Asia’s demographic transitions – focus on Japan and Korea

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Please see Appendix A1 for analyst certifications and important disclosures
Two aspects of Korea’s demographic future

Population growth rate in Korea, Japan and world

Korea’s population growth rate

Note: Official statistics for Korea are available since 1970. Data before 1970 are Nomura estimates. Source: UN, CEIC and Nomura Global Economics.

Note: Working age=15-64; non-working age=0-14 and 65+. Projections based on National Statistic Offices (NSO) estimates. Source: CEIC and Nomura Global Economics.
Demographic structure offers sweet spot in 2011-16

Korea’s dependency ratio

36.5% in 2011-16

Korea’s age pyramid in 2010

Note: Total dependency ratio = sum of the age cohorts 1-14 (child) and 65+ (old-age) divided by the working-age population (aged 15-64).
Source: CEIC and Nomura Global Economics.

Source: CEIC and Nomura Global Economics.
An aged society in the waiting (after 2018)

Population aged 60+, % of total, for 2050

Korea’s age pyramid for 2050

Note: Sample of 198 countries.
Source: UN and Nomura Global Economics.

Source: CEIC and Nomura Global Economics.
Can Korea’s demographic long-run outlook be improved?

South Korea age pyramid, 2008

Source: Korea National Statistics Office

North Korea’s age pyramid, 2008

Source: Korea National Statistics Office
Can Korea’s demographic long-run outlook be improved?

Population for South and unified Korea

Source: UN and Nomura Global Economics.

Population in 2020 for South and unified Korea

Source: UN and Nomura Global Economics.
Asia’s demographic sweet spot (I)

- The total dependency ratio gap between Asian and developed economies closed in 2010, and is likely to widen the other way.

**Total dependency ratios and Asia’s current account**

**Asia’s dependency ratios and fertility rates, 2010**

Note: Total dependency ratio = sum of the age cohorts 1-14 and 65+ divided by the working-age population (15-64). Developed economies comprise all regions of Europe plus North America, Australia/NZ and Japan. Asia is Nomura’s coverage of Asia ex-Japan (population weighted). All data refer to five-year averages. Current account data are available for selected countries since 1970. Source: UN, IMF and Nomura Global Economics.
Asia’s demographic sweet spot (II)

- Japan is a demographic front-runner
- East Asian economies entered their demographic sweet spot in 2010 (which will last only 5-10 years), but eventually will experience population declines before 2030
- ASEAN and India, which have higher fertility rates than East Asia, will enter their demographic sweet spots later and will not experience population decline until 2050

Asia’s demographic profile and start year of old-age public pension systems

<table>
<thead>
<tr>
<th>Year of population decline</th>
<th>Japan</th>
<th>Korea</th>
<th>TW</th>
<th>HK</th>
<th>SG</th>
<th>China</th>
<th>Thai</th>
<th>Vietnam</th>
<th>Indo</th>
<th>MY</th>
<th>India</th>
<th>PH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy at birth (age)</td>
<td>83.7</td>
<td>79.4</td>
<td>78.2</td>
<td>82.2</td>
<td>80.3</td>
<td>73.0</td>
<td>68.8</td>
<td>74.3</td>
<td>70.7</td>
<td>74.2</td>
<td>63.5</td>
<td>71.7</td>
</tr>
</tbody>
</table>

Note: Year of lowest dependency is based on UN projections. Life expectancy at birth is as of 2010. Source: UN and Nomura Global Economics.
Asia’s demographic sweet spot (III)

- China’s diamond-shaped age pyramid is typical of East Asian populations
- India’s bell-shaped age pyramid also represents ASEAN’s demographic structure well

China’s age pyramid, 2009

India’s age pyramid, 2010

Source: CEIC and Nomura Global Economics.

Source: UN and Nomura Global Economics.
Economic theory

- Life cycle hypothesis
- Overlapping generation model ("asset meltdown hypothesis")
- Life-time asset allocation model

Household assets by age in Korea (2006-10)

Household debt by age in Korea (2006-10)

Source: NSO and Nomura Global Economics.
Some identification problems (I)

- Demographic change is a very slow, structural process
- Many other dynamic factors (inflation, international capital flows) can influence asset prices in the short term

Source: IMF, CEIC and Nomura Global Economics.

Source: CEIC and Nomura Global Economics.
Some identification problems (II)

- Since the 1997 Asian crisis, the Korean economy has increased its links to the global economy and financial market. Meanwhile, the property market is affected mainly by domestic factors.

- Over medium and long runs, however, demographic forces can exert powerful effects.

Stock price index in Korea and the US

- KOSPI
- S&P 500

House price index in Korea and the US

- Korea
- U.S.

Source: CEIC and Nomura Global Economics.
1. Real KRW appreciation

Demographic sweet spot suggests a positive saving-investment gap...

Gross savings and Korea’s saving age groups

Source: CEIC and Nomura Global Economics estimates.

Net savings by age (monthly avg. 2003-09)

Source: NSO and Nomura Global Economics.
1. Real KRW appreciation

... and sustainable current account surplus
1. Real KRW appreciation

- In terms of net income across borders, Korea is a net capital exporter and a labour importer.
- Moving toward a service-oriented economy can help reduce high oil dependency.

Korea's cross-border net income

Oil intensity in 2005

Source: CEIC and Nomura Global Economics.

2. Declining real interest rates

- We expect real long-term rates to fall to 1% on average over 2011-20 from 2.5% over 2001-10
- Korea’s National Pension System (NPS) will accelerate its financial asset build-up

Real interest rates and population growth

Note: Korea=NPS assets (cash basis); US=OASDI (The Old-Age, Survivors and Disability Insurance) assets. Source: NPS, US Social Security Administration and Nomura Global Economics.
2. Declining real interest rates

- NPS plans to lower domestic fixed income share of total assets from 72% in 2010 to 60% by 2015
- NPS’s absolute amount of domestic fixed income assets has outpaced net bond issuance, making NPS the largest single holder of domestic Korean bonds
2. Declining real interest rates

- Over the next five years, Korea’s fiscal finances should remain sound, before facing a heavy burden as the population ages from 2016.
3. Potential support for real stock prices

- The US and Japan experience (before their asset bubbles burst) show a positive correlation between the share of middle age in total population and stock prices.

**Population and real stock prices in the US**

**Population and real stock prices in Japan**

Source: CEIC and Nomura Global Economics.

3. Potential support for real stock prices

- Korea’s middle-aged population is projected to peak in 2020
- As the working population ages, with higher incomes and a better knowledge of investment than previous generations, we expect a gradual shift towards increased equity holdings.

**Population and real stock prices in Korea**

- Real KOSPI, lhs
- 35-64 age population/total, rhs

**Households that hold equity, by age**

- Korea (2010)
- Japan (2009)

*Note: Data are for families, age is of the family head; Japan data are grouped differently, the corresponding age groups being under 39, 40-49, 50-59, 60-69 and over 70. Source: Fed Survey of Consumer Finances, NSO, Ministry of Internal Affairs and Communications and Nomura Global Economics.*
Japanese household portfolios

- Severe investment misallocation, which led to the bursting of the land price bubble in 1990, caused a financial crisis in Japan, making households very risk averse.
- The accumulation of household financial assets in Japan has been concentrated in bank deposits, not equity.

Source: Nomura, based on Cabinet Office and Bank of Japan.

Source: Nomura, based on NRI/AURORA.
4. Modest negative impact on real house prices

- The share of first-time home buyers in the total population is projected to fall in 2013.
- But we do not expect to see a Japan-style housing bubble burst.

**Real land prices and demography in Japan**

- Graph showing land prices and population for Japan.
  - Note: ‘Six largest cities’ includes Tokyo.
  - Source: CEIC and Nomura Global Economics.

**Real land prices and demography in Korea**

- Graph showing land prices and population for Korea.
  - Note: ‘Six largest cities’ excludes Seoul.
  - Source: CEIC and Nomura Global Economics.
4. Modest negative impact on real house prices

- We expect relatively solid demand for small-size houses in the Seoul-metro area.
- Younger generation may prefer to rent rather than buy houses, which should support the relative value of rental/buying over time.

**Number of households and population**

![Graph showing the number of households and population growth rate from 1975 to 2010.](source: NSO and Nomura Global Economics)

**Urbanization and home ownership**

![Graph comparing urbanization rate and home ownership rates from 1970 to 2010.](source: NSO and Nomura Global Economics)
Recent land prices in Japan

- Since the latter half of the 1990s there have been large population inflows into big cities, especially Tokyo
- Land prices in big cities have been firmer than other regions since the mid-2000s

**Net migration to Tokyo, Osaka and Nagoya**

Note: Three big-city areas = Tokyo area (Tokyo, Kanagawa, Saitama, Chiba) + Osaka area (Osaka, Hyogo, Kyoto, Nara) + Nagoya area (Aichi, Gifu, Mie). Income gap = regional income per capita in three big-city areas/other areas.

Source: Nomura, based on MIAC and Cabinet Office data.

**Land prices of urban residential areas**

Note: Six big cities are Tokyo Ku districts, Yokohama, Nagoya, Kyoto, Osaka and Kobe.

Source: Nomura, based on Japan Real Estate Institute data.
Korea’s household assets and debt

- Households dominate Korean household assets, but mortgages make up only a small portion of debt

**Household asset composition**

<table>
<thead>
<tr>
<th></th>
<th>Other</th>
<th>Financial assets</th>
<th>Real estate</th>
</tr>
</thead>
<tbody>
<tr>
<td>US (2007)</td>
<td>38.8</td>
<td>33.9</td>
<td>16.6</td>
</tr>
<tr>
<td>Japan (2004)</td>
<td>71.4</td>
<td>24.4</td>
<td>12.9</td>
</tr>
<tr>
<td>Korea (2010)</td>
<td>75.7</td>
<td>21.4</td>
<td>8.5</td>
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**Real estate value and mortgage debt**

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<th>Real estate</th>
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Source: Board of Governors of the Federal Reserve System Survey of Consumer Finances (US data); Statistical Bureau National Survey of Family Income and Expenditure (Japan data); NSO and Nomura Global Economics.
Korea’s household assets and debt

- Korea’s household debt-to-income ratio is still very high, but house prices do not suggest a bubble
Korea’s household assets and debt

- Korean house prices have not risen as fast as disposable income, while Japanese land prices rose two times faster than disposable income in 1985-90.
- Korea’s high self-employment rate suggests overstated official household debt-to-income ratio.

House price index adjusted with income

Self-employment rate, 2006

Source: CEIC and Nomura Global Economics.
Korea’s household assets and debt

- The true risk lies in the debt repayment scheme, not the high debt-to-income ratio
- Over 90% of mortgages are structured with floating interest rates (with payments usually adjusted every three months), while relatively safer amortized loans accounted for only 29.3% of outstanding household debt in 2010.

Household debt repayment scheme, 2010

- Bullet maturity: 38.6%
- Others (e.g., revolving credit): 32.1%
- Amortization: 29.3%

Floating-rate based mortgage loans, % of total, 2008

- Korea: 93%
- UK: 72%
- France: 30%
- US: 26%
- Japan: 20%
- Germany: 16%

Note: Figures are a weighted average of secured and non-secured household debt, based on an NSO 2010 survey. Source: National Statistics Office (NSO) and Nomura Global Economics.

Source: Bank of Korea and Nomura Global Economics.
APPENDIX A1

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