990s. In 1995, inflows of foreign direct investment amounted to 578 projects/transactions valued at US$1.9 billion, an increase from US$1.3 billion in 1994 and almost double the flow in 1993. In 1996 it reached US$3.2 billion, in 1997 US$7 billion, and rising further to US$8.9 billion in 1998 (see Table 8).

As identified by Table 8 FDI is dominated by that from the developed economies, with the USA, Japan and Europe contributing 79 per cent of total FDI inflows in 1995, 68 per cent in 1996, 84 per cent in 1997, and 73 per cent in 1998. By sector, investment in chemicals, foodstuffs, and electronics remained strong until 1996, but thereafter a significant change has taken place. From 1997 FDI in foodstuffs, machinery, electronics, financial services and hotels and tourism have increased the most. However the pattern remains variable.

With the onset of the financial crisis after November 1997, all levels of government acknowledged that foreign investment would have to be a central part of Korea's restructuring and recovery program (World Bank (1999)). The immediate objective of attracting foreign investment was to put Korean companies on to a sound financial footing and to assist with economic restructuring. However, other factors advanced for the attraction of FDI included transfer of technology and know-how, and access to foreign supply chains. To this end foreign investment was liberalised further in 1998[15]. In May 1998, Korea boasted a 98 per cent rate of liberalistion, which meant that out of the 1,600 industrial sectors classified by the government only 31 were restricted for foreign investment. This was a significant improvement on the situation just a few years previously, when the figure was around 85 per cent.

The Korean government also announced that foreign investment would be opened fully in all industries, except for industries where there were national security or cultural concerns (e.g. coastal fisheries, media) or where industries were subject to international negotiations for foreign investment (e.g. communication and shipping industries) (OECDE (1999)). FDI application procedures were simplified and laws amended so that foreigners were treated equally with nationals in the purchase of land and real estate. The Korean government also continues to offer incentives to foreign companies in high technology industries and in designated export zones. The include company and income tax exemptions, and low rents on land. Local governments have also been allowed to establish free investment zones as part of their policy to attract foreign investment. Change has also occurred at the social level. The historical community resistance to foreign investment also crumbled in the face of rising unemployment (Lee and Lee (2000)).

As a consequence of an easing of the regulatory regime the stock of outward investment by Korean companies reached US$10.2 billion at the end of 1995, focused mainly in North America where investments were 14.2 per cent of the total. However, in terms of recent Korean investment overseas an increasingly clearer pattern has emerged, as indicated in Table 9, with investment moving away from the traditionally favoured destinations such as the USA to south-east Asian countries and China in particular. The exception to this trend being the case of North America in 1996. The share of investment in Asia other than China has remained remarkably stable during the period of the 1990s, at around 28-29 per cent of

[15] Meergers and acquisitions became the main vehicle for FDI in 1998.

total investment overseas, although the composition of this has primarily moved to south-east Asia. On the other hand China emerged as a major recipient of investment by Korean firms, increasing from only US$16 million in 1990, or 1.7 per cent of the total in this year, to US$824 million in 1995, equivalent to 28.6 per cent of the total. However since 1996 there was a reversal in this upward trend of investment to China, falling to US$633 million in 1997 or 19.6 per cent of the total. This overseas investment development is indicative of the increasing concern that Korean labour intensive manufacturing industries, such as in textiles, footwear and fabricated metals in particular that are dominated by small and medium sized firms, have over a loss of competitiveness resulting from rising domestic wages. Hence, to offset a decline in price competitiveness, Korean companies have sought to relocate some of their less competitive manufacturing and assembly facilities in lower cost countries such as China, Vietnam, Indonesia and, more recently, North Korea. China, in particular, is seen as the most desirable country for investment because of its proximity, cheap labour and huge market potential. Asia, including China, therefore received about 50 per cent of total Korean overseas investment in 1997, compared with only 30 per cent in 1990. The relative significance of North America as a destination for such investment by Korean firms declined by 1997, where it was 23 per cent of the total, relative to 1990 where it was 45.7 per cent of the total. On the other hand, the relative position of Europe improved from 6.7 per cent of the total in 1990 to 10.8 per cent of the total in 1997.

After 10 October 1995, all Korean companies were required to source at least 20 per cent of projected investment capital in overseas projects of US$100 million or more from internal sources or from their own capital, reserves or cash-flow. This policy was designed to slow Korea's increasing foreign debt, and also to allay government concerns that many companies were over-extending themselves (OECD (1997)).

External debt

As indicated in Table 2, Korea's gross foreign debt increased steadily during the period of the 1990s, with the most significant increase taking place from 1994 onwards[16]. Gross foreign debt increased to US$105 billion by the end of 1996, almost double the same figure in 1994, and this debt was equivalent to 20.1 per cent of GDP. This compared with a figure of around 12.6 per cent of GDP at the end of 1990. The increase was due mostly to the significant deterioration in the trade deficit and expanded borrowing from overseas to meet increased facility investment. By the end of 1997 gross foreign debt stood at US$120.8 billion, a total debt equivalent to 25.3 per cent of GDP. Net foreign debt also increased steadily during the period of the 1990s. Not only was their increasing concern about the build up of this debt, but also of its increasing short-term nature and the country's ability to repay it. Short-term debt as a proportion of the total debt stood at 57.5 per cent by the end of 1996, up from around 30 per cent of the total in the early 1990s (Corsetti, Pesenti and Roubini (1998), Economist (1998, Jwa and Huh (1998), Kwon (1998), Lee (1999a) and Park (1998)).

[16] This also corresponds with developments in international capital markets. After 1994, following the Latin American financial crisis, capital inflows into the emerging market economies of East Asia noticeably increased.

The sharp rise in foreign debt, particularly in the form of short-term debt, was due to four factors. First, the government expanded the scope for short-term foreign currency borrowing in 1993 when it permitted enterprises to borrow from abroad either directly or through Korean banks, to finance imports of capital goods[17]. While liberalising loans of less than one year, restrictions on long-term overseas borrowing were maintained[18] (Australian Department of Foreign Affairs and Trade (1999)). Consequently, there was a dramatic rise in short-term foreign debt as Korean financial institutions borrowed abroad to finance the investment boom. In contrast to some south-east Asian countries, however, the increased debt did not lead to a speculative bubble in asset prices. Land prices, which had risen at a rapid pace in the second half of the 1980s and early 1990s, were basically stable prior to the crisis. Instead, foreign borrowing primarily financed an expansion of industrial capacity that proved to be excessive. Second, overseas borrowing was facilitated by a jump in the number of financial institutions dealing in foreign currency, following the licensing of 24 merchant banks between 1994 and 1996[19]. Third, the widespread perception that the won was undervalued during much of the 1990s encouraged borrowing from overseas. Fourth, the implicit government guarantee of financial institutions created a moral hazard that encouraged high levels of borrowing by Korean banks and lending by their foreign creditors (Borensztein and Lee (1999)). However, it was not just the rise in short term debt that left Korea vulnerable to a financial crisis, but the fact that it was combined with a lack of sound risk management at banks which were inexperienced in the area of overseas borrowing. The new merchant banks, in particular, took on high levels of liquidity and exchange rate risk[20]. Moreover there was a lack of prudential supervision; basic regulations, such as capital adequacy ratios for merchant banks, did not exist.

While concerns over the accumulation of short-term debt increased, these concerns were compounded by the rapid deterioration in the country's foreign reserves. This became of particular concern from 1994 onwards as short-term debt increasingly exceeded foreign exchange reserves (see Table 2). Although foreign exchange reserves accumulated rapidly during the 1990s to stand at US$33.2 billion by the end of 1996, there was US$93.3 billion worth of short-term debt at the same point in time. Worse still was the steep decline in

[17] This move reflected the government's strategy of beginning capital account liberalisation with trade related financial flows, which were not considered to be a threat to the conduct of monetary policy based on quantity controls. Direct overseas borrowing was limited to four categories of borrowers: SMEs; companies investing in public infrastructure projects; subsidiaries of foreign companies in technology based business areas; and companies paying foreign debt prematurely. For indirect borrowing through Korean banks, SMEs could borrow 100 per cent of the value of capital good imports. For large firms, borrowing was limited to 90 per cent in manufacturing and 80 per cent in services until May 1995, when the ceiling was lowered to 70 per cent.

[18] Those wishing to obtain long-term foreign loans had to provide detailed information and obtain the approval of the Ministry of Finance and Economy, while short term borrowers faced no such requirement.

[19] The merchant banks had previously operated as finance companies, which were not allowed to deal in foreign currencies. After becoming "merchant banks", they continued to operate as short-term finance companies. In addition, commercial banks opened 28 foreign branches between 1994 and 1996.

[20] The liquidity risk reflected a maturity mismatch - a high ratio of short-term liabilities to assets. For the merchant banks, 64 per cent of their borrowings were short term while 85 per cent of their loans were long term (Chang, Park and Yoo (1998)). The foreign exchange risk was due to the failure of most corporations to hedge their foreign currency loans. Consequently, the depreciation of the won resulted in a deterioration of the banks' balance sheets.

foreign exchange reserves to US$19.7 by the end of 1997. This was largely due to the Bank of Korea's aggressive intervention in the foreign currency market, aimed at stabilising the value of the won in the face of the sizeable deterioration in the current account position (Park (1998). By mid December 1997, the deterioration of foreign reserves arising from the financial crisis had fallen to an officially disastrously low level of only US$7 billion. It was, therefore, not surprising that investors began losing confidence in the currency, requiring the Korean authorities to turn to the IMF for financial assistance (Radelet and Sachs (1998a and 1998b)).

Exchange rate

The Korean currency experienced a continual depreciation against the US dollar in nominal terms during the early part of the 1990s, as can be observed from Table 2. With the weakening of the dollar itself against the Japanese yen, this implied a gain in competitiveness for Korean products relative to those of Japan. However, from 1994 to 1995, the won began to appreciate against the dollar, and with the dollar strengthening against all major international currencies this resulted in a loss of international competitiveness for Korea. The strengthening of the won against the yen had major implications for Korea's competitiveness vis a vis Japan in Asian markets (Australian Department of Foreign Affairs and Trade (1999)). The effects were felt in declining export demand for goods such as steel, chemicals, consumer electronic products, petroleum products and plastics. This was offset to some extent by the benefits that flowed to the more technologically advanced Korean industries that were substantial importers of sophisticated Japanese capital goods and technology.

The Korean won depreciated in nominal terms sharply, by about 14 per cent, against the dollar in 1996. While this improved the price competitiveness of Korean exports it increased the repayment burden of foreign debt, and sharply increased the cost of imported raw materials. The key reason for the depreciation included: the strengthening of the US dollar; the increase in Korea's current account deficit; and the reduction in foreign capital inflows. More significantly, for Korea's exports, the won-yen exchange rate did not show signs of an improvement, with the depreciation of the won against the yen offset by a sharp drop in the value of the yen against the dollar. With the onset of the financial crisis in 1997 there was a dramatic decline in the nominal value of the won relative to the US dollar, year on year, by the end of 1997 by some 91.7 per cent (Park and Rhee (1998)).

This brief overview of macroeconomic conditions in Korea prior to the onset of the crisis indicates some of the long-standing strengths that provided the basis for the country's sustained high economic growth over a period of some 35 years. These being: strong export growth; moderate inflation; high levels of saving and investment; small external deficits; and prudent fiscal policy as exemplified by government financial surpluses. However, they also indicate a number of developments that provided the beginnings of a currency crisis. These developments included: the drastic slowdown in export growth experienced by Korea particularly in 1996; a significant deterioration in current account deficits which became unsustainable over the medium to long term; indications of over-investment in the domestic economy, particularly the years 1994 and 1995, which resulted in over-capacity and an increasing dependence on US dollar denominated foreign capital flows to fund this; related to the previous, an increasingly heavy reliance on short term capital flows.

The following section looks in detail at structural weaknesses in the economy that were developing during the period of time under review. A number of these were insufficiently apparent by merely reviewing macroeconomic data alone.

4. Developing structural weaknesses

Korea's macroeconomic trends until October 1997 obscured the dichotomy between a benign real economy on the one hand, and weak profitability, an excessively indebted corporate sector, and a poorly supervised and shaky financial system on the other (Australian Department of Foreign Affairs and Trade (1999), Corsetti, Pesenti and Roubini (1998), Economist (1998), Kwon (1998), Lee (1999a and 1999b), Min (1998), Park (1998) and Radelet and Sachs (1998a and 1998b)). In the past high GDP growth had masked many of Korea's financial problems, and perhaps lulled regulators and investors into complacency. It became clear, however, that during the 1990s structural weaknesses and policy errors were making Korea increasingly vulnerable to potential financial turbulence that did, ultimately, appear in 1997. Three fundamental weaknesses appeared. First, the corporate sector was characterised by a low level of profitability and high levels of debt, reflecting the tendency of the business conglomerates to diversify into capital-intensive industries. Second, Korea had a poorly functioning financial system that was further weakened by a string of major corporate bankruptcies in 1997. Third, Korea's short term foreign debt was high relative to its international reserves, a consequence of its decision to liberalise short term borrowing rather than direct investment inflows (Australian Department of Foreign Affairs and Trade (1999)). The remainder of this section explores each of these aspects and their interrelatedness in more depth.

Chaebol-government-banking sector relationship (Inefficient Government-driven Capitalism)

Many problems began to occur in Korea's industrial and financial sectors, particularly since the late 1980s, arising from the close relationship between the government, banking system and the *chaebols*[21] (Joh (1999), Kim (1995), Lee and Lee (1996), Smith (1998), Sohn, Yang

[21] The *chaebol*, Korea's large business conglomerates that consist of numerous corporate enterprises engaged in diverse export oriented businesses, dominated the economy. The top five groups alone accounted for about 10 per cent of GDP and the top four accounted for about 14 per cent of manufacturing output. World wide sales by the top four *chaebol* alone was equivalent to 47 per cent of South Korea's total output, the combined revenues of the top 49 chaebol was equivalent to 97 per cent of the country's GDP, and they also accounted for nearly half of its exports. The 30 largest *chaebol* just about controlled the entire economy if downstream suppliers and all the small businesses and their employees that depended on them were included. There was considerable replication amongst the *chaebol*, resulting in thin profit margins for all. Each of the top three *chaebol*, for example, had well over 100 businesses, but 80 per cent of the revenues came from 20 per cent of the businesses, and virtually all the profit from just one or two. Combined profits amounted to a paltry US$65 million in 1996, according to Goldman Sachs (1998), giving the *chaebols* an average return on equity

and Yim (1998) and World Bank (1999), Yoo (1997) and Yoo and Lim (1997)). While government led policy over a period of 30 years had produced rapid growth and industrialisation of the economy, by the 1990s the increased complexity of the Korean economy and developments in the global economy made this institutionalised system become outmoded (see Harvie and Lee (2003))[22]. The system contributed to a number of difficulties: inefficiency in resource allocation; excessively over-leveraged and financially fragile enterprises; concentrated economic power in large business groups; an emphasis on growth with resulting over-capacity arising from a neglect of profit and risk considerations; overly close relations between the government and corporate sector resulted in institutionalised corruption[23] and complacency; the preferential treatment of the *chaebol* and their resulting dominance in the economy hindered entrepreneurialism and resulted in imbalances in the economy by constraining the growth of small and medium sized enterprises and reducing the flexibility and adaptability of the economy; stifled the development of a mature industrial relations system; the development of protected domestic markets and a general lack of competition; a loss of international competitiveness as the *chaebol* were insufficiently integrated into the global economy (Australian Department of Foreign Affairs and Trade (1999)).

Accordingly, capital, production and exports were heavily skewed towards the *chaebols*, with myriad cross-guarantees on borrowing, and limited transparency and accountability. A 'too big to fail' mentality of *chaebols* resulted in their excessive risk-taking, over-investment, and insufficient attention to credit and exchange rate risks, conducted in an environment where the government bureaucracy colluded with big business in officially sanctioned deals (Sohn, Yang and Yim (1998)). Over-indebtedness, over-capacity and poor earning power among *chaebols* was a natural outcome. In addition, excessive government control of the banking system made banking institutions rely more on government intervention than on profit-first business. This, in turn, resulted in the misguided advancing of bank loans to non-viable or insolvent borrowers. Consequently, active government involvement in the market resulted not only in corruption, but also in moral hazard and inefficiency in the general economic sector, and a weakening of the competitiveness of enterprises and banks. While some of these difficulties proved not to be significant in the context of Korea's growing economy, they left Korea vulnerable to shocks in an increasingly globalised financial market. During the period of economic downturn in 1996 and 1997 they combined to produce severe problems for the economy.

Weak corporate sector

Korea's corporate sector is characterised as being traditionally excessively indebted, a legacy of Korea's ambitious strategy of achieving rapid growth on a global scale by diversifying into capital intensive industries to "leap-frog" quickly up the value added chain

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of only 3 per cent, while thirteen of the top 30 *chaebol* made losses in 1996. Hence their emphasis was upon growth, but it was profitless growth.

[22] At least until the early 1980s strong government leadership was somewhat necessary and desirable, because the size of the domestic market was small, the structure of domestic industry was rather simple, and Korea's exposure to the world market was limited.

[23] That is intervention by the government in the process of extending loans to the family controlled *chaebols* and in deciding major state funded projects for political kickbacks.

into higher technology products (Harvie and Lee (2003b)). Although this approach had been successful in the 1970s and 1980s, when Korean firms were relatively small and achieving economies of scale and establishing extensive distribution channels were critical to increasing productivity and shareholder value, by the late 1980s global competitive conditions had changed radically and past strategies of debt financed growth became increasingly risky in the face of falling profitability. It also proved to be ill suited for an environment of keen competition in the 1990s. Part of this dependence on debt also reflected supply side factors, notably an aversion to foreign direct investment, an underdeveloped equity market and tax advantages related to debt finance. The corporate sector was characterised by agency problems, moral hazard problems, and a poor governance system (Chang, Park and Yoo (1998), Harvie (2004), Kim (1995), Lee and Lee (1996), Nam et al. (1999), and Yoo and Lim (1997)).

By the end of 1997 the average debt to equity ratio of the corporate sector was around 400 per cent, equivalent to 167 per cent of GDP. For the thirty largest conglomerates the average ratio was even higher at 519 per cent, about 100 percentage points higher than in 1996 and the previous five years, in sharp contrast with 154 per cent in the United States and 193 per cent in Japan, raising serious questions about corporate governance and viability (see Table 11) (Nam et al. (1999)). Such debt imposed onerous debt service costs on corporate cash flow. This cost amounted to around 17 per cent of total business costs in 1997, more than three times the level in the United States and Japan. Interest expenses in the manufacturing sector increased from 5.5 per cent of sales in 1995 to 6.8 per cent in 1997. This aggravated the already low levels of profitability of Korean companies, which had a history of low levels of profitability[24]. Worse still was that by 1996 there had been a rapid build up of short term domestic and foreign debt, particularly during 1994-95, to finance the investment boom of the large conglomerates. Some two thirds of corporate debt was short term, about a quarter of which was foreign debt, leaving cash starved firms exposed to: tighter short term credit lines; unanticipated declines in the won and global financial markets; and interest rates. This increased reliance on short-term borrowing, probably reflected attempts to reduce interest costs by borrowing at shorter maturities.

Other salient features of Korea's corporate sector (non financial, non agricultural corporations) include[25]: thin business profit margins and poor shareholders' returns (which averaged 6.2 per cent from 1990 to 1996, barely one half the growth of nominal GDP and a third of that achieved in the US), despite an unrivalled record of economic growth since 1963; very low stockholders' equity, which dropped by a third in the course of 1997; high and rising debt service as a proportion of corporate cash flow particularly since 1996 and 1997 (Harvie (2004) and Sohn (2002)). Indeed, financial costs at between 15-17 per cent of total business costs in 1996-97 were three times higher than in the US, Japan and Taiwan. Heavy debt service is a quintessential feature of fragile firms. Combined with rigid lay off laws, weak cash flow and cross debt guarantees, this presented a recipe for serial bankruptcies and high systemic risk. In fact, a crucial pressure point between weak

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24 For example, between 1986 and 1995 net income to total assets in manufacturing averaged only 2.3 per cent, only about half the rate in the USA.
25 See for example OECD (1998), pp 26-29.

microeconomic structures and slower economic growth proved to be the corporate sector's weak balance sheet and cash flow positions. Although 1995 was a cyclical peak for profitability, reflecting the rapid growth of the electronics sector, the rise in interest costs exposed the fragility of firms to the terms of trade shock that started in 1996. Primarily as a result of an 80 per cent collapse in semiconductor prices, overall export prices in dollar terms fell by 13 per cent in 1996, an amount equivalent to 4 per cent of national income, and another 16 per cent in 1997. At the same time, export volume growth decelerated and over-capacity emerged in key export sectors following an investment boom concentrated in semi-conductors, cars, steel and petrochemicals. With firms unable to lay off redundant workers and to reduce labour costs, net income dropped to 0.5 per cent of manufacturing sales in 1996.

Despite a modest recovery in profit margins a critical point was reached around mid 1997, when, faced with slumping operating income due to slower growth and the decline in the terms of trade and rising financial costs, the corporate sector's net income turned negative and corporate cash flow was caught in a savage squeeze. This, in conjunction with the depreciation of the won later in the year, triggered a 50 per cent jump in the number of insolvencies in 1997 and a sharp increase in the rate of default. This included, although large-scale bankruptcies in Korea had been quite rare, eight of the thirty largest chaebols (Australian Department of Foreign Affairs and Trade (1999)). This included major groups such as Hanbo, Jinro, Sammi, Halla and, most importantly, the Kia group which was the country's 8th largest chaebol[26] (see Table 12). They represented around 4 percent of the assets of non-farm, non-financial businesses. Financial market confidence was particularly shaken in January 1997 by the first insolvency, that of Hanbo Steel (part of Korea's 14th largest conglomerate). The scale of the ensuing bribes for loans scandal was stunning, even for a Korean public long hardened to 'cosy' arrangements; and foreign investors' confidence appeared to have been irrevocably shaken. At this point some foreign banks began to reduce their exposure to Korea, first by cutting back their credit lines. This fragile situation calmed in Spring 1997, in part because Korean banks, facing strong pressure to keep 'solvent' firms afloat, entered into a voluntary "Standstill Agreement" in April to avoid driving "solvent" firms into receivership (albeit at the cost of weakening their own balance sheets)[27]. But this respite proved short lived. These developments in the corporate sector had major implications for the third partner in Korea Inc. – the banks.

Weak financial system

The surge in corporate insolvencies had a devastating impact on the second critical area of structural weakness - Korea's financial system (Radelet and Sachs (1998a and 1998b), Smith (1998)). Corporate problems, albeit severe, could, perhaps, have been contained if the financial system had been adequately capitalised and well supervised. However, the

[26] On the basis of total assets in 1997.
[27] Participating banks agreed for a fixed period to abstain from calling in their loans or exercising their claims against certain firms on the brink of insolvency because of temporary funding problems. During this grace period, the possibility of turning the firm around was assessed. If the assessment was positive, the firm's rehabilitation program was supported by a consortium of banks. In 1997, Jinro, Daenong, Kia Motors and Tail-Jung Mil came under this agreement. In the event the standstill agreement proved futile, as most of these firms eventually entered into "work-out" programs or into court receivership later in 1997.

opposite was true, and this further weakened foreign confidence. While Korea's manufacturing sector had been developed to a stage not far behind that of the world's leading industrialised countries, its financial sector was quite unsophisticated. Although the banks were privatised in the early 1980s they lacked dynamism because the government continued to exert a high degree of influence over their management. They also lacked experience as profit-seeking entities expected to adhere to stringent prudential standards, and, consequently, strong governance practices failed to emerge (Australian Department of Foreign Affairs and Trade. (1999).

During the 1990s Korea's banking sector was characterised by: poor and declining levels of profitability as measured by the return on assets and equity; steadily deteriorating capital adequacy ratios; and tight interest margins, partly reflecting competition from new entrants after 1991 (see Table 13)[28] (OECD (1999)). The poor profitability performance was a reflection of increased competition from the non-bank financial institutions (NBFIs), which were permitted to enter into direct competition with the banks in the 1980s and 1990s. While the NBFIs faced relatively lax restrictions the banks remained subject to comparatively tight restrictions. In addition, the banks' limited control over costs, combined with regulations on product innovation, tended to depress bank profitability further[29].

Official figures suggested steadily declining bank non-performing loans (NPLs) as a proportion of total loans during the 1990s, reaching a low of 4.1 per cent of their total credit in 1996 before increasing sharply to 6 per cent in 1997. While the ratio was not especially high by past standards in Korea, the increase was troubling in the context of financial turbulence in the south-east Asian countries which were also characterised by weak financial systems and poor corporate governance practices. In addition, there was concern about transparency: the deterioration of the banks' health was not fully reflected in the reported statistics because of loose loan classification standards and accounting rules; there was only partial recognition of stock revaluation losses; and there was inadequate loan-loss provisions[30].

The chronically poor quality of the existing banks' loan portfolios became further undermined by the squeeze on corporate profits starting in mid 1996 and into 1997[31]. Non-performing loans were already on the rise, especially among banks with a legacy of

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[28] In fact, commercial and merchant banks' capital adequacy ratios were barely one half of officially declared rates, owing to regulatory forbearance concerning past investment losses.

[29] While employment by banks in most countries remained steady or declined, it increased by about 25 per cent in Korea from 1990 to 1996 (see Table 13).

[30] For example, while official figures put Korean banks' bad loans at the end of June 1997 at only 6.1 per cent of total loans outstanding, if international provisioning norms were applied the figure would have been more than 15 per cent. At the nine largest institutions bad loans already ranged from 94 per cent to 376 per cent of the banks' capital, hence most of these banks were technically insolvent. In short, Korea's financial system was probably twice as highly geared as portrayed by official data.

[31] It is also worth stressing that not all banks were the same. Those banks that had avoided loan concentration to the *chaebols* and had developed skills in credit analysis tended to perform better. For example, the Kookmin Bank has a history of a strong deposit base, as well as specialising in the consumer and medium sized company market sector. As a result, credit evaluation skills tended to be better, loan losses lower and margins higher. The strongest banks were those that deviated from the predominant pattern of links to policy directed loans and high exposure to the *chaebols*.

government directed loans and imprudent exposure to large troubled firms and/or cyclically depressed sectors (e.g. Korea First Bank and Seoul Bank[32]). Aggravating the situation even further was the direction given by the Korean authorities for commercial banks to intervene in the stock markets. This required in times when the market was overheated for banks to sell shares and ease the price down, and in times when the market was too bearish for banks to purchase shares and hold them in order to stimulate the market (Harvie and Lee (2003a)). As the Korean Composite Stock Index had dropped continuously since mid 1995 banks suffered huge losses, exacerbating further the difficulties already facing the commercial banks. This was compounded by the deteriorating performance in the corporate sector. By late 1996 banks had, therefore, begun to report large losses on share investments and on loans to the *chaebol*. The government of President Kim Young Sam, however, did not demand a thorough clean up which would have required closing several major banks and forcing some of Korea's biggest companies into bankruptcy. But the string of *chaebol* bankruptcies in 1997 compounded these difficulties, and resulted in the commercial banks having to carry an additional very heavy bad debt burden.

Further, regulations and institutional factors combined to encourage the channelling of international borrowing through the financial system for on-lending to corporations. Large amounts of foreign currency credit were taken on, directly or indirectly, by Korean financial institutions to provide finance for Korean enterprises at home and abroad, and many Korean firms took on increasing amounts of short term foreign currency debt of which little was hedged (Australian Department of Foreign Affairs and Trade (1999)). Between 1993 and 1996 the foreign exposure of both Korean banks and enterprises nearly doubled, reaching almost US$100 billion in 1997.

There were numerous points of fragility elsewhere in the financial sector. As with the banks the non-bank financial institutions also had considerable exposure to the *chaebols*, and significant market risk as well. The merchant banks[33], securities companies, and investment trust companies all had significant exposure in currency, bond and equity markets. In markets where margins were often under pressure, these institutions sought to maintain profitability by accepting increased risk (OECD (1998)). Many of these institutions used leveraged positions, but most of them lacked risk management capabilities to manage and price market risk. While supervisory authorities were relatively unconcerned about the adequacy of their risk management systems.

The fragility of the financial system did not happen overnight. Instead, it was a culmination of a number of factors that occurred before the corporate and financial crisis in 1997. The more important factors include the following:

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[32] By December 1997 these two banks were effectively insolvent and had to be nationalised. Since this time a majority stake in Korea First Bank was sold to Newbridge Capital, a foreign company. A similar effort to sell a majority stake in Seoul Bank to the Hong Kong and Shanghai Banking Corporation proved more difficult.

[33] The merchant banks acted as major financial intermediaries in raising finance for the *chaebols*, including that from overseas. Many of these had considerable involvement by the *chaebols* in their ownership. They found themselves in an increasingly weak financial position because of their over exposure to both the *chaebol* and overseas borrowing. These institutions were ultimately found to be very weak and lacking in information transparency

(i) Poor supervision and regulation

The difficulties in the financial system reflected a combination of weakness in the supervisory and regulatory framework, together with the legacy of government directed lending practices that led to excessive leveraging in the corporate sector and delayed necessary restructuring efforts. Strict regulatory and supervisory policies are important for minimising moral hazard, including corruption, fraud, and excessive risk taking in the banking system. The difficulties faced by the financial sectors in Korea and other East Asian economies can be attributed to a lack of prudential supervision in the banking system early in the process of financial liberalisation[34] (Australian Department of Foreign Affairs and Trade. (1999), Corsetti, Pesenti, and Roubini (1998), Kim (1997), Park (1996) and Smith (1998)). This lack of supervision was also highly pertinent in the context of the NBFIs, and of particular importance in the context of the merchant banks.

(ii) Heavy intervention by the government in financial institutions

Commercial bank loans extended to meet government mandated quantitative targets weakened the incentive of banks for managing risk. Preferential loans mandated by government to key sectors, often re-financed by the central bank at relatively favourable interest rates, resulted in banks having little incentive to assess and price their credit risk properly (Borensztein and Lee (1999)). Such practices were inconsistent with sound banking practice. This resulted in the Korean domestic banking system ending up in a very weak position because banks had to carry a debt burden resulting from credit extension to uncreditworthy and heavily leveraged *chaebol* firms.

(iii) Poor accounting standards and limited information disclosure (transparency)

Poor accounting standards and limited information disclosure requirements made risk assessment of creditors very difficult. In Korea accounting standards were widely perceived of as being relatively weak, with the use of borrowed names or the maintenance of multiple accounts greatly diminishing the reliability of reported information. Korean regulators did not require banks to declare a loan "non performing" until interest had gone unpaid for six months, and even then had to set aside only 15 per cent of the loan to cover the loss. Tougher standards were phased in during 1998. But until then the financial position of Korean banks with foreign investors lacked credibility, since their actual position was likely to be worse than their financial reports suggested. Informational difficulties were compounded by the fact that before the crisis financial data had been regarded as a state secret. For example, on 10 December 1997, the authorities admitted that the country's short term debt exceeded US$100 billion, nearly double the figure it gave the IMF a few weeks earlier when the negotiations for a rescue plan had begun (OECD (1998)).

(iv) Underdeveloped capital markets

Recent adverse banking experiences emphasise the problems that can arise if banks are essentially the sole source of intermediation[35]. Their breakdown induces a sharp weakening

[34] Of particular concern were the trust accounts held by the banks.
[35] This is a common problem faced by developing countries, and indeed is a characteristic of some developed

in economic growth. A wider range of non-bank institutions and capital market institutions more generally, including viable debt and equity markets, are important safeguards of economic activity when banking fails. However, Korea, amongst other economies in East Asia, had small and underdeveloped financial markets. Bond markets did not serve as an important source of finance for business, nor as an investment outlet for households.

These factors contributed to financial system vulnerability arising from shifts in international investor sentiment, as well as to slower growth of the economy that deteriorated banks' loan portfolios due to the increasing difficulties of non-financial corporations. The management, supervision and regulation of financial institutions paid far too little attention to prudent analysis and containment of risks. At the end of 1996, according to unofficial estimates, banks' non-performing loans, net of reserves, were already equivalent to almost 70 per cent of their equity, and true asset quality may have been much worse than this figure indicated. The unprecedented number of *chaebol* insolvencies in 1997 severely weakened the financial system, and non-performing loans rose sharply. By October 1997, according to unofficial estimates, over 20 per cent of bank loans in Korea were impaired. At the same time the steep declines in stock prices cut the value of banks' equity and further reduced their net worth. While the Korean banking system lacked dynamism, showed poor profitability, and was plainly vulnerable to deterioration in credit conditions, it did not, however, obviously appear to be on the brink of insolvency at least on the basis of official figures.

Despite all the problems associated with the financial system, there were also some favourable aspects. First, the government's policy of preventing ownership concentration meant that tight ownership linkages and conflicts of interest between banking and industry were largely absent. Additionally, banks' direct exposure to the real estate sector, a major element in most banking crises since the 1980s, was largely absent, even though banks had considerable indirect exposure due to the large amount of lending that was collateralised by real estate.

Excessive reliance on short term foreign debt

As indicated in the previous section Korea's gross foreign debt increased steadily during the period of the 1990s, with the most significant increase taking place from 1994 onwards[36]. The significant deterioration in the trade deficit and expanded borrowing from overseas to meet increased facility investment were the primary causes. Short-term debt, as a proportion of total debt, rose precipitously. Developments such as the expanded scope for short term currency borrowings from 1993, increased foreign currency dealings by financial institutions, a relatively strong value of the currency, and moral hazard arising from implicit guarantees to domestic financial institutions, backed up by a lack of prudential supervision and regulations by the authorities, contributed to this structural weakening of the economy (Australian Department of Foreign Affairs and Trade,1999).

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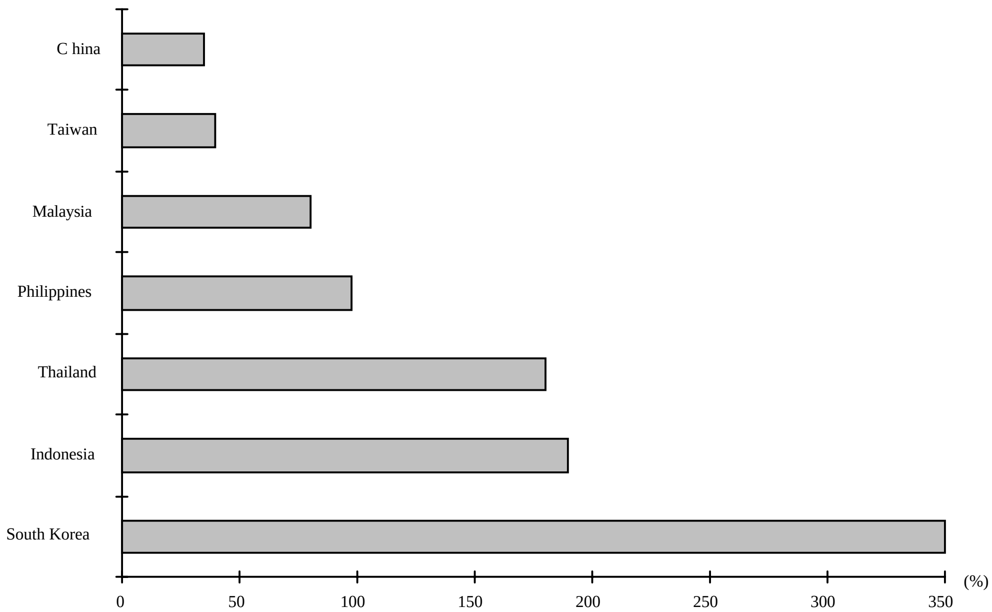
countries such as Germany and Japan.

[36] A consequence of financial market deregulation and liberalisation under a ten year government program begun in 1993.

While concerns over the accumulation of short-term debt increased, these were compounded by the rapid deterioration in the country's foreign reserves. This became of particular concern from 1994 onwards as short-term debt increasingly exceeded foreign exchange reserves. Although foreign exchange reserves accumulated rapidly during the 1990s, to stand at US$33.2 billion by the end of 1996, there was a steep decline to US$19.7 by the end of 1997. This was largely due to the Bank of Korea's aggressive intervention in foreign currency markets aimed at stabilising the value of the won in the face of the sizeable deterioration in the current account position. By mid 1997 Korea's short-term debt to foreign exchange reserves compared very unfavourably with its regional neighbours (see Figure 1). By mid December 1997 the deterioration of foreign reserves arising from the financial crisis had fallen to what has been unofficially put at a disastrously low level of only US$7 billion. With this structural weakening of the economy, it was, therefore, not surprising that investors began losing confidence in the currency requiring the Korean authorities to turn to the IMF for financial assistance.

Figure 1 An international comparison of short-term debt* as a % of foreign-exchange reserves, June 1997



Source: BIS; IMF, Peregrine Securities
* Less than 12 months' maturity

5. Other structural deficiencies

Labour market rigidities and the education system

A key ingredient of Korea's prolonged period of economic growth and development was the diligence of its people, who worked long working hours and had high savings rates. They were also well educated due to the strong Confucian emphasis on education (OECD (2000).

While Koreans have, more recently, continued to work longer hours than their competitors, and their savings rates have remained very high, the rapid rise in the wage rate, continued labour market rigidities, and the lack of a creative labour force have weakened the international competitiveness of Korean firms. With the 1987 Declaration of Democratic Reform the government implemented major labour market reforms to strengthen basic labour rights, liberalise trade unions [37] and facilitate collective bargaining (Australian Department of Foreign Affairs and Trade. (1999)). This resulted in a rapid growth of unionism and labour strikes in reaction to the end of the long period of repression. Subsequently, nominal wages increased 15 per cent per annum up until 1996, exceeding productivity increases of only 11 per cent per annum. Unions remained most militant in the *chaebol* and financial sector where union membership was high. The market dominance of the chaebol enabled them to pay higher wages in comparison to that of small and medium sized enterprises. Tight labour market conditions and strong trade union power ensured that fundamental labour market reform went untouched. The labour market, therefore, remained full of rigidities arising from: an excessive degree of job protection that prevented lay-offs and encouraged over-manning; inflexibility in working hours; and few limits on strike action (Fitch ICBA, 1999).

In December 1996 the Kim Young Sam government passed an amendment to the labour law designed to increase labour market flexibility and facilitate retrenchments. Union protests, however, compelled the government to pass another amendment in March 1997 diluting the proposed reforms. While some measures were introduced in 1997, implementation of most was delayed until the end of 1999 and several measures such as legalising temporary work agencies[38] were dropped. An important opportunity to improve labour market flexibility and increase export competitiveness was, consequently, missed.

Since December 1997, the government further amended labour laws to increase labour market flexibility, particularly employers' ability to dismiss workers, but dismissals are still closely controlled.

Even more critical than the rapid rise in the wage rate and labour market rigidities has been the Korean education system, which no longer provided the economy with the labour force it most needed (see Harvie and Lee (2003)). Since the late 1980s, as the Korean economy moved toward the income level of a developed country, its products have become more sophisticated and its production processes have become more complex and more deeply integrated into the world economy. This has meant that Korea has become in urgent need of a creative and highly skilled labor force - entrepreneurs, workers, and bankers. However, the Korean education system has kept its repetitive-memory-oriented education, which once proved to be successful when the Korean economy was at a less developed stage (Lee (2001)).

[37] Labour unions had been allowed since 1953, although the authoritarian governments in the 1960s, 1970s and 1980s had severely restricted their right to engage in collective bargaining and to take industrial action. The offset to this being that it was very difficult to lay off workers. A situation that remained until the reforms of 1998.

[38] Temporary work agencies hire workers and provide them to firms on temporary contracts.

Total factor productivity slowdown

In a study published by the Korea Development Institute (Kim and Hong (1997)), the evidence presented suggested that the growth of the Korean economy over the period 1963-95 was based on roughly equal contributions from growth of inputs and improvements in factor productivity. Over the shorter period 1985-95 inputs of capital and labour generated 4.8 percentage points of growth while improvements in total factor productivity ((TFP), due primarily to improved resource allocation, economies of scale and advances in knowledge, contributed a further 4.1 percentage points. Giving a total growth of GDP of 8.8 percentage points. The report also suggested that the contribution from TFP would remain significant, since an improved corporate governance framework and better managed banking system would eventually enhance gains from better resource allocation and economies of scale. This contrasted with a study conducted by the World Bank (1999), which suggested that Korea's growth had been primarily driven by factor accumulation - increased inputs of labour and capital - while TFP growth had been relatively less significant. TFP was estimated to have contributed only 1.8 percentage points of growth per annum - one fourth of total growth (World Bank (1999)). Another study by Kim (1999) presented evidence to suggest that the rate of TFP growth appeared to have decelerated during the past two decades in most industries. The results from this study are shown in Table 14. As can be observed, TFP deteriorated significantly during the period of the 1990s in comparison to that of the 1980s for all sectors, with the exception of transport and communications, and most disturbingly for the manufacturing sector. This presents a much gloomier position for productivity and competitiveness development for the Korean economy, suggesting that considerable improvements in resource allocation, economies of scale and advances in knowledge by the economy would be urgently required if Korea was to compete effectively in global markets.

Kim (1999) also reported that investment efficiency deteriorated in the 1990s relative to that of the 1980s. The investment boom of the 1990s, based upon this evidence, had the effect of increasing capacity but had a detrimental effect on overall efficiency.

Unfriendly global economic environment

Korea's fast growth was in part due to international circumstances that were favourable until the late 1980s. First, the movement towards free trade under GATT enabled Korea to effectively pursue an export-oriented growth strategy. Following a number of multilateral trade talks the developed countries moved toward the opening of their domestic markets, yet Korea, a less developed country, was allowed to keep its domestic market effectively closed until the end of the 1980s. Second, Korea, which became a part of western capitalism after its independence in 1945, received a considerable amount of explicit and implicit economic assistance from the United States during the cold war era. The United States also provided the largest market for Korean exports (Lee (1999a)).

Since the late 1980s, however, Korean companies faced increasingly intense competition with foreign companies in both domestic and international markets. Competition has mainly come from the rapid opening of the domestic market and the rapid catch-up growth of the new Newly Industrialised Economies (NNIEs) of south-east Asia. In addition, Korea and the United States have had repetitive trade conflicts in various areas. Korea's relatively heavy protectionism and state intervention in the market were the traditional reasons advanced for this. However, this situation had been in existence for some period of time. A more compelling reason is that Korea's strategic importance, in the forefront of the free world, had lessened dramatically since the 1980s, as the former Soviet Union fell apart and its former satellite states initiated economic reforms and the movement towards a market economy. Even though the United States still stationed its troops in Korea, it became less tolerant with Korea's industrial policy (Lee (1999a)). Accordingly, between 1990 and 1996, out of the total trade conflicts Korea had with all other countries, 36 per cent of these were recorded with the United States.

Since 1991 Korea has had continuous deficits in its trade with the United States, except for 1993 where it recorded a US$0.2 billion surplus. This was quite a remarkable sign of the weakening of Korea's competitiveness, because the United States had traditionally been Korea's largest export market and was the country with which Korea had once enjoyed the largest trade surpluses.

Developments in the advanced economies

While the financial problems in Korea, and other East Asian countries, were mostly home-grown, developments in the advanced economies and global financial markets also contributed significantly to the build up of the imbalances that eventually led to the financial crisis of 1997. The World Bank estimated that net inflows of long-term debt, FDI, and equity purchases to the Asia Pacific region were only about US$25 billion in 1990, but peaked at more than US$110 billion by 1996. A major impetus behind this rapid expansion was the global stock market boom of the 1990s. As that boom progressed, investors in many industrial countries found themselves more heavily concentrated in higher valued securities of companies in the developed world whose rates of return, in many instances, had fallen to levels perceived as uncompetitive with the earnings potential in emerging economies and especially in Asia. The resulting investor diversification induced a sharp increase in capital flows into the rapidly growing economies of East Asia attracted by the prospect of higher relative returns, contributing to a property and stock market boom in these economies as well as over-investment in productive assets. To a large extent they came from investors in the United States, Western Europe, and Japan. The rising value of the yen through mid 1995 also encouraged a substantial increase in direct investment inflows from Japan. With hindsight it is clear that more investment monies flowed into the economies in East Asia, including Korea, than could be profitably employed at moderate risk (see Greenspan (1998)). In the context of weak financial systems, moral hazard problems, in conjunction with financial liberalisation, these exacerbated imprudent and unprofitable investment by the domestic banking system. In the case of Korea intense pressure was placed upon the country to liberalise capital flows and financial markets. Korea made the fundamental mistake of liberalising short-term capital flows, thereby contributing to an excessive build up of short-term debt from foreign banks only too willing to lend. Korean policy makers demonstrated a preference for external borrowing over FDI. This was primarily due to strong anti foreign sentiment related to Korea's relatively recent experience of colonialism and the government's capacity to allocate foreign borrowing to priority sectors.

To improve foreign borrowing terms the government encouraged commercial banks to issue bonds overseas and syndicate loans for on-lending to domestic firms. FDI, on the other hand, was discouraged by a range of restrictive policies (Australian Department of Foreign Affairs and Trade. (1999)). As a result, by 1997, external debt was significantly larger than FDI. The country's reliance on short-term debt, in particular, exposed Korea to sudden negative changes in creditor sentiment, as occurred in late 1997.

Rapid opening of the domestic market

In 1989 Korea announced that it would no longer restrict trade for the sake of its balance of payments (as covered in GATT Article XVIIIB) and it would follow article XI, further increasing its pace of import liberalisation. With the conclusion of the Uruguay Round and the embarkation of the World Trade Organisation (WTO), Korea faced a more rapid opening of its domestic market. Furthermore, former President Kim Young Sam, who came to power in 1993, proclaimed that Korea would join the OECD during his term of office. OECD access required that Korea open even wider and faster its domestic market. As a result, by 1996 the number of restrictions, and the average tariff rates for manufactured goods, were comparable to those of most industrial countries.

Compared to the goods market, the financial market, in the name of financial liberalisation, underwent an even faster opening. During the early 1990s, restrictions on the inflow and outflow of mobile capital were nearly all removed[39]. However, the liberalisation happened with little attention to the new kinds of regulation that would be required and with only a thin base of financial skills. The liberalised financial systems enabled inexperienced private domestic banks and corporations to take out large foreign currency denominated loans from foreign lenders. Thus, the rapid opening and liberalisation of the financial market in the early 1990s left the economy exposed and vulnerable to the instabilities of international financial markets.

A Nut in a Nutcracker

Since the early 1980s China strongly pursued a so-called 'reform and open-door policy'. This new policy was very successful, and between 1980 and 1996 China's real GDP grew by more than 10 per cent per annum. The rise of China, however, meant intense new competition for Korean firms. China's manufactured exports grew by more than 20 per cent per annum in US dollar terms between 1990 and 1996, and Chinese firms competed directly with Korean firms in textiles, apparel, and electronics. In addition, the rapid catch-up growth of the NNIEs of south-east Asia, such as Indonesia, Malaysia, Thailand and the Philippines also led to harsher competition for Korea.

This new competition put intense competitive pressures on Korea and hence its exports. Accordingly, to maintain higher wage rates than the NNIEs, Korea had to change its

[39] Park (1996) and Kim (1997) summarise the liberalisation process.

industrial structure in order to become more high-tech-oriented. In fact, following the textbook example of Japan, Korea invested substantial amounts of capital into the so-called strategic industries such as electronics, automobiles, and bio-chemicals. As a consequence, however, Korean companies found themselves competing directly against Japanese companies in some important industries. Thus, Korea faced a very difficult economic predicament. It had to compete against China and other NNIEs on the one hand, and against Japan on the other. That is, Korea was being squeezed both from above and from below. In short, Korea was situated like 'a nut in a nutcracker' as stated first in the Booz Allen & Hamilton (1997) report on the Korean economy that was published just before the financial crisis.

Korea, a nut in a nutcracker, faced even more competitive pressure when in January 1994 China devalued the yuan by 50 per cent, and as the Japanese yen progressively depreciated against the U.S. dollar: from ¥/US$85 in June 1995 to ¥/US$127 in April 1997. From the early 1990s to mid 1995 the strong Japanese yen had masked Korea's declining competitiveness, with exports, output and investment growing strongly. However, the yen's depreciation from mid 1995 sharply reduced corporate profits and new investment. Tight cash flow conditions caused by the deterioration in profitability kept interest rates above international levels (see Table 10), which, along with the stable nominal exchange rate against the US$ in particular, encouraged foreign borrowing. The collapse of semi-conductor prices by as much as 80 per cent in 1996 further exacerbated Korea's difficulties. This delivered a severe terms-of-trade shock to Korea, for this industry accounted for 20 per cent of Korean total exports by value.

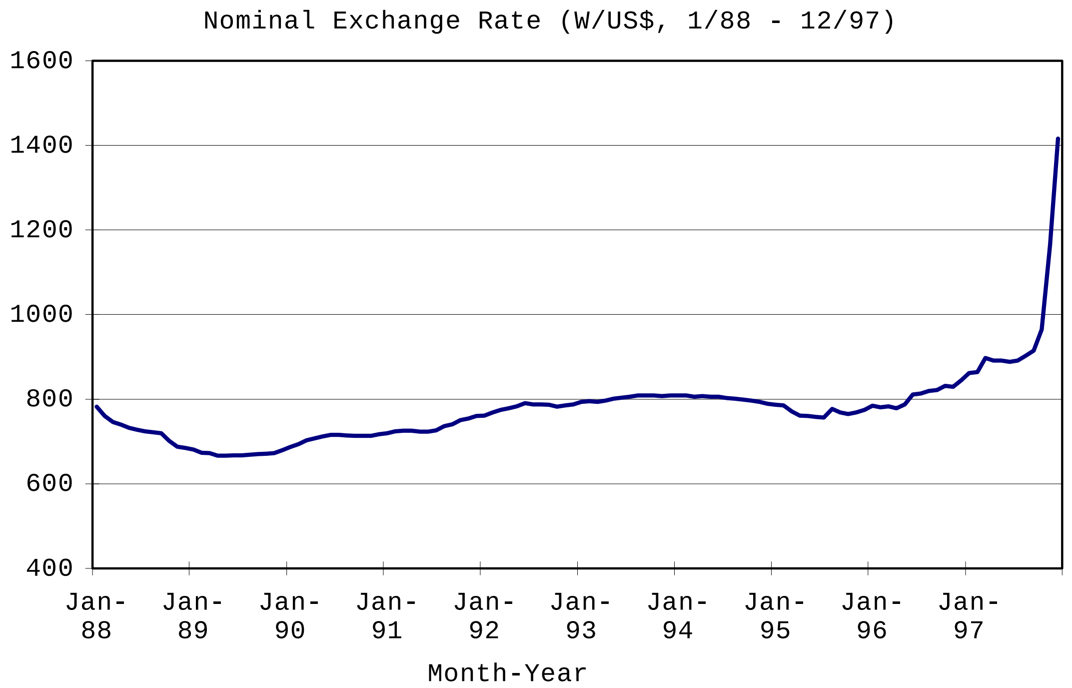
6. Policy mistakes

Among the policy mistakes made by the Korean government during the period of the 1990s three are worthy of focus. The prime mistake related to its exchange rate policy. Inappropriate and inadequate financial market supervision also turned out to be a serious mistake. The Korean government also failed to take appropriate action in response to the repeated defaults of *chaebols* and speculative attacks on the currency in early 1997.

Strong Won policy

Since the late 1980s the international competitiveness of Korean industry continued to falter as economic fundamentals and international circumstances deteriorated. Instead of allowing the won to depreciate, and thereby alleviate the country's current account deficits, the government adopted a strong won policy. The strong won policy was maintained through the so-called market average foreign exchange rate system, which was adopted in 1990. The exchange rate was allowed to move within a daily fluctuation band, which was kept narrow (see Figure 2). Radelet and Sachs (1998b) estimated that the Korean won appreciated in real terms by about 12 per cent between 1990 and 1997.

Figure 2



Source: Bank of Korea

Why did the Korean government insist on a strong won policy? The following are some possible explanations. First, to achieve the target of a single-digit inflation rate per annum, the Korean government insisted on nominal exchange rate stability. That is, inflation control was the overriding priority of macroeconomic policy and the exchange rate was an 'anchor' for inflation control. Second, the Korean government maintained the position that a strong won would push Korean firms to strive to increase their productivity and hence international competitiveness. Third, the government wanted to keep the exchange rate stable in order to help domestic corporations and financial institutions by lowering the domestic currency costs of servicing foreign debts denominated in foreign currency. Fourth, a political consideration also made the exchange rate policy less flexible. The then Kim Young Sam government strongly wanted to see the country achieve a US$10,000 income per capita. Once this was achieved in 1995, the government did not want it to slide arising from a depreciation of the domestic currency.

Inappropriate and inadequate supervision of the financial sector

As noted previously the financial market underwent very rapid liberalisation and deregulation during the early 1990s[40]. This allowed domestic financial institutions to have easy access to foreign capital to finance domestic investment. There were two major deficiencies with the process. First, financial liberalisation was carried out mostly on short-

[40] However this liberalisation was imbalanced, in terms of internal relative to external liberalisation. There was rapid external liberalisation but regulation of the domestic financial sector remained.

term rather than long-term capital inflows. For instance, net foreign portfolio investment, which was merely US$0.1 billion in 1990, increased drastically to US$3.1 billion in 1991, US$5.8 billion in 1992, and US$10.0 billion in 1993. This upward trend continued until 1997. However, net direct investment continuously produced negative values, indicating that foreigners' direct investment in Korea was smaller than Korea's direct investment overseas (see Figure 3)[41].

Second, appropriate supervision and prudential regulation did not accompany financial liberalisation. The NBFIs such as merchant banks, especially, which increased sharply in number from six in 1993 to thirty by 1996, were not under appropriate supervision. With the belief that the government would not allow financial institutions to fail Korean banks borrowed unhedged short-run foreign capital at lower rates, denominated in US dollars, and made long-term loans at higher rates, with the expectation that they could continually renew short-term borrowing. This led to a serious mismatch in maturities between borrowing and lending. Short-term loans accounted for 63 per cent of total debts on the eve of the financial crisis. With this fragile structure of foreign debt, Korea became very vulnerable to instabilities in international financial markets.

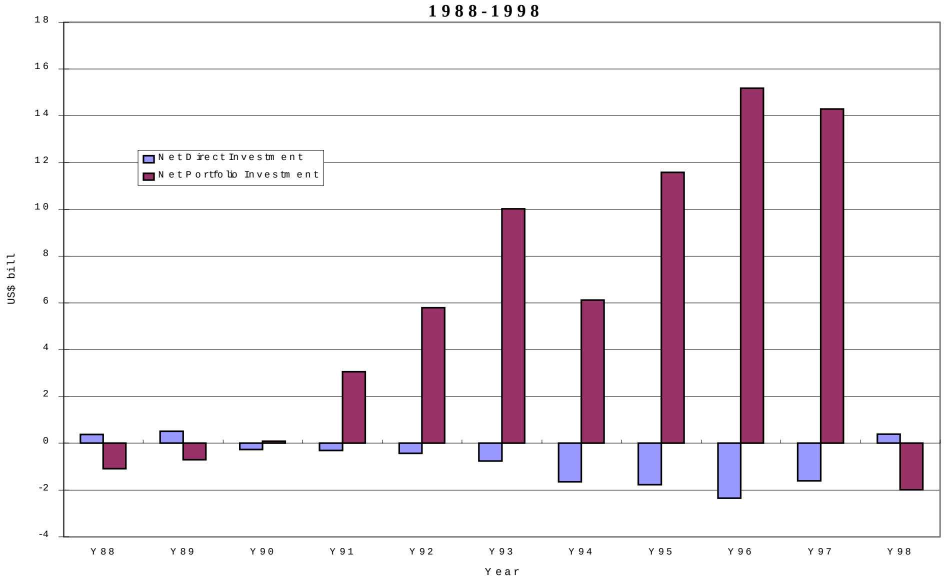
Naive policy response to the early warning signs

A series of policy mistakes were also made in response to the early symptoms or warning signs of the impending crisis, which started to appear in early 1997. First, the Korean government did not properly and swiftly deal with the corporate insolvencies, which had a devastating impact on Korea's financial system. The government repeatedly declared that troubled firms would be dealt with on the basis of the market mechanism. However, amid the critical situation in the first half of 1997 the government aggravated the financial turmoil by taking measures counter to market principles such as the Bankruptcy Prevention Accord and state subsidies for the hopelessly ailing *chaebols*. In particular, the Korean government's decision to convert Kia Motors, the insolvent eighth largest *chaebol* (see Table 12), into a public enterprise heightened the confusion and distrust among foreign investors.

The second mistake made by the government was with the exchange rate policy. With the Thai currency collapse in July 1997, contagion spread to Indonesia, Malaysia, and even to Singapore and Hong Kong. When speculative attacks on the Korean won began in October and accelerated in November, the Korean government maintained a narrow daily fluctuation band and tried to defend the Korean won inexplicably wasting valuable foreign exchange reserves. As a consequence, Korea's available foreign exchange reserves fell far below the

[41] This had been the case since 1989.

Figure 3 Investment flows, direct and portfolio (net) 1988-1998



outstanding short-term foreign debts. In retrospect, if the band had been widened earlier, and the exchange rate had been allowed to float freely, the Korean won would have depreciated gradually and this would have helped limit the extent of the crisis.

Third, the Korean government waited until the country's useable foreign currency reserves plummeted to US$7.3 billion, and the country was on the verge of a debt moratorium, before turning to the IMF on 21 November 1997. As Korean banks faced difficulties in rolling over their short-term foreign liabilities, the Bank of Korea shifted foreign exchange reserves to the banks' offshore branches and announced a guarantee of foreign borrowing by Korean banks. However, this action merely helped many foreign creditors to escape from Korea, and Korea soon found itself on the brink of national insolvency as the country's useable reserves became almost depleted.

Thus, once the financial crisis began to spread from Thailand, the Korean government made a number of mistakes, and these mistakes accelerated the capital withdrawals and caused a serous crisis of its own.

Why then did the Korean government, once considered shrewd and efficient, make such policy mistakes? Most of all, the then Korean government was in total disarray in its decision-making during the lame duck period of Kim Young Sam's presidency. The presidential election was scheduled to take place in December 1997. For instance, when the crisis was escalating, there was an internal struggle between the Ministry of Finance and Economy (MoFE) and the central bank over their roles in the financial market.

7. Policy lessons from Korea's experience in the 1990s

By the end of the 1980s and early 1990s it was apparent that Korea's interventionist and export oriented development model had produced serious structural weaknesses and policy errors (see Australian Department of Foreign Affairs and Trade. (1999), and Harvie and Lee (2003a)). These structural weaknesses were heavy exposure to short term foreign borrowing, excessive *chaebol* borrowing and investment, facilitated by a weak financial sector, concentrated corporate sector with poor corporate disclosure and governance, and weak prudential controls. Poor official management of foreign debt exposure, foreign exchange reserves and the exchange rate, and political uncertainty in the lead up to the Presidential election in December 1997 further exacerbated structural weaknesses. These structural weaknesses made Korea vulnerable to the external shocks which occurred after 1995, including the yen depreciation, falling semi-conductor prices, and the financial contagion from the south-east Asia, culminating in the financial and economic crisis of late 1997 and 1998.

There are a number of important lessons to be derived for other developing countries from Korea's experience.

First, financial liberalisation requires the implementation of adequate prudential controls. For Korea, in the early and mid 1990s, the authorities eliminated and relaxed many restrictions on interest rates, financial institutions' portfolio holdings and foreign borrowing to enable market oriented monetary policy implementation and to open the capital account prior to OECD membership in 1996. As a consequence the supervisory authorities reduced their ability to directly control the operation of the financial sector, but did not set up alternative prudential regulation systems to safeguard the stability and soundness of financial institutions. As a result the supervisory agencies failed to adequately monitor or regulate the international activities of domestic financial institutions.

Second, there is a need to monitor short-term foreign borrowing. In the case of Korea the absence of adequate prudential controls, progressive but piecemeal financial market and capital control deregulation from 1994-97, high domestic interest rates and stability of the won/US$ exchange rate led to a surge in foreign capital borrowing and rising foreign debt. Relaxation of capital controls on short-term borrowing but not on long-term borrowing contributed to this. A stable exchange rate policy and high domestic interest rates encouraged foreign borrowing by banks and corporations. Lifting the ceiling on short term foreign currency borrowing by commercial banks but imposing a ban on medium and long term borrowing encouraged banks and corporations to raise short term loans overseas to finance long term domestic lending and asset acquisition. A maturity mismatch therefore ensued.

Third, there is a need to ensure that corporations are on a sound financial footing and do not engage in excessive borrowing and investment. There is also a need to ensure their good corporate governance, transparency, the elimination of moral hazard, collusive and corrupt behaviour and a too big to fail mentality. While at the core of Korea's economic development model from the mid 1960s, and particularly the 1970s, their domestic market dominance, easy access to credit, high debt and cross guarantees, over-investment and low profitability by the 1990s led to structural weaknesses and a fundamentally weak and uncompetitive corporate sector. Weaknesses in the corporate sector were also reflected in weaknesses in the banking sector. These sectors being inextricably linked. The string of *chaebol* bankruptcies in 1997 severely weakened the balance sheets of financial institutions with exposure to failing corporations. Many of them found themselves with a high proportion of non-performing loans.

Fourth, macroeconomic policy settings, if misguided or mismanaged, exert an important influence on economic outcomes, and can contribute to significant economic and financial instability. This was most apparent in the case of exchange rate and foreign reserve management in Korea. Between 1981 and 1995 Korea's exchange rate management resulted in its nominal won/US$ exchange rate remaining relatively stable and within +/- 10 per cent of its average during this period. While nominal US dollar exchange rate stability benefitted exporters and domestic investors using foreign borrowings, it also encouraged banks and companies to borrow unhedged in foreign currencies. This proved to be highly problematic in the lead up to the financial crisis. Another problem with maintaining nominal exchange rate stability with the US dollar was that the real trade weighted exchange rate fluctuated more than the nominal exchange rate.

The Bank of Korea's unsuccessful and expensive intervention to defend the won in the months leading up to the crisis eroded investor confidence. The Bank of Korea in reality, however, had little choice because of the legislative requirement to maintain daily won fluctuations to a band of +/- 2.25 per cent around the market rate of the previous day. During 1997 the Bank of Korea spent about US$23 billion in foreign exchange reserves defending the won. Foreign exchange reserves, normally maintained at over US$30 billion, approximately 2.5 months of imports, declined rapidly throughout 1997. Useable reserves fell to below US$8 billion by late November 1997, which was only 8 per cent of the level of outstanding short-term debt or just two weeks of imports.

Fifth, the maintenance of political stability and international confidence in the domestic economy is crucial. In Korea's case the timing of its crisis was unfortunate for domestic political reasons. An ineffective and vasilating government with Presidential elections due in December 1997 contributed to a loss of market confidence in the ability of the incumbent government to contain the financial crisis, and to take the necessary measures to quell investor fears and to effectively manage the economy. With economic policy drifting, foreign exchange reserves falling precipitously and non-performing loans at the financial institutions rising due to corporate faults, international investors and banks began to limit their exposure to Korea and withdrew their capital or refused to roll-over short term loans.

8. Summary and conclusions

The seeds of the financial crisis that hit Korea in late 1997 were planted during the period of the 1990s and earlier. The benign macroeconomic environment of the 1990s characterised by: high GDP and export growth until 1996; low inflation; fiscal surpluses in general; high savings and investment; low unemployment; and, until 1996, modest trade and current account balances, hid growing financial weaknesses in both the corporate and financial sectors and an unprecedented accumulation of short term debt. The latter development increasingly exposed the country to financial turbulence in global and regional markets. However, these fragilities were of little concern in an environment of rapid growth of exports and output. With the deterioration of the country's terms of trade and resulting growth slowdown in export values in 1996 and 1997, however, the highly over-leveraged corporate sector came under intense profitability and cash flow pressures. In 1997 a number of *chaebol* became insolvent or had to seek protection from creditors. An already shaky financial sector, arising from imprudent and excessive lending to the *chaebol*, experienced a further sharp deterioration in their non-performing loans. Government action to tackle this problem head on was lacking. By October 1997 further pressure began to be strongly applied by international investors on the currency as concerns over the third major fragility, excessive short term foreign debt, came in to play. The ability of the country to meet its short-term interest and debt repayments was questioned as useable foreign exchange reserves diminished alarmingly. The consequence was the financial and economic crisis of 1997-98.

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Table 1 Macroeconomic Indicators for Korea 1990-1997

	1990	1991	1992	1993	1994	1995	1996	1997
Nominal GDP (US$ Billion)	252.5	295.1	314.7	345.7	402.4	489.4	520.0	476.6
Per Capita GDP (US$)	5,890	6,816	7,193	7,822	9,014	10,853	11,417	10,363
GDP Real Growth Rate (%)	9.0	9.2	5.4	5.5	8.3	8.9	6.8	5.0
Real Growth in Demand Components (%):								
Private consumption	10.7	9.5	6.6	5.7	7.6	8.3	6.8	3.1
Government cons.	7.2	8.5	7.6	3.0	4.2	1.0	7.8	5.7
Gross fixed capital formation	25.9	12.6	-0.8	5.2	11.8	11.7	7.1	-3.5
Total domestic demand	13.1	11.3	3.4	4.3	10.2	8.3	8.2	-2.8
Exports of goods and services	4.2	11.8	11.0	11.3	16.5	24.0	13.0	23.6
Imports of goods and services	14.3	19.2	5.1	6.7	21.7	22.0	14.8	3.8
Industrial production (% growth)	9.0	9.5	5.9	4.3	10.9	11.9	7.7	6.8
Real Growth in Sectoral Output (%):								
Manufacturing	9.2	9.5	5.3	5.4	10.8	11.3	6.8	6.6
Construction	25.5	15.1	-0.4	8.3	4.6	8.8	6.9	1.4
Agriculture, forestry and fishing	-5.9	2.9	9.6	-4.5	0.2	6.6	3.3	4.6
Services	9.3	10.3	7.0	7.2	10.3	9.6	7.8	5.4
Unemployment (%)	2.4	2.3	2.4	2.8	2.4	2.0	2.0	2.6
Productivity (GDP/employment)	6.3	6.0	3.1	4.1	5.4	6.0	5.1	4.1
Unit labour costs (compensation/GDP)	12.3	13.6	6.9	4.0	4.2	6.6	5.9	1.9
Investment rate (% of GNDI)	37.6	39.8	37.3	35.4	36.5	37.3	38.1	34.4
Saving rate (% of GNDI)	37.5	37.3	36.4	36.2	35.5	35.5	33.8	33.4
CPI (%)	8.5	9.3	6.3	4.8	6.2	4.5	4.9	4.5
Government fiscal Balance (% of GDP)	-0.7	-1.6	-0.5	0.6	0.3	0.3	0.5	0.3
Interest Rate (%)								
Corporate Bond Yields	16.5	18.9	16.2	12.6	12.9	13.7	11.8	13.4
Stock market price index	696	611	678	866	1027	883	651	376

Sources: Bank of Korea; Korea Development Institute

Table 2 Korea's Trade, Balance of Payments and Exchange Rate (US$ Billion) 1990-1997

	1990	1991	1992	1993	1994	1995	1996	1997
Merchandise Exports (Fob)	63.7	70.5	76.2	82.1	95.0	124.6	130.0	138.6
Merchandise Imports (Fob)	66.1	77.3	78.0	79.8	97.8	129.1	144.9	141.8
Trade Balance	-2.5	-6.8	-1.8	2.3	-2.9	-4.4	-15.0	-3.2
Invisibles Balance	0.5	-1.5	-2.2	-1.3	-1.0	-4.1	-8.1	-5.0
Current Account Balance	-2.0	-8.3	-3.9	1.0	-3.9	-8.5	-23.0	-8.2
(% of GDP)	-0.8	-2.8	-1.3	0.3	-1.0	-1.9	-4.7	-1.8
Exports	65.0	71.9	76.6	82.2	96.0	125.1	129.7	136.2
(% change on previous year)	4.2	10.5	6.6	7.3	16.8	30.3	3.7	5.0
Imports (Cif)	69.8	81.5	81.8	83.8	102.3	135.1	150.3	144.6
(% change on previous year)	13.5	16.8	0.4	2.4	22.1	32.1	11.3	-3.8
Gross External Debt	31.9	39.3	42.6	43.9	56.9	78.4	104.7	120.8
Net External Debt	4.9	12.5	11.0	7.9	10.3	17.1	34.7	55.7
Foreign Exchange Reserves	14.5	13.3	16.6	19.7	25.0	31.9	33.2	19.7
Gold and Foreign Exchange Reserves	14.8	13.7	17.2	20.3	25.7	32.7	33.2	20.4
Total debt (% of GDP)	12.6	13.3	13.5	12.7	14.1	16.0	20.1	25.3
Short term debt (% of total debt)	30.9	28.2	27.1	25.8	43.6	54.2	57.5	39.3
Short term debt/foreign exchange reserves (%)	74.5	84.2	71.7	61.9	126.4	146.1	200.6	273.1
Exchange rate: (Won/US$) (year end)	716.4	760.8	788.4	808.1	788.7	774.7	884.2	1695.0
Real exchange rate (1990=100) (year end)	100	99	94	93	91	88	88	157

External liabilities calculated to IBRD standards.
Sources: IMF; Bank of Korea; Korea Development Institute.

Table 3 Korea's exports and imports by Commodity Group 1990-1997

	1990	1991	1992	1993	1994	1995	1996	1997
Major exports (% of total exports)								
Machinery and transport equipment	37.7	36.6	41.6	44.9	49.0	52.5	52.1	50.0
Manufactured goods	52.4	46.0	46.5	42.5	38.0	32.7	30.2	30.2
Chemicals	3.3	3.7	4.4	6.0	6.6	7.1	7.0	7.8
Mineral fuels	1.1	1.1	2.1	2.3	1.8	1.9	3.0	3.9
Major imports (% of total imports)								
Machinery and transport equipment	32.7	32.8	33.3	33.9	36.5	36.6	36.3	33.7
Manufactured goods	21.5	20.7	22.6	21.7	23.5	23.7	21.9	21.3
Mineral fuels	12.4	15.9	15.6	18.0	15.1	14.1	16.1	18.9
Raw materials	14.2	12.2	10.9	10.6	9.2	8.7	8.1	7.5
Chemicals	11.6	10.3	10.0	9.8	9.5	9.7	8.8	9.1

Sources: Korea Customs Service, Korea International Trade Association

Table 4 International tariff barriers, 1988 and 1996

Average tariffs (%) Country	1988	1996
Australia	15.6	5.0
Canada	3.7	1.6
Chile	19.9	11.0
China	39.5	23.0
European Union	5.7	3.6
Hong Kong	0	0
Indonesia	18.1	13.1
Japan	4.3	4.0
Korea	**19.2**	**7.9**
Malaysia	13.6	9.0
Mexico	10.5	9.8
New Zealand	14.9	5.7
Philippines	27.9	15.6
Singapore	0.3	0
Taiwan	12.6	8.6
Thailand	31.2	17.0
USA	4.2	3.4

Sources: Manila Action Plan for APEC, European Union.

Table 5 Major trading partners (various) 1990-1997 (% of total trade)

	1990	1991	1992	1993	1994	1995	1996	1997
USA	29.5	26.9	24.4	21.7	21.2	21.0	19.6	18.4
Japan	22.6	23.1	21.8	19.0	19.6	19.1	16.8	15.2
EU	12.8	12.8	11.3	11.8	12.0	13.2	13.0	12.7
China	1.7	2.1	2.9	4.0	5.9	6.4	7.1	8.9
Hong Kong	3.2	3.3	3.6	4.4	4.4	4.4	4.3	4.5
Australia	2.6	2.6	2.6	2.7	2.5	2.5	2.9	2.9
Saudi Arabia	1.5	1.8	2.8	2.8	2.4	2.5	2.8	2.9

Sources: National Statistical Office

Table 6 Direction of exports 1995-98 (in per cent of total)

	1995	1996	1997	1998
Industrial countries	48.6	42.7	44.1	48.1
Of which:				
Australia	1.3	1.4	1.6	2.1
Canada	1.4	0.9	1.1	1.2
EU	12.2	10.8	12.4	13.8
Japan	13.6	12.3	10.9	9.3
USA	19.3	16.7	16.1	17.4
Developing countries	46.4	50.9	55.7	51.8
Africa	1.2	1.1	2.4	2.4
Asia:	5.1	37.8	39.1	34.0
Of which China	7.3	8.8	10.0	9.0
Europe	2.2	3.1	4.6	4.2
Middle East	3.1	3.4	3.6	4.7
Western Hemisphere	4.7	5.5	6.1	6.5
Other countries	5.0	6.4	0.1	0.1
Total	100.0	100.0	100.0	100.0

Source: IMF, Direction of Trade Statistics, Bank of Korea

Table 7 Imports by country of origin 1995-98 (in per cent of total)

	1995	1996	1997	1998
Industrial countries	67.4	65.3	61.4	61.3
Of which:				
EU	13.4	14.1	13.1	11.7
Japan	24.1	20.9	19.3	18.1
USA	22.5	22.1	20.8	21.9
Developing countries	29.4	31.4	38.5	38.7
Africa	1.5	1.3	1.7	1.8
Asia	16.0	16.7	19.0	20.2
Europe	1.5	1.3	1.7	1.8
Middle East	8.6	9.7	11.8	12.1
Western Hemisphere	2.4	2.5	2.8	2.3
Other countries	3.2	3.3	0.0	0.0
Total	100.0	100.0	100.0	100.0

Source: IMF, Direction of Trade Statistics, Bank of Korea

Table 8 Foreign direct investment in Korea 1993-1998 (US$ million)

	1993	1994	1995	1996	1997	1998
By source country:						
USA	341	311	645	876	3,189	2,975
Japan	286	428	418	255	266	504
Europe	307	407	475	1,058	2,409	2,968
Other	110	170	403	1,014	1,107	2,405
Total	1,044	1,316	1,941	3,203	6,971	8,852
By industry:						
Chemicals		107	174	389	235	755
Foodstuffs		18	15	253	851	719
Pharmaceuticals		38	65	32	44	134
Metal		7	7	13	14	7
Machinery		49	102	159	166	587
Electronics		63	228	436	291	1,377
Financial services		294	378	250	265	506
Hotels and tourism		293	216	228	2,596	303
Construction		7	11	32	64	5
Other		440	745	1,411	2,445	4,459
Total		1,316	1,941	3,203	6,971	8,852

Sources: Ministry of Finance and Economy.

Table 9 Korea’s outward foreign investment 1990-1997 (US$ million)

	1990	1991	1992	1993	1994	1995	1996	1997
Asia (exc. China)	275	384	380	237	518	884	869	943
China	16	42	141	264	632	824	836	633
Middle East	40	59	75	86	38	32	26	69
North America	438	459	391	390	567	545	1552	736
Latin America	67	42	37	44	49	120	256	258
Europe	64	89	143	175	357	585	590	349
Africa	27	18	29	31	114	42	12	109
Oceania	32	23	24	35	25	39	72	129
Total	959	1115	1219	1262	2300	3070	4214	3227

Source: The Export-Import Bank of Korea.

Table 10 International comparison of factor costs (per cent)

	USA	Japan	Taiwan	Korea
Annual nominal wage growth (manufacturing 1987-94)	3.0	1.2	5.4	16.2
Land prices (factory, US$/$m^2$, 1995)	5 – 10	195.6	48.4	226.8
Borrowing rate of interest (1995)	8.5	4.3	6.2	11.7

Source: Federation of Korean Industries, 1996.

Table 11 Performance of the top 30 Chaebols 1996, and debt-equity ratios[1]

Rank2	Company3	Total assets3	Total sales3	Net profit3	Profit/assets3 %	Debt/equity ratio 19963 %	Debt/equity ratio 1997 %	Debt/equity ratio 19984 %
1	Hyundai	531.8	680.1	1.8	0.3	439.1	578.7	508.1
2	Samsung	508.6	601.1	1.8	0.4	268.2	370.9	321.4
3	LG	370.7	466.7	3.6	1	346.5	505.8	481.7
4	Daewoo	342.1	382.5	3.6	1.1	337.3	472	406.9
5	Sunkyong	227.3	266.1	2.9	1.3	385	468	378.6
6	Ssangyong	158.1	194.5	-1	-0.6	409	399.7	395.5
7	Kia	141.6	121	-1.3	-0.9	523.6	na	na
8	Hanjin	139	87	-1.9	-1.4	556.9	907.8	632.5
9	Hanwha	109.7	96.9	-1.8	-1.6	778.2	1214.7	1108
10	Lotte	77.5	71.9	0.5	0.6	191.2	216.5	203.5
11	Kumho	74	44.4	-0.2	-0.3	477.9	944.1	1120.9
12	Halla5	66.3	52.9	0.2	0.3	2067.6		na
13	Doosan	64	40.5	-1.1	-1.7	692.3	590.3	610.9
14	Dongah	62.9	38.9	0.4	0.6	355	359.9	502.3
15	Daelim	57.9	48.3	0.1	0.2	380.1	513.6	472.2
16	Hansol	47.9	25.5	-0.1	-0.2	343.2	399.9	532.7
17	Hyosung	41.2	54.8	0.4	1	373.2	465.1	463.5
18	Jinro5	39.4	14.8	-1.6	-4.1	8598.7		na
19	Kolon	38	41.3	0.2	0.5	316.5	433.5	412.7
20	Dongguk Jaekank	37	30.7	0.9	2.4	210.4	323.8	261.9
21	Kohap6	36.5	25.2	0.3	0.8	589.5	472.1	
22	Haitai6	34	27.2	0.4	1.2	658.3	1501.3	
23	New Core	28	18.3	0.2	0.7	1224	1784.1	na
24	Anam Industrial	26.4	19.8	0.1	0.4	478.1	1498.5	1713.7
25	Hanil	26.3	13	-1.2	-4.6	563.2	na	na
26	Sammi	25.2	14.9	-2.5	-9.9	3245	na	na
27	Sinho6 Jaeji	21.3	12.2	-0.1	-0.5	489.5	676.8	
28	Bongil	20.3	8.7	-0.9	-4.4	920.5	na	na
29	Dongguk Muyok	16.2	10.7	-0.2	-1.2	587.9	na	na
30	Hansin Kongyong	13.3	10.6	0	0	648.8	na	na
Total7						386.5	519	458.2

Note: na means that the group no longer qualifies for the list of top 30 groups.
1. debt to equity ratio of non financial companies only
2. ranking is based on total assets
3. as at the end of December 1996
4. as of the end of June.
5. negative equity in 1997 and did not qualify for the list in 1998
6. negative equity in 1998
7. total figure taken from Nam et al. (1999)

Source: Nam et al. (1999)

Table 12 Major bankruptcies and near bankruptcies in 1997

Date	Company	Major businesses	Rank among chaebol*	Estimated loans loans by banks Won billion)	Estimated loans by non-banks (Won billion)
23 January	Hanbo	Steel	14	3,345	2,130
19 March	Sammi	Steel	26	371	452
21 April	Jinro	Alcoholic liquor and retail	19	868	2,342
19 May	Daenong	Retail and textiles	34	483	668
17 July	Kia	Automobiles	8	2,805	5,011
1 November	Haitai	Food and electronics	24	1,488	1,880
4 November	New Core	Retail	25	905	293
8 December	Halla	Heavy industry	12	3,036	3,440
Total debt				13,301	16,216

Note: * The national ranking figures indicate size in terms of assets.

Source: Ministry of Finance and Economy, 1998.

Table 13 Profitability of the banking system 1990-1998

	Average 1990-93	1994	1995	1996	1997	1998
Return on assets (%)						
Nation wide banks	0.51	0.40	0.28	0.23	-0.90	-2.99
Regional banks	0.84	0.53	0.56	0.47	-1.17	-5.83
All banks	0.56	0.42	0.32	0.26	-0.93	-3.15
Return on equity (%)						
Five major banks	6.10	6.00	3.40	1.20	-31.6	na
Nation wide banks	6.30	6.17	3.91	3.49	-14.09	-48.63
Regional banks	6.70	5.73	5.63	5.41	-14.77	-84.40
All banks	6.40	6.09	4.19	3.80	-14.18	-52.53
Net interest margin (basis points)						
Five major banks	2.37	1.87	2.70	na	na	na
Nation wide banks	2.31	1.21	2.40	2.98	2.03	0.94
Regional banks	4.37	4.30	3.76	3.99	2.32	0.95
All banks	2.72	1.74	2.68	3.18	2.07	0.94
Non performing loans at commercial banks						
in billion won	9394	11390	12484	11874	22652	22225
As percent of total loans	7.3	5.8	5.2	4.1	6.0	7.4
Capital adequacy ratios of banks (%)						
Five major banks	8.87	10.46	9.21	8.86	4.46	na
Nation wide banks	9.39	10.19	8.97	8.97	6.66	8.22
Regional banks	13.95	13.11	11.44	10.15	9.80	8.31
All banks	10.00	10.62	9.33	9.14	7.04	8.23
Employees (1990 = 100)						
Total	104.8	106.1	125.6	126.4	138.7	92.40

Sources: Financial Supervisory Service.

Table 14 Total factor productivity growth 1980-96

	1980-84	1985-89	1980-89	1990-96	1980-96
A. Average annual change in total factor productivity					
Total industry	2.84	2.94	2.90	1.34	2.22
Agriculture, forestry and fishing	-6.18	10.13	2.88	9.74	5.88
Mining and quarrying	6.63	2.31	4.23	3.99	4.13
Manufacturing	8.98	9.61	9.33	1.26	5.80
Electricity, gas and water	7.19	3.65	5.22	0.61	3.20
Construction	0.10	1.52	0.89	-0.31	0.37
Transportation and communications	-0.17	3.80	2.04	4.85	3.27
Transportation and communications	-2.16	3.21	0.82	-2.74	-0.74
B. Investment efficiency*					
Total industry	0.35	0.48	0.41	0.29	0.36
Agriculture, forestry and fishing	0.76	0.40	0.58	0.12	0.39
Mining and quarrying	-0.22	0.14	-0.04	-1.41	-0.27
Manufacturing	0.73	0.53	0.63	0.36	0.52
Electricity, gas and water	0.17	0.85	0.47	0.30	0.40
Construction	2.74	2.80	2.77	2.50	2.66
Transportation and communications	0.72	1.14	0.93	0.92	0.93
Transportation and communications	0.22	0.53	0.38	0.48	0.42

* Change in output divided by change in capital stock

Source: Won-Kyu Kim (1999).