Deutsche Bank Research

South Korea

The quest to stay a high-performing OECD economy

July 24, 2008

South Korea's economic performance has been impressive over the past decades. Prior to the financial crisis in 1997, the South Korean economy's average real GDP growth rate of 8% p.a. (1970-1996) was similar to other fast-growing emerging market economies in Asia like China and Taiwan. After the financial crisis, the South Korean economy's growth rate has decelerated and now resembles the more limited dynamic of its OECD peers. During the past decade the South Korean economy has grown at an annual average rate of 4.4%, strong for an OECD country and on par with Taiwan but much lower than China's growth performance.

In our assessment, we find that South Korea still has promising growth potential despite being a more mature Asian economy with a quickly ageing population. If successfully supported by good governance, this potential can enhance the country's medium- to long-term growth and lead to continued outperformance of its OECD peers.

The investment environment can be improved further by focusing the efforts on raising the efficiency and productivity of the SMEs and the services sector. This can be done by improving the regulatory and financing framework to promote SMEs' operational flexibility and encourage them to engage more in R&D. On a macro level, a more open investment and trade environment would inject vibrancy into the services sector. In this regard, we consider the Capital Markets Consolidation Act and FTAs to be steps in the right direction.

Last but not least, South Korea's achievement in human capital development has been at the forefront even among OECD countries. Maintaining the edge in human capital will be essential to keep South Korean conglomerates as global leaders and to spread the pool talent into the emerging SME sector. In this regard, granting more operational autonomy to tertiary education institutions, providing more public funding, and promote closer dialogue between the tertiary institutions and the corporate sector would help to achieve this.

In a hypothetical Korean unification scenario, although there would be an initial challenging adjustment period, long-term gains would be possible. Unified Korea would have a combined population roughly 50% larger than that of South Korea, making it a substantially larger market. Most importantly, the security risk premium long imposed on South Korea would dissipate upon successful unification, freeing up financial resources for productive use with positive implications on trend growth.

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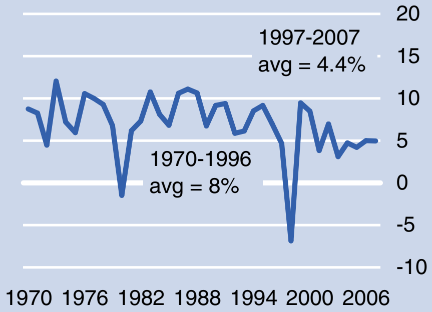
South Korea's real GDP growth 1970-2007
% yoy

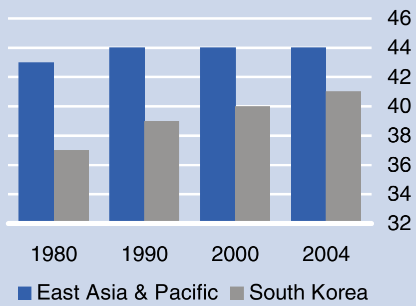


Source: CEIC data 1

GDP, population & employment growth
%, period average

Source: CEIC data 2

Female participation rate in S Korea rising but yet to reach E Asia average
%



Source: World Bank 3

Introduction

South Korea's economic progress over the last few decades has been impressive, achieving an average 7% real GDP growth p.a. since 1970. Years of strong growth pushed South Korea's per-capita income to OECD standards, with nominal GDP per capita above USD 21,000 in 2007. Average real GDP growth between 1970 and 1996 (i.e. pre-financial crisis) was 8%. Post-financial crisis (1997-2007), average real GDP growth moderated to 4.4%. Sustaining and promoting economic growth has been a key priority for South Korea's past and present governments. The previous government drafted its growth strategy in its August 2006 document "Vision 2030". The current government, in turn, has proposed the "747" vision (presumably medium- to long-term goals) whereby GDP growth will return to 7%, per-capita income will double to USD 40,000, and South Korea will become the 7th largest economy in the world.

This paper takes an independent look at the factors that have contributed to South Korea's exceptional economic performance over the past few decades and discusses trends that will drive medium- to long-term growth. More specifically, we take a look at the population and demographic trends, factors influencing investment, human capital, and the economy's openness.

The paper also briefly outlines the key developments in South Korea's capital markets and discusses a hypothetical scenario of a unified Korea with a view to assess the economic impact of reunification on the Korean economy.

South Korea's demographic burden can be eased by higher (female) labour participation

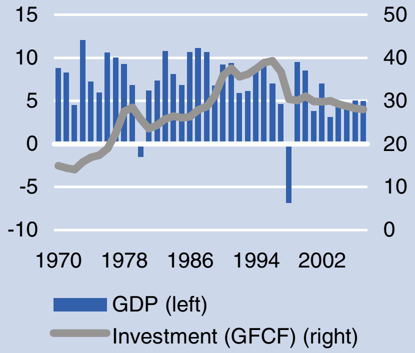
South Korea's population is estimated at around 48.45 million (official mid-year estimate 2007). The UN estimates that South Korea's population will peak at around 49.45 million around 2025 before it starts to shrink. This is expected to adversely impact South Korea's potential growth as population growth drives the quantity of labour input, which in turn is one of the determinants of the level of output or GDP[1]. Population and labour force growth rates in South Korea have been declining over the past decades. In the 1970s and 1980s, population growth averaged 1.7% and 1.2% respectively. Subsequently, population growth slowed to 0.9% during the 1990s before decelerating further to 0.4% between 2000 and 2007. Labour force growth has shown a similar trend, averaging 3.7% and 2.5% in the 1970s and 1980s respectively before slowing to 1.8% in the 1990s and 1.3% between 2000 and 2007.

According to the IMF, employment growth has been a significant contributor to economic growth in South Korea, accounting for an average 42% of GDP growth during 1981-2005[2], but has been declining over time. It was highest during the 1980s at 50% and has declined to below 40% since 1991.

Slowing population growth is reflective of a declining total fertility rate (TFR), which fell drastically from 4.53 children per woman in 1970 to 1.08 in 2005[3], one of the lowest in the world. While it will be

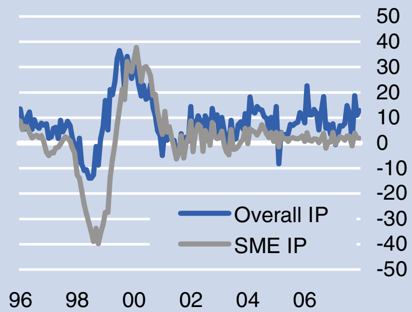
[1] For a thorough analysis of GDP growth drivers see Bergheim (2005).
[2] Chensavasdijai, Varapat (2006). Korea's Transition to a Knowledge-Based Economy: Prospects and Challenges Ahead. Republic of Korea: Selected Issues. IMF Country Report No. 06/381. October 2006.
[3] Korea National Statistical Office.

Investment (GFCF)
% of GDP (real term)



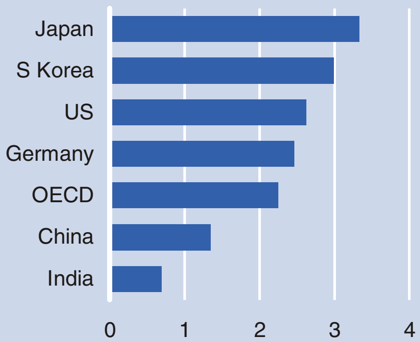
Source: CEIC data **4**

South Korea's industrial production
% yoy



Source: CEIC data **5**

S Korea ranks high in R&D spending
R&D, % of GDP



Source: OECD in Figures 2007 **6**

difficult for South Korea to reverse the impact of a very low TFR, there are ways to cushion the downside.

Labour input is also influenced by other factors such as the labour force participation rate and immigration. In this regard, there is hope for South Korea. Between 2001 and 2004, employment growth was higher than labour force growth (1.6% vs 1.4%). This could have been due to the increase in the labour participation rate from 60.5% at end-2000 to 61.8% at end-2004. In turn, higher female participation rates (41% in 2004 vs 40% in 2000[4]) may have been one of the reasons for higher labour force participation rates overall. This is one area that South Korea can look into as it faces declining population growth. A regional comparison suggests that there is more that South Korea can do to encourage its female population to work. Compared with its peers in East Asia and Pacific, South Korea's female participation rate – at 41% – is below the region's average of 44%.

A counter-argument is that higher female labour force participation rates would lead to even lower birth rates. But this is not necessarily the case as is shown in other OECD countries. For example, France has an only slightly higher female participation rate in the workforce compared with Germany (46% vs 45%) but a much higher TFR (1.9 vs 1.4). What appears to matter more are policies that provide support to families, in particular working mothers. Among other things, available, efficient and affordable infant & childcare services are particularly important. Moreover, research seems to support the observation that working mothers in fact help reduce child poverty. According to the OECD, "it is the employment status of parents that has the strongest influence on the extent of child poverty. The figure in Germany is 12.8% (about the OECD average of 12%), while the Nordic countries have the lowest figures (2.4% to 3.6%), followed by France (7.3%)."[5] The Nordic countries and France are well-known for better childcare policies and facilities than Germany.

Small- and medium-sized enterprises hold the key to investment growth

According to the IMF[6], investment growth accounted for 31% of GDP growth in South Korea between 1981 and 2005. The highest contribution from investment to GDP growth was recorded during the 1990s, when it accounted for 45% of GDP growth, while it fell to 28% in the period 2000-05. This mirrors the trend of investment as a percentage of GDP, which, in real terms, experienced a dramatic increase from 15% of GDP in 1970 to over 39% in 1996, just before the financial crisis. It subsequently came down to around 28% in 2006-07.

An important question is whether the investment ratio in South Korea is on a declining trend or is stabilising just below 30%. If the latter is the case, then South Korea should be doing fine in an international comparison. Comparative data from 11 emerging markets show that investment ratios only temporarily move outside the range of 15% to 30% of GDP[7].

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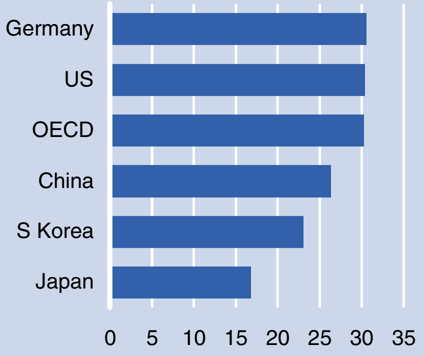
4 World Bank data.
5 Schaffnit-Chatterjee, Claire (2008). Women on expedition to 2020. Deutsche Bank Research. Current Issues. May 2008. Frankfurt am Main.
6 Chensavasdijai (2006).
7 Bergheim, Stefan (2005). Global growth centres 2020: *Formel-G* for 34 economies. Deutsche Bank Research. Current Issues. March 2005. Frankfurt am Main.

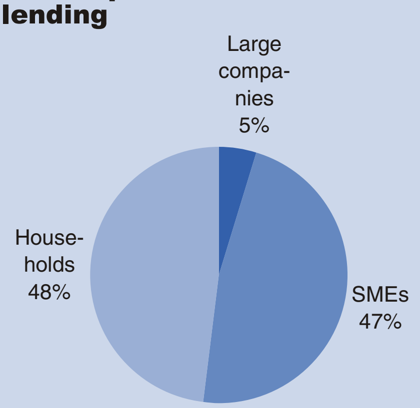
Private sector plays key role in S Korea's R&D

R&D, % financed by government



Source: OECD in Figures 2007 **7**

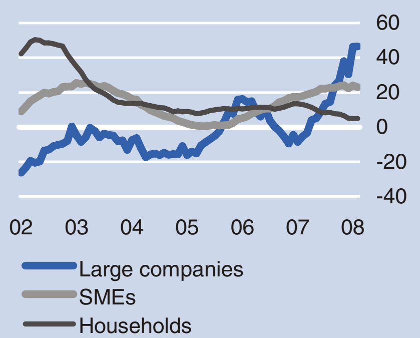
SME and household loans make up the bulk of bank lending



As of Dec 2007. Source: BOK **8**

Strong growth in bank lending to SMEs despite weak production

% yoy



Source: BOK **9**

SME investment has been weak. Faced with competition from other emerging markets with large market size and more competitive costs, South Korea's large conglomerates – the chaebols, which are multinational enterprises with a global presence – have been increasing their investment abroad rather than at home to preserve and enhance their profitability. As this takes place, those that lose out are the local small and medium-sized enterprises (SMEs), the traditional suppliers to the chaebols. As a result, the performance of SMEs in the manufacturing sector has weakened. In 2005, the SMEs' debt-equity ratio was 141%, compared to 86% for large companies, and their profitability remained stagnant. The Korea Development Institute (KDI) found that low facility investment by SMEs has kept a lid on overall investment expenditure. Facility investment by large listed companies rose by 22% on average between 2003 and 2005 while that by SMEs declined by 18% during the same period[8].

Given the threat of being marginalised by lower-cost competitors, the SME sector must find its niche to compete successfully in an increasingly globalised environment. Traditional heavy industries such as steel, shipbuilding and automobiles remain important for South Korea, but the contribution of consumer electronics and telecoms has been growing. SMEs can complement the large chaebols by providing them with product innovation and supporting services as South Korea diversifies towards a more knowledge-based and service-oriented economy.

R&D in SMEs & services sector can be improved. South Korea's overall spending on research and development (R&D) is high in an international comparison. At almost 3% of GDP, it ranks 4th among its OECD peers, with around 75% financed by industry and roughly 23% by the government[9]. This seems to suggest that R&D activities are carried out mainly by the big chaebols. Thus, there appears to be room for improvement in public-private sector co-operation to increase R&D in the SME sector. Furthermore, the share of business expenditure on R&D performed within the services industries in South Korea is low at 6.9% compared with 24.8% in the G-7 countries.

Changes in regulatory and financing environment would help. There are basically three areas that policymakers can look into to encourage SME restructuring, namely the phasing-out of public credit guarantees; a more flexible bankruptcy law; and development of financial infrastructure to support SME credit. Public credit guarantee funds have provided a security blanket for the SME sector which in some cases may have hindered their incentives to restructure when they faced problems. In this regard, it is encouraging to note that public credit guarantees have declined from 8% of GDP (compared with 1.5% in Taiwan and 0.2% in the US) in 2001 to 5.5% in 2005.[10] Moreover, the decline in public credit guarantees has not proved to have a dampening impact on GDP growth, as feared earlier.

A more flexible bankruptcy law at both the corporate and personal level could provide an exit strategy for non-viable SMEs, freeing up financial resources to support viable ones. Some progress has been

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[8] Kang, Kenneth and Song-Yi Kim (2006). A Strategy for Restructuring the SME Sector in Korea. Republic of Korea: Selected Issues. IMF Country Report No. 06/381, October 2006.

[9] OECD in figures 2007.

[10] Kang, Kenneth and Song-Yi Kim (2006).

made since April 2006 when the courts began implementing a new unified insolvency law, streamlining court procedures. The remaining obstacles revolve around the relatively high fixed costs associated with corporate bankruptcy as well as the lack of a provision for temporary protection of debtors (upon filing for bankruptcy) from creditor actions such as foreclosure or lawsuits.

Apart from credit guarantees, bank lending to SMEs has relied mainly on real estate as collateral. This presents problems for new knowledge-based start-ups, which typically have few fixed assets. More legal certainty with regard to the treatment of other types of assets such as intellectual property, inventory and future cash flow would facilitate lending to knowledge-based SMEs.

Capital Markets Consolidation Act

The Capital Markets Consolidation Act (CMCA) was passed by the National Assembly in July 2007. The aim of the CMCA is to support South Korea in its bid to become a financial hub in Northeast Asia by modernising and increasing the flexibility of firms in the financial services industry. The key changes introduced by the CMCA include:

1. Allowing a single firm to conduct various types of financial services such as investment banking, asset management, dealing and brokerage whereas in the past different types of financial services were segregated under various firms subject to different licensing requirements.
2. Creating a unified regulatory system to supervise the financial services whereas in the past different financial businesses were governed under various sets of rules and regulations.
3. Aiming to provide better protection for investors' rights.
4. Allowing greater flexibility for fund managers to introduce new financial products as long as they are not explicitly forbidden by law.

The CMCA will be fully implemented in January 2009 and is expected to lead to further consolidation of financial institutions so that firms can take advantage of synergies and economies of scales. It is expected to lead to a financial sector with fewer but stronger players, with a wider array of services and greater operational flexibility. Supervisory efficiency is also expected to improve, benefiting from a unified regulatory body.

Furthermore, the venture capital industry could play a more active role in SME funding. Around one-third of the venture capital industry in Korea is funded by the government, while foreign venture capital accounts for less than 10%. Increased private sector participation by both foreign investors and long-term domestic institutional investors (such as pension and insurance funds) would widen the pool of available funding. The transfer of knowledge of foreign venture capital funds should also help to develop SME risk assessment techniques. A potential constraint is the short average tenure of venture capital funds in South Korea (5 years), compared with the estimated time for an SME to fully develop its potential (9-10 years).

Advanced capital markets by Asian standards. Capital markets in South Korea are more advanced when compared with their Asian peers. Local bond markets in South Korea are the 3rd largest in Asia behind Japan and China in terms of outstanding market value (around USD 1 tr as of July 08, equivalent to more than 100% of nominal GDP in 2007). Foreign investors can purchase all types of local fixed-income instruments. Treasury bonds are issued on a regular basis with maturities of 3, 5 and 10 years. There are three main types of domestic bonds, based on types of issuer, namely government bonds, special public bonds, and corporate bonds. The government bond markets include Treasury Bonds, Foreign Exchange Stabilization Bonds, and National Housing Bonds for example. Government bonds are the most traded asset class and form the basis for benchmark yields[11]. About 80% of bond trades are done via over-the-counter (OTC) trading. Institutional investors and financial institutions are the main players. Bond trading is also done via the Korea Exchange.

Securitisation in South Korea is more active compared to other Asian markets, originating from the need to restructure banks' non-performing loans after the financial crisis in 1997. Collateralised bond obligations and collateralised debt obligations (CDOs) make up a substantial share of securitised transactions. Underlying assets of the securitisation markets include residential mortgages, credit card receivables, future trade receivables, and various types of leases and loans[12]. Trading of asset-backed securities in South Korea remains active despite the global credit crisis although the spreads have generally widened, reflecting higher risk premiums on global credit products.

The Korea Exchange (KRX), which was consolidated in 2005, combines The Korea Stock Exchange, KOSDAQ Market (small cap),

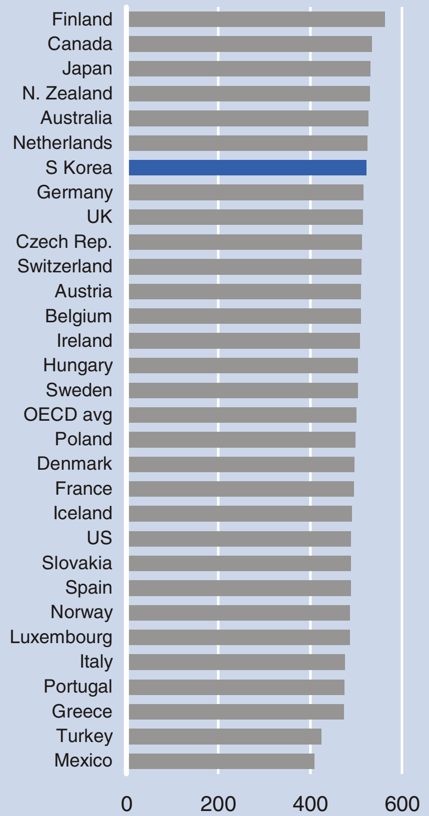
[11] ADB AsianBondsOnline.
[12] Ibid.

Korea-US Free Trade Agreement

South Korea and the US government signed a free trade agreement (FTA) in April 2007. The agreement is yet to be ratified by Korea's National Assembly and the US Congress. The FTA seeks mutual benefit through increasing bilateral trade, which is estimated to go up by around USD 20 bn. South Korea hopes that its exports to the US would be better placed to face competition from countries such as China and Japan, while the US hopes to increase its agricultural exports to South Korea when tariffs are reduced and bans are lifted. The US is the 3rd largest export market for South Korea (almost 12% of total exports) after China (22% of total exports) and the EU-15 (12%), absorbing some USD 45.8 bn worth of merchandise goods from South Korea in 2007. Among the major provisions in the agreement, the US agrees to scrap or cut tariffs on South Korea's exports of automobiles, electronics, home & electronic appliances. South Korea has agreed to lift tariffs on US imports of some beef and pork items, which has faced internal criticism in South Korea that the move would lead to a significant decline in the production of domestic beef and other meat. Rice was excluded from the FTA.

The lifting of tariffs on beef imports in June 2008 has been highly criticized and led to a large protest by the South Korean public, leading to a big drop in President Lee Myung Bak's popularity rating. Under the circumstances, it may take longer than expected for the National Assembly to ratify the FTA than previously expected.

PISA mean scores science
2006 data



Source: OECD 10

and Korea Futures Exchange. South Korea's stock market capitalisation (KSE all shares) was around 94% of nominal GDP in June 08, relatively large compared with an emerging economy like China (76%) but smaller compared with a more developed Asian economy such as Taiwan (152%). Foreign shareholding as a percentage of total market capitalisation stood at 31% at end-07, down from 40% in 2004, although it had grown in absolute terms to stand at USD 325.5 bn at end-07[13]. The declining share of foreign investors reflects the trend of domestic Korean investors, both individuals and institutions, rapidly shifting their deposits into the stock market in recent years.

Improving attractiveness to foreign investors through more flexible capital markets and freer trade

We find the push to promote the financial industry in South Korea encouraging, particularly the Capital Market Consolidation Act, which was passed in July 2007 and will be fully implemented in January 2009. Under the Act, barriers between different businesses providing financial services are relaxed, which should help consolidate the sector and ultimately create a stronger and more efficient industry with higher capability to support the investment needs of the corporate sector (see text box on p. 5).

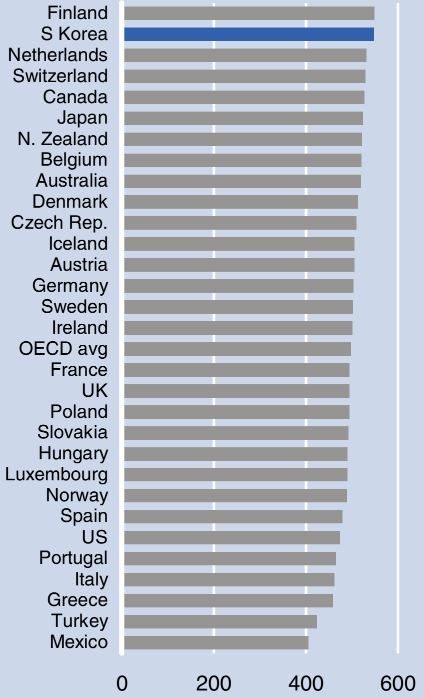
Moreover, the pursuit of the Free Trade Agreement (FTA) with the US (yet to be ratified by the National Assembly) and the EU is expected to facilitate market access for Korean manufacturers and services providers to the world's richest and largest markets with obvious positive implications for investment prospects for South Korean firms. South Korea has also signed FTAs with Chile, Singapore and ASEAN. FTAs with China and Japan are under consideration (see text box on the left).

FDI inflows averaged USD 11.3 bn annually between 1998 and 2007. In 2007, FDI of USD 10.5 bn was recorded, equivalent to around 1% of GDP. The major sources of FDI in 2007 were the key European countries[14] (30%), the US (22%) and Japan (9%). The US has been a major source of FDI for decades, accounting for around 34% in the 1980s and 32% in the 1990s. Key European countries have seen their share of FDI rise from an average of 13% in the 1980s to around 30% currently. Japan's role as a major FDI source has declined. It used to account for 43% of FDI inflows into South Korea in the 1980s, but its share has fallen to around 10%. While FDI inflows are substantial, they have been stable, showing neither a strong increase nor a decline over the past 10 years. This reflects to a certain extent South Korea's success in attracting continued interest from foreign investors, but maintaining the status quo may not be sufficient as the global competition for foreign investment is intensifying.

All in all, there is a strong recognition in South Korea that investment policies need to be adapted from the past interventionist pattern of resource allocation, which led to the chaebols' success. The attitude toward foreign investment and international trade, though improved and generally more liberal, has suffered occasional setbacks. At times, the signals to foreign investors have been mixed. Among some positive trends, the efforts to improve the investment environment have now been extended to reach out to sectors not prioritised in the restructuring that took place after the financial crisis. A lot of

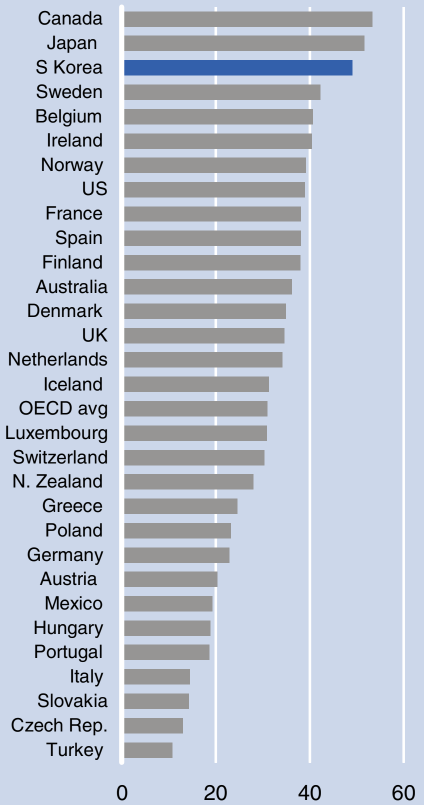
[13] KRX data.
[14] The Netherlands, Germany, France, UK.

PISA maths scores
2006 data



Source: OECD 11

Tertiary attainment of young working population ranks 3rd in OECD
% of the population of that age group



Source: OECD 12

work needs to be done with regard to boosting the productivity and potential of the SMEs and the services sector. If South Korea continues to build upon these efforts, it could at least sustain and may even increase the current investment ratio in the medium term.

Human capital: The challenge is maintaining the edge

Human capital represents the quality of the labour input. A high quality of labour resources will facilitate the economy's technological progress, e.g. via product innovation and higher efficiency and productivity.

South Korea has much to be proud of in the area of human capital. At the secondary school level, South Korean students excel by international standards. At the latest PISA (the OECD's Program for International Student Assessment, which measures the capabilities of 15-year-olds in reading, maths and science literacy) in 2006, South Korean students ranked top for reading, 2nd highest for math and 7th for science among all OECD countries.

High-quality secondary school education naturally produces a large pool of qualified students for tertiary education. Compared with its OECD peers, South Korea ranks in the top 10 for tertiary attainment of the working population (i.e. the 25-to-64 age group). At 30.5%, South Korea is well above the OECD's average of 25.2%. South Korea's tertiary attainment ratio of the younger working population (i.e. 25 to 34-year-olds) is even more impressive, ranking 3rd in the OECD peer group at 49.1% compared with the OECD average of 31%. The rate of improvement of the tertiary attainment ratio for the young working population was the fastest in the OECD in the period 1991-2004, from 21% in 1991 to 49.1% in 2004.

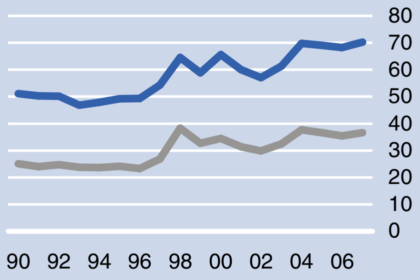
A large, well-educated workforce is the reason for South Korea's success in several key industries, including consumer electronics. Despite a setback after the financial crisis, South Korean chaebols such as Samsung, LG, and Hyundai have re-established themselves as leading global brands with cutting-edge technology.

Still, despite its impressive track record, some concern has emerged among policy makers, academics and the public that the higher education degree as offered in South Korea may need to be adjusted to meet the challenges of the knowledge economy and lifelong learning. Symptoms include "a market flooded with unemployed college graduates … signs of 'over-education' … and skills mismatch across virtually all fields of occupations and industries as cited in a Korean Development Institute study[15]. The study identified the problems in Korean higher education as stemming from over-regulation and under-financing. Despite deregulation efforts, the higher education system remains highly centralised and not adequately adaptable to market needs. The study finds that tertiary education has been mostly supported by private spending. The observation is supported by OECD data which shows that South Korea's annual expenditure per student for tertiary institutions is around 60% of the OECD average.

Thus, it appears that to maintain the edge in human capital, South Korea needs to further improve its tertiary education system by providing more adequate public funding. At the same time, tertiary institutions should benefit from operating with greater autonomy, in particular in management and academic affairs. Deregulation in the

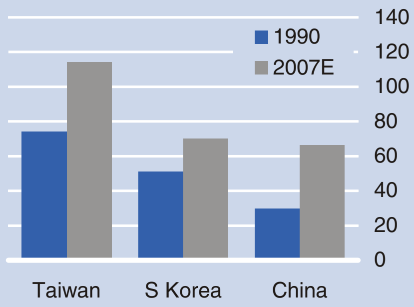
[15] Woo, Cheonsik (2002). Upgrading Higher Education in Korea: Context and Policy Responses. Korea Development Institute. December 2002.

South Korea's openness has increased over the years
% of GDP



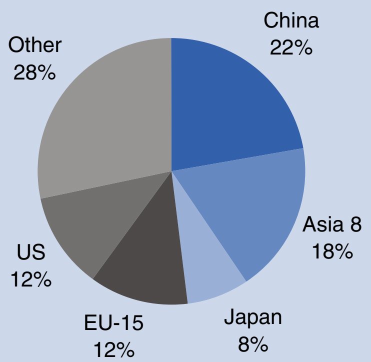
Source: DB Research 13

Trade openness improved more slowly compared with Taiwan & China
Trade*, % of GDP



*Exports + imports. Source: DB Research 14

South Korea's key export markets 2007
% share



Source: CEIC data 15

areas of staff recruitment and remuneration, student enrollment and fee structure would raise their efficiency. Furthermore, closer dialogue between tertiary institutions and the private sector, which is the graduates' major employer, would be necessary to ensure that the curriculum is responsive to a fast-changing work environment.

Openness: Rising trend but much more can be done

South Korea's openness as measured by the size of trade (exports and imports) in relation to GDP has been increasing over the years from 51% in 1990 to 70% in 2007. The export share increased from 25% of GDP in 1990 to 37% of GDP in 2007. When compared to a peer economy such as Taiwan, however, South Korea still lags behind. Taiwan had a ratio of trade to GDP of 114% in 2007 (1990: 74%) and an export ratio of 59% of GDP (1990: 41%). In fact, South Korea's openness is similar to that of China, an economy with a much larger domestic market. Given this comparison, and the global presence of Korean chaebols, it seems that South Korea's potential in international trade and investment is yet to be fully realised.

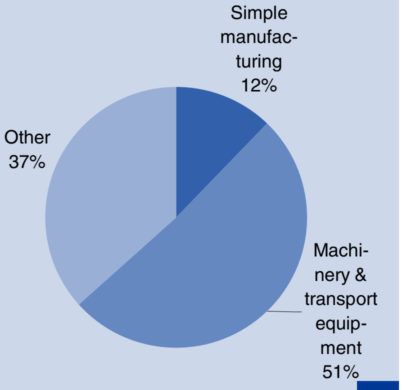
As mentioned in the previous section, South Korea's FDI inflows have remained steady in absolute terms over the past decades. While not falling, they are not on an uptrend either, suggesting that more could be done to attract foreign investment into the country. A common complaint by foreign investors is the unclear interpretation of rules and regulations which at times varies among different government agencies, leading to confusion, delay and inefficiency. In terms of FDI outflows, the volume has been growing over the years, indicating that South Korea's large companies are expanding their global reach. FDI outflows averaged USD 216 m annually in the 1980s, but surged more than ten-fold to USD 2.7 bn during the 1990s. In the period 2000-2007, FDI outflows averaged USD 7.8 bn annually. In 2007, FDI outflows were as high as USD 20.3 bn. Asia has seen its share of FDI outflows from South Korea rise over the years (from 34% in 1990 to 53% in 2007) as has Europe (from 8% in 1990 to 20% in 2007). The share of North America has, however, been declining from 43% in 1990 to 18% in 2007.

Looking at South Korea's main export markets, there has been quite a transformation. There is a clear shift toward Asian markets, led by China. China overtook the US as South Korea's largest export destination in 2003. In 1990 China only accounted for 1% of South Korea's total exports; this share had grown to 22% by 2007. This suggests that South Korea's increasing openness was partly due to its expansion into rapidly-growing areas. In the period 1990-2007, the share of South Korea's exports to Japan and the EU declined, while that of exports to Asia-8[16] increased modestly. South Korea's exports to China grew 23% p.a. on average between 1990 and 2007 compared with 8% growth for all exports.

There has been a structural shift also with regard to products. South Korea has made great strides in its move up the value-added chain in manufacturing, which – as we have argued above – has been due at least partly to the availability of a high-quality labour force as well as strong investment. The share in exports of products in the Machinery & Transport Equipment (MTE) group, which includes electronics, electrical machinery, telecom equipment as well as vehicles, rose from 32% in 1990 to 51% in 2007.

[16] Hong Kong, India, Indonesia, Malaysia, Philippines, Singapore, Taiwan and Thailand.

South Korea's export composition 2007



Source: CEIC data **16**

South and North Korean key economic data in comparison

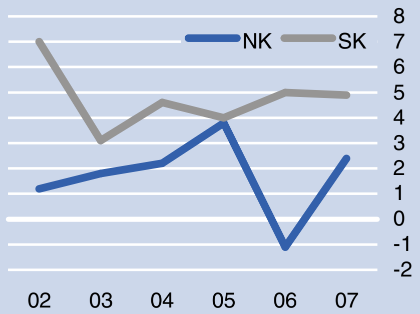
2007E data

	North Korea	South Korea
Real GDP growth, % yoy	2.4	4.9
Nominal GDP, USD bn	15	1036.4
Population, m	22.9	48.8
Population, % growth	0.4	0.5
Nominal GDP per capita, USD	655	21,234
CPI, % yoy	103.4	2.5
Exchange rate vs USD, eop	8,340.7	935.7

Sources: CEIC data, Global Insight **17**

North & South Korea's real GDP growth

% yoy



Sources: Global Insight, DB Research **18**

Downside and upside risks to South Korea's medium-term growth prospects

The downside risks for South Korea lie in the inability to unleash the potential for the SMEs and the services sector. Failure to do so would lead to a lower investment ratio, the hollowing out of the domestic economy whereby the country's savings would pursue investment opportunities with better returns abroad, resulting in poor job creation and lower economic growth at home. Likewise, failure to maintain the edge in human capital would lead to increased outsourcing of high value-added jobs abroad. South Korea cannot escape the forces of globalisation, it must adapt to it.

There is an upside scenario as well. Policy makers seem to be aware that the synergies among China, Japan and Korea are tremendous. Their strengths can be complementary, i.e. China has a huge domestic market that is becoming more affluent, and a competitive labour force. Japan and South Korea have the capital as well as technology and know-how. Increased capital and labour mobility in Northeast Asia should be beneficial to all parties involved. If the three countries worked together to overcome the political barriers towards realising the Northeast Asia Cooperation Initiative[17], the ensuing synergies would help lift the growth potential for all of them.

The North Korea question mark

An analysis of South Korea's long-term prospects would not be complete without addressing the question of reunification. Given the complexity of the issues involved, we chose to focus on a few key questions.

First, what would be the cost to South Korea in a scenario of rapid reunification? It is generally assumed that Korean unification costs would be larger than the costs of Germany's reunification. This is because the disparity of income between North and South Korea is much larger than between East and West Germany. Between 1991 and 2004 USD 1.4 tr of West Germany's wealth was transferred to East Germany (roughly 5-6% of Germany's cumulative GDP during this period).[18]

Reunification, in its simplest version, would involve costs aimed at rapidly bridging North Korea's per-capita income gap with South Korea (60% is the level generally deemed minimum in order to prevent mass migration of North Koreans to the South). In reality, costs would also include humanitarian relief efforts, economic stabilisation, re-education, job training, and the overhaul of administrative and bureaucratic systems in North Korea, as well as social integration facilitation.

The World Bank, which has assumed a rapid reunification scenario, estimates the costs of Korean reunification at USD 2-3 tr [19] (around 2-3 times South Korea's GDP). The World Bank study draws heavily on the experience of German reunification but emphasises the two Korea's greater income disparity and greater population imbalances.

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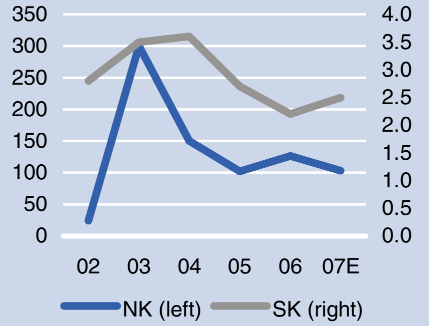
[17] The Northeast Asian Cooperation Initiative idea was initiated by former President Roh Moo-Hyun to promote cooperation between China-Japan-S Korea in order to capitalise on the synergies between the three economies in order to lift medium-term economic growth potential.

[18] Charles Wolf, Jr and Kamil Akramove (2005). North Korean Paradoxes, Circumstances, Costs, and Consequences of Korean Unification. Rand National Defense Research Institute, 2005.

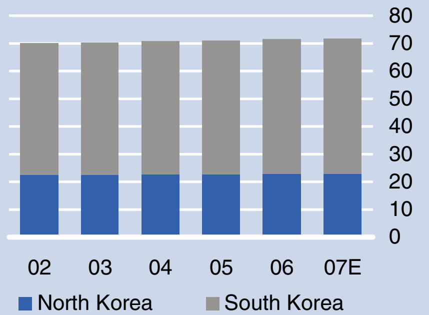
[19] Charles Wolf, Jr (2002). Straddling Economics and Politics. Rand, 2002.

North Korea's & South Korea's CPI
% yoy



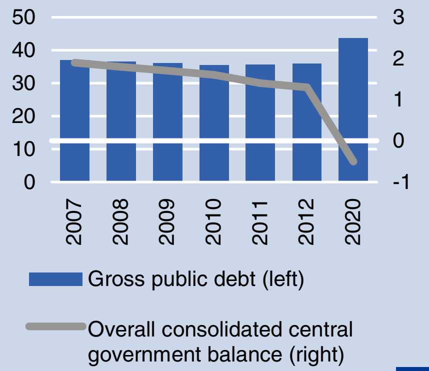
Sources: Global Insight, DB Research **19**

North and South Korea's populations
m



Sources: Global Insight, DB Research **20**

South Korea's fiscal scenario
Baseline, no pension adjustment, % of GDP



Source: IMF **21**

There are various definitions of reunification costs, ranging from total investment expenditures (including private), total government expenditure, etc. Marcus Noland[20], a well-known scholar on North Korea, estimates the cost in one of the scenarios to be around USD 3.6 tr, consistent with the World Bank calculations.

Second, what would be the immediate economic impact for South Korea following reunification? South Korea would be to face higher interest rates, a weaker Korean won and a rising risk premium on sovereign debt in the initial stage. Higher fiscal burdens and larger borrowing needs would also contribute to higher interest rates.

A large pool of an additional population of 23 m would require a substantial increase in public expenditure to meet basic needs. Public sector expenditure would have to increase substantially, resulting in a deficit in the public sector account. For example, since reunification in 1989, Germany's public sector accounts (government account + social security account) have been in deficit. Furthermore, Germany's external surplus, in particular the current account, swung into deficit in the two years following reunification.

Currently, South Korea's consolidated public expenditure is around 24% of GDP, slightly lower than revenues. In Germany, post-reunification expenditure rose by 10-20%. In the case of Korea, the increase in expenditures could be even higher i.e. 20-30% due to the larger gap in incomes and the level of development. Assuming that expenditure grows around 30% during the decade following reunification while revenue increases by 10%, a unified Korea could be running a fiscal deficit of around 3% of GDP or above for several years, which would induce the government to borrow more to fund the deficit. This could contribute to higher interest rates across the yield curve.

On the external front, as investment needs will increase, especially to rebuild North Korea's infrastructure, the pool of South Korea's domestic savings (around 30% of GDP) will be insufficient to fund domestic investment, resulting in an investment-saving gap, i.e. a current account deficit. As a consequence, the KRW would come under depreciation pressure.

Third, would long-term gains be possible and what could South Korea do to mitigate the economic risks? In our view, despite short-term pains, long-term gains are possible. Economic decisions during the transition period should be guided by the principles of preserving productivity and competitiveness. South Korea can study China and Hong Kong's "One Country, Two Systems" model, and also learn from Germany's experience in order to avoid the pitfalls. Among other things, the German experience illustrates the costs associated with heavy dependence on transfers of social security funds to help meet the fiscal needs and the perils of over-generous investment subsidies that led to misallocation of capital.

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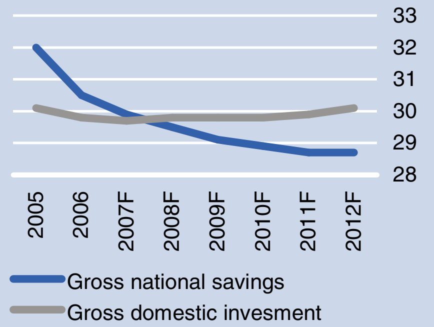
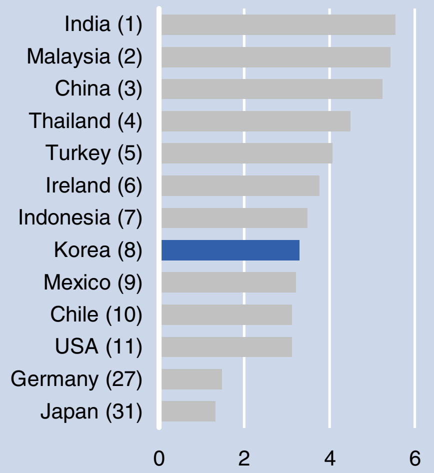
[20] Noland, Marcus (2006). Some Unpleasant Arithmetic Concerning Unification. Peterson Institute of International Economics. Working Paper 96 -13, 2006.

Investment-savings gap projected to emerge
% of GDP



Source: IMF 22

Ranking of GDP growth 2006-2020
% p.a.



Source: Deutsche Bank Research, Formel-G 23

Conclusion

South Korea's medium- to long-term economic outlook is positive overall, despite unfavourable demographic trends. South Korea can mitigate the downside risks arising from its potentially shrinking population by enhancing the contribution from the other three main drivers of long-term growth, namely investment, human capital and openness. It would be unrealistic to expect South Korea to return to the average annual GDP growth of 8% in the period 1970-1996 over the next few decades. However, the fact that South Korea's annual average growth during 1997-2007 was 4.4% despite many challenges – including shocks from the Asian crisis, the US dotcom bubble burst, and the domestic household debt crisis – gives rise to hopes that South Korea can achieve more in the future.

This paper has argued that in order to unleash the unrealised potential of the SMEs and the services sector, the authorities should focus on measures to maintain the technological edge in high value-added manufacturing and foster a more open environment in international trade and investment. Progress in these areas will strengthen South Korea's position as a growth star, particularly among its OECD peers, for many more years to come.

DB Research's proprietary long-term growth model *(Formel-G)* that compares the growth prospects of 34 economies in both the emerging markets' and developed economies' universe between 2006 and 2020 ranks South Korea as the world's 8th best performing economy. The IMF's medium-term projection puts South Korea's GDP growth at 4.5% on average during the period 2010-2012. Long-term growth models from other sources such as Boston Consulting Group (from 2005 to 2015) and PricewaterhouseCoopers (2005-2050) also find South Korea performing well especially when compared with other developed economies.

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