

# Special Issue

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## ■ CHINA STRATEGY

# Ear to the ground in China

## Cyclical downturn vs positive changes

### Strategy

- **Overview:** We visited China earlier this month and held meetings at 17 institutions—eg, public think tanks Development Research Center (DRC) and Chinese Academy of Social Sciences (CASS), fund managers, industry analysts, and corporations—and summarize herein our findings and analyze the direction of industries affected by that nation.
- **Investment implications:** China is accelerating the pace of regulation, but might ease reforms somewhat in 2H. We also note sophisticated government responses when dealing with the bad debt of local governments, which has assuaged systematic risk considerably. Our forecast of China's markets performing well in 1H before slowing in 2H remains unchanged, but we now expect the Shanghai Composite to bottom out around 2,200 in 1H before gradually stabilizing. We also believe a meeting by the National Congress of the Communist Party in October will essentially determine the direction of the nation's markets in 2H. Moreover, investors should focus on soft-infrastructure related plays, which the newly installed leadership of Xi Jinping and Li Keqiang are expected to push over the next decade.

### Sector-specific issues

- **Chemicals—China's changing growth strategy could increase downside:** Efforts by China's government to improve the quality of life for ordinary citizens may normalize petrochemical product demand growth—from 3.2% *pa* over 2011-2012 to 6.6% *pa* over 2013-2016—whereas massive stimulus still appears unlikely, given the looming threats from: 1) bad debts of local governments; 2) an overheated housing market; and 3) shadow banking related risk. Moreover, with China's local petrochemical capacity forecast to grow 13% *pa* through 2017, the medium-term import demand for chemical products should contract, which will likely narrow the premium of Korea's chemical sector—vs creating further downside in the overall Asian petrochemical market.
- **Steel—Industry requires restructuring; discounts to narrow:** The restructuring of China's steel industry will likely accelerate this year, as: 1) air pollution is getting worse; and 2) the average margin of national steelmakers is already below 1%, which makes R&D nearly impossible. The government should therefore implement new policies, like scrapping the export tax rebate on boron steel, to speed up industry restructuring. Local government revenue and employment conditions may suffer amid such restructuring, however, but if the restructuring proves effective, volatility in East Asian steel prices should ease, while discounts at Korean steelmakers are likely to narrow.
- **Shipbuilding—Korea's big 3 relatively immune from China restructuring:** Restructuring seems inevitable for Chinese shipbuilders, since overcapacity appears at fault for an ongoing price war, while that nation's industry: 1) is too big [*ie*, 41% of global capacity] for a government bailout; and 2) suffers from a lack of new orders, with most going to high-end vessels these days. We would expect the pace of any such restructuring to be gradual and begin with local firms that lack backlogs being forced out of the industry. We like Korea's big 3 shipbuilders—believing they can better weather a China industry recovery (given their ample high-end vessel orders), and even enjoy post-restructuring benefits.

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## I. Introduction: Takeaways from China visit

(D.S. Shin)

### Ear to the ground in China

We visited China last month to evaluate the status of its economy and gain insight into an investment strategy for China plays. We met with representatives of the State Council, the Chinese Academy of Social Sciences (CASS), and the People's Bank of China, as well as major institutional fund managers. Our analysts visited companies in China's chemical, steel, and shipbuilding sectors and spoke with industry experts. This report summarizes our findings and presents an investment strategy for China-related sectors.

### A visit to China

### Cyclical downturn begins

#### Short-term outlook negative

After two quarters of gains, China's economy and financial markets have lost momentum since the Lunar New Year holidays as expectations of an economic recovery have waned, liquidity supply has decreased, and anticipation of new government policies has given way to uncertainty. With inventory restocking giving way to destocking, a cyclical downturn appears to have begun.

Liquidity will be key to the future of the Chinese financial markets, as we saw in 2H12, when recoveries in the financial and real estate markets were driven largely by CNY4t in liquidity from both the traditional and shadow banking systems. With China's new government, however, immediately clamping down on the real estate market and shadow banking, we believe the economy will slow, real estate transactions will decrease, and the financial markets will correct over the next two quarters.

#### China: Aggregate social financing

(CNYt)	2011			2012			2013
	1H	2H	Annual	1H	2H	Annual	
Aggregate social financing	7.8	5.1	12.8	7.8	8.0	15.8	6.1
Bank loans (local and foreign currency)	4.5	3.5	8.0	5.1	4.0	9.1	3.2
Shadow banking	3.3	1.5	4.8	2.6	4.0	6.6	2.9
Entrusted loans, trust loans, bankers' acceptance bills	2.1	0.4	2.5	1.4	2.2	3.6	2.0
Equity and bond issues	0.9	0.9	1.8	1.0	1.5	2.5	0.8
Other	0.2	0.3	0.5	0.2	0.3	0.5	0.1

Source: People's Bank of China

### Long-term outlook: Signs of positive change

#### More bullish in longer-term view

From a longer-term perspective, however, we are more bullish in our outlook. From a big picture-perspective, we believe: 1) China can no longer rely on manufacturing and fixed investments for high growth; 2) stagnating population and slowing productivity gains will exacerbate a growth slowdown; and 3) troubled provincial governments, shadow banking, and industry restructuring will drag on growth over the next two to three years. Many Chinese experts echoed our views and agreed that structural change in the Chinese economy is needed.

#### Growth of 7-8% sustainable

**Growth to be sustained at 7-8%:** For China's economy to outstrip the US's in 10 years (as most predict), we estimate it will have to grow 7-8% *pa* in real terms. Maintaining growth of more than 5% is difficult for countries that rely on a domestic-oriented model or for which population growth is slowing, but we believe China can sustain 7-8% growth through regulatory reforms, reducing regional imbalances, urbanization, and agricultural-to-industrial labor conversion. Reforming a regulatory environment that protects inefficient industries should induce competition, increase productivity, and encourage private capital to invest; efforts to develop the western and middle parts of the country to eastern region levels should continue; and urbanization is still considerably lower than in developed countries but should increase (even as growth in the working-age population stall) as more farmers become industrial workers.

#### Provincial governments shedding nonperforming projects—banking system risk easing

**Provincial government debt being addressed:** The government has been tackling the issue of provincial government debt, shutting down or taking over projects that do not create cash flow (such as park construction), while rolling over loans or providing support for cash flow-producing projects (such as expressways). As a result, infrastructure investment has rebounded, and risk appears to have stabilized. Provincial governments have reduced their exposure to bank loans to CNY10t over the past three years as loans have matured, regulations have tightened, and governments have issued bonds to fund projects. Local analysts say project cash flow coverage ratios have recovered to 90%, and governments—with CNY40t-50t in assets, including land and equities—should have little problem repaying loans. In short, we believe systemic risk to the nation's banking network has been eliminated.

#### Reform to take place in long term

**New government to push for reforms:** We believe the Xi Jinping-Li Keqiang leadership—as a product of rural upbringing during the Cultural Revolution—has a good understanding of China's lower class. In addition, given their emphasis on practicality and 10-year tenure, they are likely to be unrelenting in policy implementation and pursue goals from a long-term perspective.

The government has indentified reform as crucial to ensuring growth, and to shift from an export- to domestic demand-oriented model will likely look not only to stimulate demand but to boost productivity, reform the nation's industrial structure, and overhaul its tax framework. Immediately after taking power, it implemented regulations to address two of what it views as the greatest risks, the real estate market and shadow banking.

It is also aware of the importance of the capital market, believing market forces must be permitted to govern to ensure efficient allocation of resources. To this end, it has allowed lending rates to move in a wider range, has been fostering the bond market, and plans to allow more foreign capital to invest in financial markets, encourage growth of private financial institutions, and increase financial market supervision.

It is unclear what China's economic growth model will ultimately look like. Limitations in the US model were revealed during the global financial crisis, while Korea's model is not suitable for an economy the size of China's. Nevertheless, we believe the next decade will see reforms that effect significant change on the Chinese—and global—economy.

### Real estate market-related issues

#### Top priority: Real estate prices

To sustain growth, China first needs to prevent a bubble from forming in the real estate market, our forecasts for which are as follows.

#### Micro measures being used to cool market

- First, the new government is now refraining making public statements about real estate prices, believing such statements have in and of themselves become a problem—*ie*, drawing attention to falling prices runs the risk of triggering a decrease in investment that worsens a slowdown in economic growth, while mentioning price rises encourages speculation and increases the risk of a bubble. Going forward, we expect China's real estate policy to focus predominately on short-term, micro measures. Recent increases in capital gains taxes and reductions in real estate development-related credit supply reveal an effort to cool down the market, and are likely to spark a correction over the next couple quarters. In addition, moves to provide new investment vehicles have been accelerating as a way of minimizing the boom-and-bust cyclicity of the market.

#### More supply needed

- Second, we expect the new government to maintain policies that ensure stable growth in real estate investment and continue expanding housing supply. It has bolstered private-sector land-use rights and encouraged real estate developers to hasten construction starts, and will likely increase supply of affordable housing and development projects to narrow regional gaps. We do not foresee a dramatic turn in real estate policy.

#### More room for prices to rise

- Third, real estate prices have still have plenty of room to rise, as: 1) housing ownership and living pace per capita are lower in China than developed countries; 2) residential buildings have been going upscale; and 3) the government will need to increase supply to reduce regional development imbalances. China's housing-related credit balance remains around CNY10t, implying plenty of room to expand real estate-related borrowing.

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## II. Economic trends and outlook

(Stephen Lee)

### China's 1Q GDP disappoints

China's National Bureau of Statistics reported earlier this week that the country's GDP grew just 7.7% y-y in 1Q13, missing the consensus forecast of 8% y-y growth and disappointing expectations that an economic recovery that began in 4Q12 (when GDP grew 7.9% y-y) would be sustained. We attribute the slowdown to increased regulations that curtailed growth in real estate and fixed asset investment, less restocking of raw and industrial materials since Lunar New Year holidays, and waning demand for light industry products that combined with the other two factors resulted in y-y growth in industrial production slipping to 8.9% in March from 9.9% for January-February.

### Outlook revised

We trim our 2013 GDP growth forecast from 7.8% to 7.7% to reflect: 1) weakening inventory restocking—which we had expected to remain strong through 2Q; 2) stricter housing market regulations, which are likely to continue weighing on real estate investment growth; and 3) tightening regulations on shadow banking, which could spark a downturn in the credit cycle. While bank loan growth slowed in March, M2 growth accelerated to 15.7%—surpassing the government target of 13% and supporting our belief that China's economic growth will slow in the coming two quarters.

We also now see less likelihood of provincial government restructuring, believing the central government—instead of all-out structural reforms—will take a more gradual approach of closing or taking over projects that do not create cash flow, and rolling over loans or providing financial support for cash-generating projects (such as expressways).

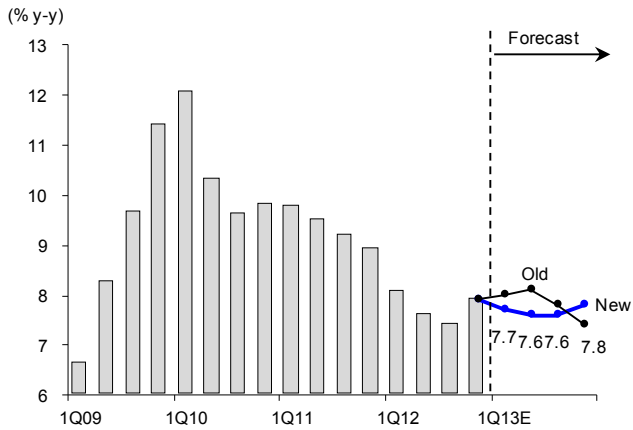
Weaker-than-expected real demand could slow the drive for reform and deregulation this year. With China's Consumer Price Index (CPI) rising just 2.4% y-y in 1Q13—far short of the government target of 3.5%—some stimulus could be forthcoming, suggesting GDP growth will accelerate slightly from 4Q13 compared to 2Q13 and 3Q13 levels. Reflecting the possibility of modest reform, we raise our 2014 GDP growth forecast from 7.2% to 7.5%. The consensus has China's GDP growing a robust 8.2% in 2013 and 8% in 2014, but we believe forecasts will turn more conservative in 2Q13.

### Summary of China economic outlook

(% y-y)	Actual	New		Old	
	2012	2013E	2014E	2013E	2014E
GDP(constant prices)	7.8	7.7	7.5	7.8	7.2
Contribution to GDP (%pts)					
Final consumption expenditure	4.0	4.2	4.2	4.2	4.1
Fixed capital formation	3.9	3.4	3.1	3.6	2.6
Net exports	(0.2)	0.1	0.2	0.0	0.5
Exports (BOP basis)	7.9	9.5	10.0	8.8	9.5
Imports (BOP basis)	4.3	7.0	8.0	7.0	2.5
Current account balance/GDP (%)	2.8	3.0	3.3	3.0	4.1
Consumer prices	2.7	2.7	3.0	3.0	3.0

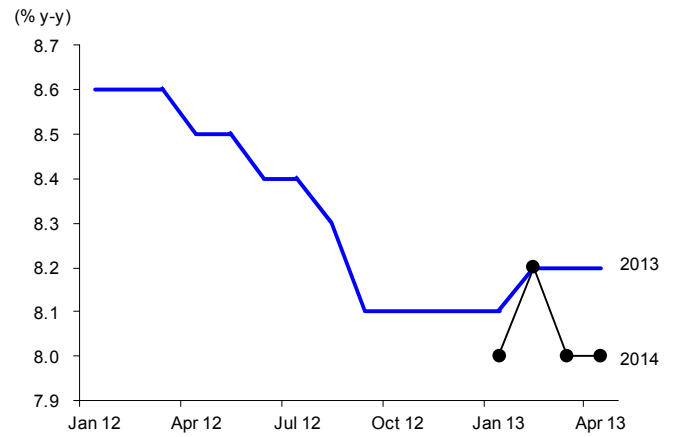
Source: Samsung Securities estimates

Quarterly GDP growth and forecasts



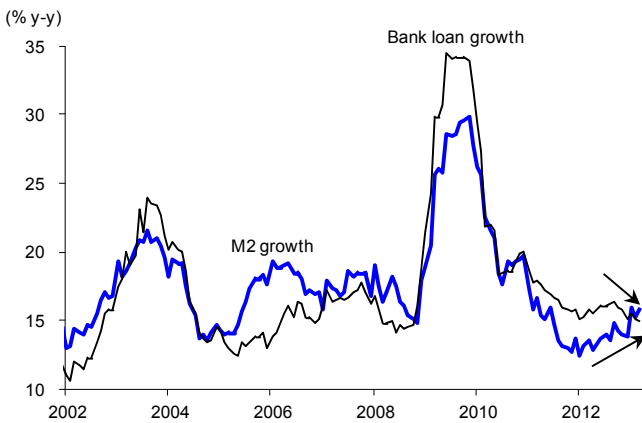
Source: CEIC, Samsung Securities estimates

GDP growth: Consensus forecast trends



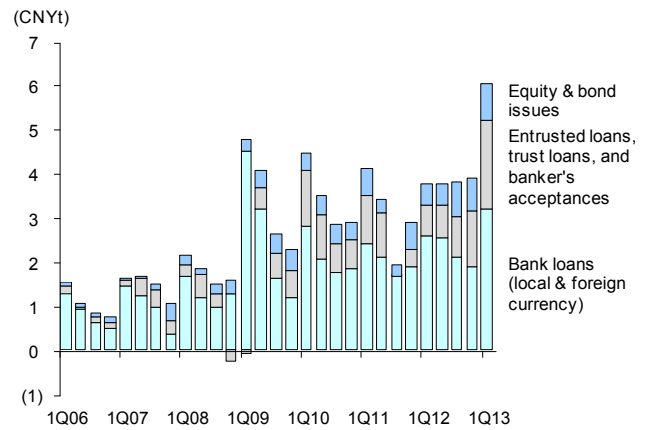
Source: Consensus Economics, Samsung Securities

M2 and bank loan growth



Source: People's Bank of China

Aggregate social financing



Source: People's Bank of China

**Lowering CPI forecast**

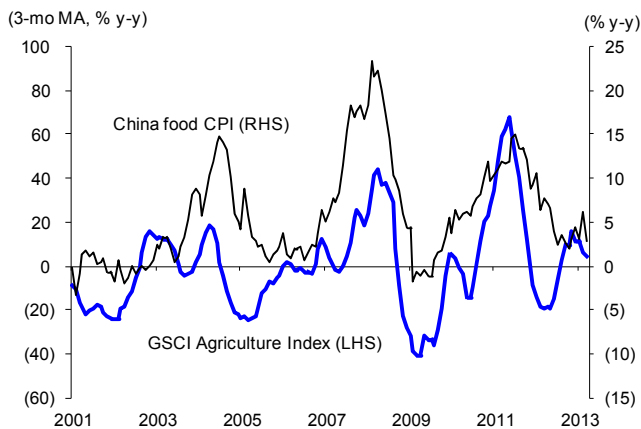
We cut our 2013 CPI growth forecast from 3.0% to 2.7% to reflect: 1) stabilizing food prices; 2) the prospect that falling commodity prices and a strong yuan will reduce inflationary pressure on yuan-denominated imported goods prices; and 3) a rapid slowdown in housing trading volume and investment growth due to stricter real estate regulations—we believe housing prices will correct within a few months and rents will stabilize in 4Q13.

**Consumer price inflation, by category**

(% y-y)	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
CPI	2.0	1.9	1.7	2.0	2.5	2.0	3.2	2.1
Non-food	1.4	1.7	1.7	1.6	1.7	1.6	1.9	1.8
Food	3.4	2.5	1.8	3.0	4.2	2.9	6.0	2.7
Tobacco and liquor	3.0	2.4	2.0	1.7	1.5	1.4	1.1	1.0
Clothing	3.1	3.4	2.7	2.3	1.9	2.5	2.1	2.3
Household facilities and services	1.8	1.6	1.5	1.5	1.7	1.5	1.6	1.6
Medical and health care	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Transportation and communication	(0.8)	(0.2)	0.1	0.0	0.0	(0.3)	0.2	(0.3)
Recreation, education and culture	0.4	1.0	1.1	0.9	1.1	0.5	2.0	1.7
Residence	2.2	2.3	2.5	2.6	3.0	2.9	2.8	2.9
Rent	3.0	3.2	3.1	2.9	3.3	3.1	2.7	3.7
Utilities	3.0	3.2	3.3	3.9	4.0	3.5	3.2	2.2

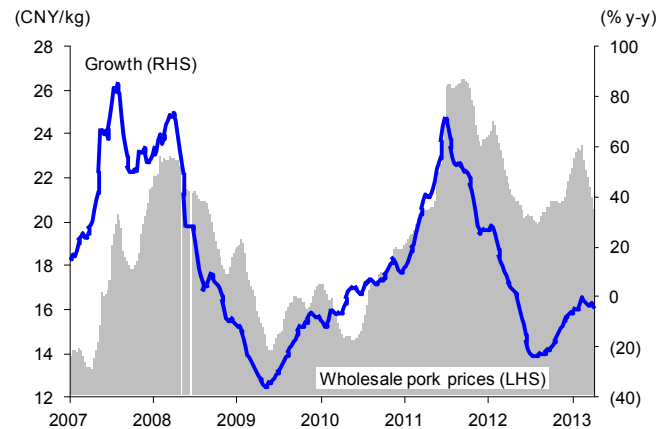
Source: CEIC

**Food CPI growth vs S&P GSCI Agriculture Index**



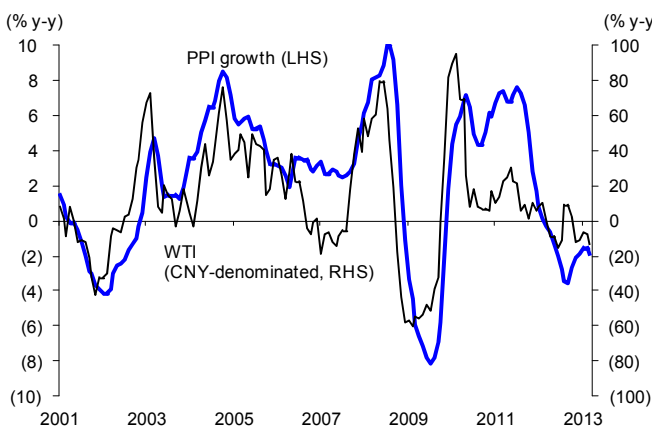
Source: Bloomberg

**Wholesale pork prices**



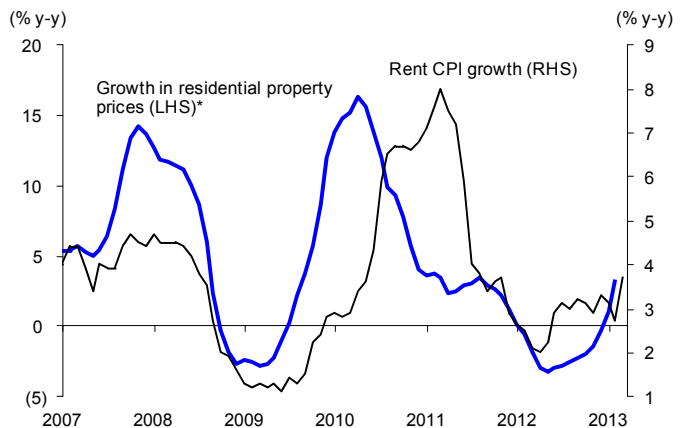
Source: Bloomberg

**PPI growth vs yuan-denominated WTI oil prices**



Source: CEIC

**Residential property prices vs rent CPI growth**



Note: \* Average for Beijing, Shanghai, Hangzhou, Guangzhou, and Chongqing  
Source: CEIC



**Raising import and export forecasts**

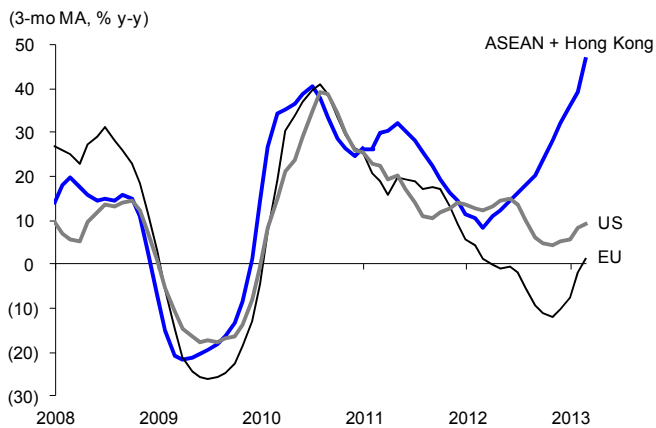
We revise up our 2013 and 2014 export-growth forecasts for China (based on balance of payments) from 8.8% and 9.5%, respectively, to 9.5% and 10.0%, to reflect: 1) double-digit growth in 1Q13; and 2) the prospects for strong 2014 exports to developed countries, where economies are recovering. Despite 18.4% y-y growth in 1Q13 exports, we believe 2013 growth will be limited to single digits, as we believe: 1) some data that was exaggerated in 1Q13 will normalize from 2Q13; and 2) exports that exclude those to Hong Kong better reflect real global demand—such exports grew 9.2% y-y in 1Q13. We also raise our 2014 import growth forecast from 2.5% to 8.0% to reflect the reduced likelihood of drastic restructuring of provincial governments and industries with excess capacity.

**Export growth, by country**

(% y-y)	1Q13 portion (%)	2012	Nov	Dec	Jan	Feb	Mar	1Q13
World	100.0	7.9	2.8	14.1	25.0	21.8	10.0	18.4
US	15.6	8.5	(2.6)	10.3	14.5	15.7	(6.5)	6.7
EU	14.9	(6.2)	(18.0)	2.3	5.2	16.5	(14.0)	1.1
UK	2.0	4.9	(19.9)	18.2	10.2	32.9	(7.8)	8.9
Germany	2.9	(9.5)	(20.1)	(3.0)	(0.9)	4.0	(20.7)	(7.0)
France	1.2	(10.3)	(24.3)	(9.2)	(6.5)	9.6	(18.5)	(6.7)
Italy	1.2	(23.9)	(23.5)	(2.5)	(2.8)	22.0	(15.2)	(1.3)
Japan	6.9	2.3	(3.8)	(7.3)	5.7	(6.5)	(10.0)	(3.7)
Hong Kong	20.8	20.7	35.2	34.4	88.3	35.5	92.9	74.1
Singapore	2.0	14.9	11.0	43.0	46.8	27.6	12.6	28.4
ASEAN	10.3	20.2	19.3	27.8	48.6	27.7	11.6	28.0
India	2.1	(5.5)	(12.5)	3.3	0.8	19.0	(4.9)	3.2
Korea	4.3	5.7	(7.9)	10.7	15.8	(11.4)	(2.8)	1.0
Taiwan	1.9	4.7	27.9	51.9	52.6	(4.0)	44.9	32.0
Brazil	1.5	4.9	0.7	32.7	6.2	42.5	(21.0)	3.6
Russia	2.0	13.2	5.0	13.9	25.9	39.7	(0.1)	19.6

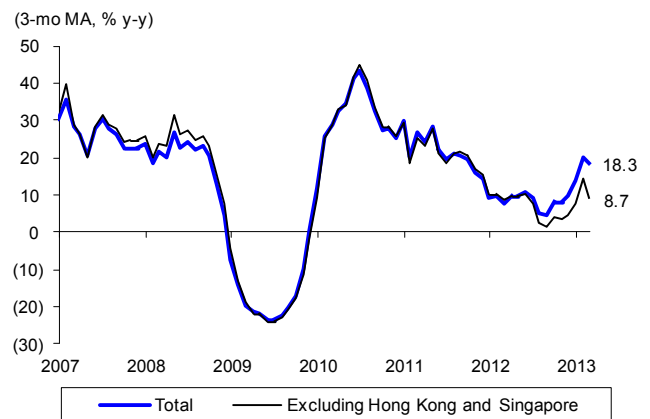
Source: China customs, CEIC

**Export growth, by region**



Source: CEIC

**Export growth: Total vs excluding intermediary trade**



Source: CEIC



Indicator review

Fixed asset investment

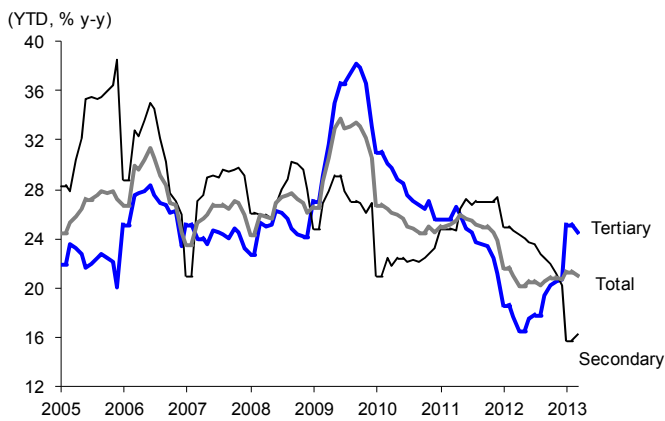
China's fixed asset investment (FAI) rose 20.9% y-y in 1Q13. We note that growth rates in secondary and the tertiary industry investments have diverged this year. Secondary industry investment slowed sharply to 16.2% y-y in 1Q13 (the biggest gains seen in general equipment and auto manufacturing), while tertiary industry investment increased 24.5% y-y, led by transport & storage (traditional infrastructure), as well as the water conservancy, environmental, and utilities sectors. Tighter regulations slowed growth in real-estate investment in March.

FAI growth, by industry

(% y-y ytd)	1Q13 portion (%)	Oct	Nov	Dec	Jan-Feb	Mar
Total FAI	100	20.7	20.7	20.6	21.2	20.9
Secondary industry	42.4	21.9	21.1	20.2	15.6	16.2
Manufacturing	35.2	23.1	22.8	22.0	17.0	18.7
Non-metallic minerals	3.1	18.0	16.9	17.9	22.6	16.6
General equipment	2.6	34.0	34.9	33.6	21.6	23.1
Automobiles	2.3	33.7	32.9	32.8	8.4	15.3
Electric machinery and equipment	2.4	6.9	6.2	4.8	8.7	5.5
Electricity, water and gas	4.2	18.6	16.2	12.8	19.2	15.3
Tertiary industry	56.0	20.1	20.4	20.6	25.0	24.5
Transport & storage	7.7	8.6	9.7	9.1	15.7	22.0
Railway	1.0	(1.4)	0.9	2.4	5.2	5.8
Highway	4.6	6.2	7.4	6.6	22.9	21.7
Environment and utilities	7.5	17.5	17.2	19.5	36.0	36.5
Real estate	22.6	15.4	16.7	16.3	22.8	20.2

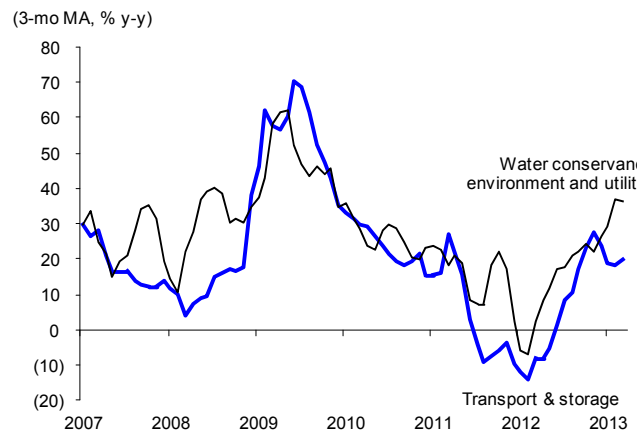
Source: China National Bureau of Statistics, CEIC

FAI growth: Secondary vs tertiary industry



Source: CEIC

Tertiary industry FAI growth: Transport & storage and environmentally friendly sectors



Source: CEIC

**Real estate investment**

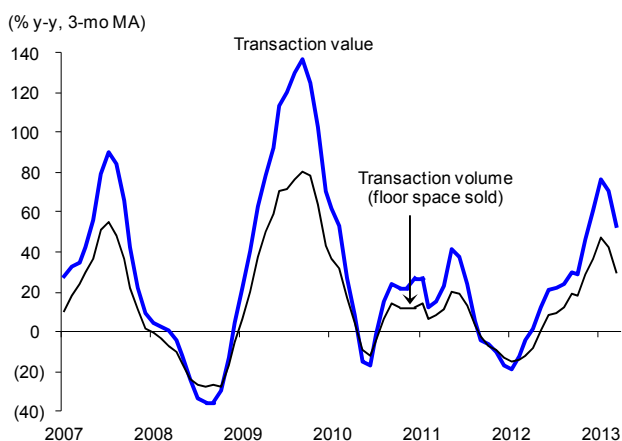
Real estate investment (accounting for about 23% of FAI) rebounded in January and February as housing transactions continued to increase, as they have since September. With inventory shrinking and demand growing, however, new housing prices in major cities have surged—triggering stricter regulations. On Mar 1, the government announced a 20% capital gains tax and higher down payment rate for multiple home owners. Beijing followed with similar guidelines on Mar 31, and we expect more municipalities to do so. We expect the regulations to lead to price corrections, slowing transaction-volume growth, and slower real estate investment growth—signs of a real-estate slowdown began to appear in March, with growth in transaction volume and housing starts slowing.

**Real estate investment and transaction statistics**

(% y-y)	1Q13 portion (%)	Aug	Sep	Oct	Nov	Dec	Jan-Feb	Mar
<b>For the month</b>								
Real estate investments	-	17.0	14.2	15.5	28.5	12.4	22.8	17.6
Residential	-	10.0	10.0	13.2	21.8	7.1	23.4	18.8
Office	-	42.2	43.2	2.5	43.8	29.1	53.2	35.3
Commercial	-	36.8	22.8	30.1	39.7	18.3	22.4	19.9
Floor space started	-	13.9	(24.0)	(6.4)	7.1	(1.4)	14.7	(20.2)
Residential	-	5.0	(28.1)	(9.4)	6.3	(2.7)	17.5	(19.5)
Office	-	52.6	(15.4)	15.4	55.9	15.2	21.2	(20.8)
Commercial	-	47.0	(5.2)	2.5	9.3	8.1	(1.6)	(27.1)
Floor space sold	-	12.9	(3.6)	23.2	30.4	(3.7)	49.5	26.6
Residential	-	13.3	(1.6)	25.0	31.6	(2.4)	55.2	29.4
<b>Year-to-date</b>								
Real estate investments	100	15.6	15.4	15.4	16.7	16.3	22.8	20.2
Residential	68.7	10.6	10.5	10.8	11.9	11.4	23.4	21.1
Office	5.8	35.0	36.1	31.4	32.7	32.4	53.2	44.1
Commercial	13.3	25.7	25.3	25.8	27.3	26.3	22.4	21.2
Floor space started	100	(6.8)	(8.6)	(8.5)	(7.2)	(6.7)	14.7	(2.7)
Residential	75.8	(11.1)	(12.9)	(12.7)	(11.1)	(10.5)	17.5	(0.8)
Office	3.1	8.9	6.2	7.1	11.3	11.7	21.2	(1.3)
Commercial	11.1	7.6	6.3	6.0	6.3	6.5	(1.6)	(14.0)

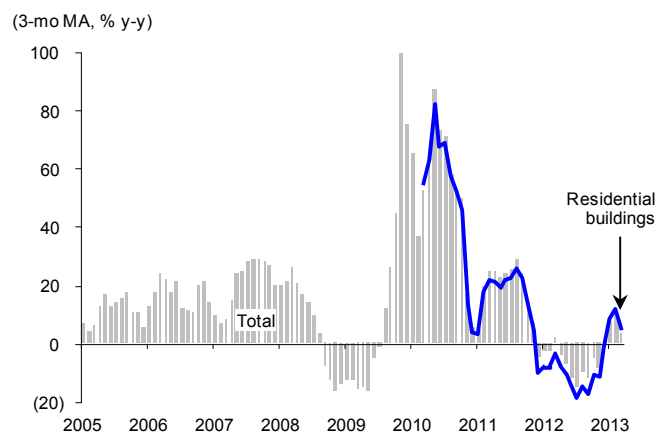
Source: CEIC

**Residential building transactions**



Source: CEIC

**Floor space started**



Source: CEIC

**Private consumption**

Retail sales rose 12.6% y-y in March, falling far short of the government target of 14.5% y-y—with sales around the Lunar New Year holidays up just 12.3% y-y due to restraints on the consumption of luxury goods and bad weather that curtailed outdoor activities. Consumer staples drove a recovery in retail sales in March, and the government appears to be making a concerted effort to boost consumption, through planned measures such as double-digit increase in minimum wages and tax reform.

**Retail sales growth, by products**

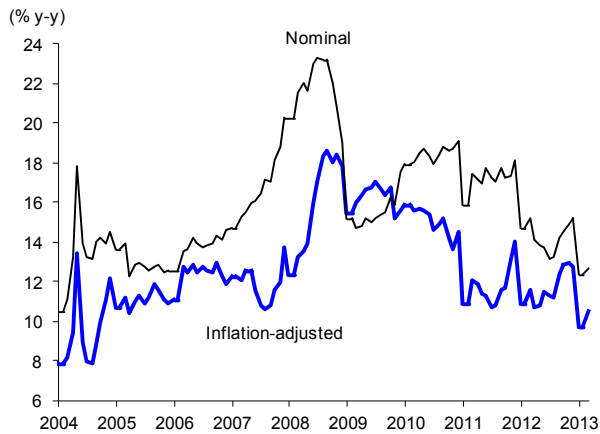
(% y-y)	1Q13 portion (%)*	Aug	Sep	Oct	Nov	Dec	Jan-Feb	Mar
Total	-	13.2	14.2	14.5	14.9	15.2	12.3	12.6
Large enterprises**	100	13.2	14.8	15.0	15.3	15.4	11.0	11.4
<b>Automobiles</b>	<b>24.8</b>	<b>2.4</b>	<b>1.7</b>	<b>7.0</b>	<b>8.3</b>	<b>9.0</b>	<b>6.9</b>	<b>5.5</b>
Petroleum products	16.9	13.2	20.2	17.6	15.5	19.0	11.2	7.8
Food	14.5	16.7	18.5	21.8	18.5	18.3	12.1	14.9
Clothing and footwear	11.4	21.1	20.4	18.7	20.6	16.4	9.4	17.4
<b>Home appliances</b>	<b>6.0</b>	<b>12.1</b>	<b>13.7</b>	<b>9.2</b>	<b>11.3</b>	<b>9.7</b>	<b>16.7</b>	<b>16.6</b>
Pharmaceuticals	5.2	21.1	26.6	18.0	19.8	21.4	16.7	10.8
Daily use goods	3.7	17.5	15.8	19.0	17.5	21.9	13.0	18.0
Jewelry	3.0	14.9	12.5	10.3	20.4	19.6	14.3	26.3
Cultural and office items	2.0	21.9	14.7	12.6	18.2	12.7	15.2	12.5
Construction materials	1.8	24.2	26.9	24.7	19.0	23.3	17.7	21.0
Telecommunications	1.9	27.9	24.7	24.2	15.2	14.0	10.4	16.0
Furniture	1.5	25.8	31.4	29.8	23.9	32.4	20.9	24.9

Note: \* Of sales by enterprises designated as leading firms according to revenue levels

\*\* As designated by government according to revenue levels

Source: CEIC

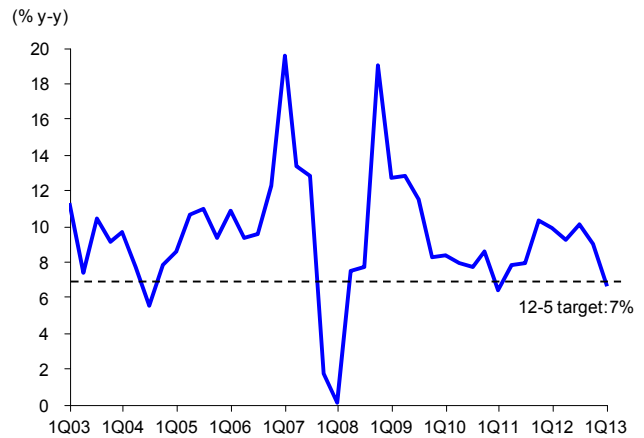
**Retail sales growth: Nominal vs inflation-adjusted**



Note: YTD figures used for January and February to avoid seasonality due to Spring Festival

Source: CEIC

**Urban income growth trends (CPI-inflation adjusted)**



Source: CEIC

**Industrial production**

Despite strong growth in exports and improvement in growth of imported capital goods, y-y industrial production growth slowed to 9.5% in 1Q13, dipping to 8.9% in March. With exports from light industries increasing 17.5% y-y but production only 8.8% y-y in 1Q13, it appears finished goods inventories are driving overall export growth. Production growth for heavy industries slowed to 9.1% y-y in March as domestic investment demand eased.

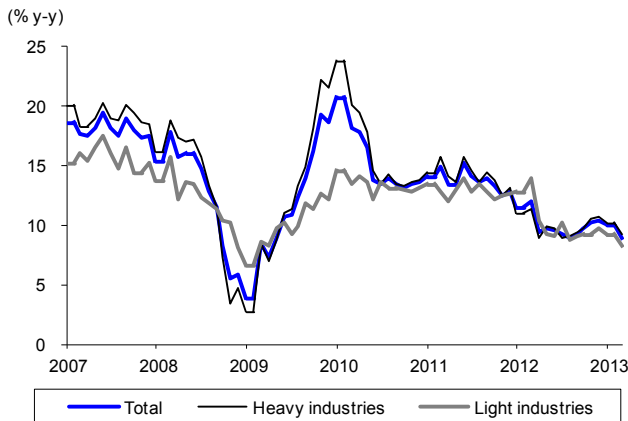
**Industrial production growth, by industry**

(% y-y)	Aug	Sep	Oct	Nov	Dec	Jan-Feb	Mar
Total	8.9	9.2	9.6	10.1	10.3	9.9	8.9
Light industries	8.6	9.0	9.1	9.2	9.6	9.1	8.2
Heavy industries	9.0	9.3	9.7	10.5	10.6	10.2	9.1
Textile	10.8	10.1	11.9	11.0	10.7	11.0	9.5
Chemical products	10.5	10.8	11.9	12.3	12.8	12.4	11.4
Non-metallic minerals	10.5	10.0	11.0	10.5	10.0	11.3	11.8
Ferrous metal mining & smelting	6.8	9.6	12.6	13.8	12.2	11.4	9.7
General equipment	7.9	7.2	7.1	9.1	9.6	9.2	7.8
Automobiles	9.7	6.3	5.9	6.5	6.6	11.2	10.2
Other transport equipment*	2.7	4.8	6.1	4.1	4.1	2.8	4.8
Electrical machinery	7.2	8.1	7.9	8.8	10.7	9.8	10.0
Telecom, computers and electronics	9.9	10.0	10.1	12.6	15.3	13.8	9.7
Electricity	3.8	3.3	4.7	6.0	6.5	4.7	1.4

Note: \* Locomotives, vessels, and aircraft

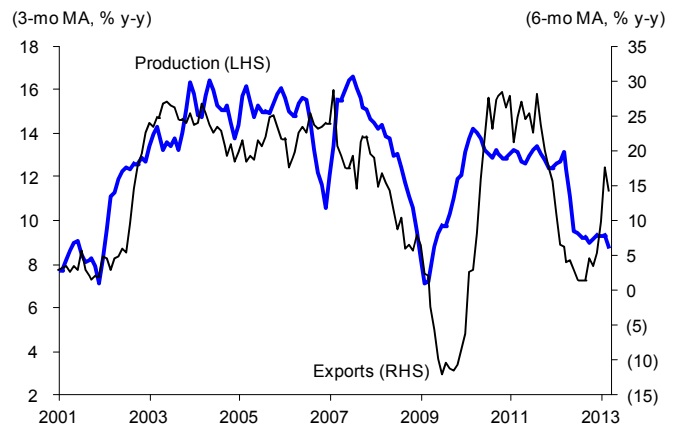
Source: CEIC

**IP growth: Light vs heavy industries**



Note: \* YTD figures used for January and February to avoid seasonality  
Source: CEIC

**Light industry: Export growth\* vs production growth**



Note: \* Textiles, clothing, and footwear  
Source: CEIC

**Korea's era of soft-infrastructure development<sup>1</sup>**

(Stephen Lee)

Korea witnessed an increase in environmental, education, and healthcare investment in the early 1990s as the country industrialized, incomes rose, the people demanded a better quality of living and greater welfare support, the nation's role in the international community grew. Korea's per capita GNI stood at USD5,500 in 1990—similar to China's now—and the following years brought a variety of changes in policy and investment trends, as detailed below.

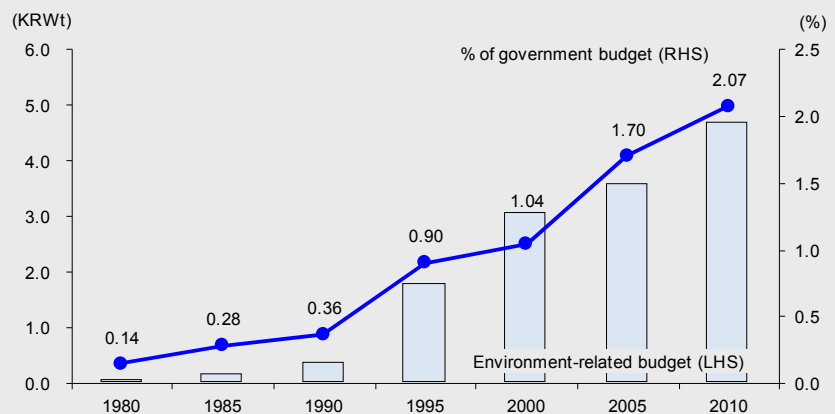
**Environment**

Korea started investing in the environment in earnest in the 1990s as its economy—led by the heavy chemical industry since the 1970s—continued to grow rapidly and urbanization reached 73.8% (in 1990). As income levels improved and auto ownership surged, the use of fossil fuels and creation of industrial and household wastes jumped. Pollution and a lack of basic infrastructure triggered multiple environmental problems, including chronic acid rain since the 1980s and the phenol polluting of the Nakdong River in 1991.

External and internal factors triggered significant change in Korea's environmental policies. The country signed a series of international accords, starting with the United Nations's Agenda 21 in 1992. The beginning of local-based elections in 1995 led to the creation of regional-based environment policies, and in 1996 Korea became a member of the OECD.

Stricter policies led to more investment in the environmental infrastructure. The government devoted only 0.1% of its spending to the environment in 1980, but the figure rose to 0.4% by 1990 and 1% by 2000. Investment focused on reducing air pollution, improving water quality, and expanding waste disposal facilities.

**Korea: Environment-related budget trends**



Source: Ministry of Environment

<sup>1</sup> Key references: "The Korean economy: Six decades of growth and development" (Korea Development Institute, Dec 2011), "Evolution of Environmental Policy in Korea and Its Future Task" by Taehoon Moon, (Journal of Korean Policy Studies, Aug 2008)

**Education**

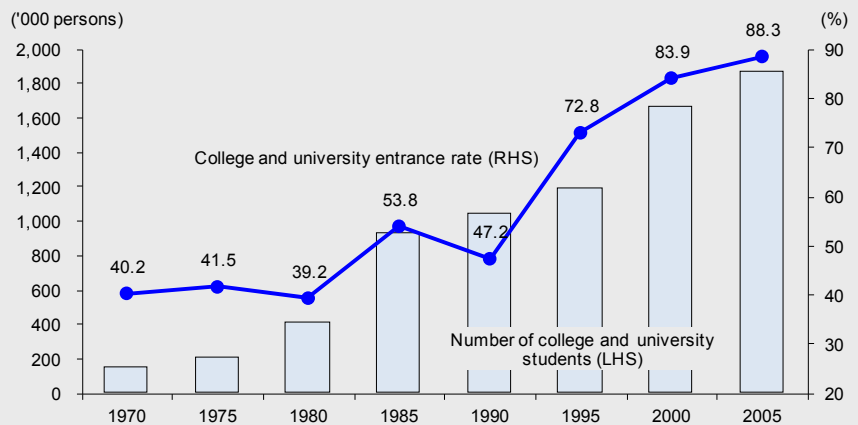
As Korea invested more in education in the 1990s, college matriculation rates rose, lifetime education opportunities increased, and care for infants and preschoolers improved.

The introduction of a graduation quota system in the 1980s led to more opportunities for higher education. Private universities began to spring up in provinces, and the policies were implemented encouraging universities to provide more diversity and specialization in their course offerings. Graduation quota and college entrance rates rose, the latter from 33.2% in 1990 to 51.4% in 1995 and 68% in 2000.

As the economy grew and incomes rose, demand for continuing education increases. Diverse forms of services emerged to meet the needs of self-development and the hope for a better quality of life in a knowledge-based society. Under four educational reform plans announced over 1995-1997, the government stipulated that 5% of GNP must be budgeted to lifetime education services.

A rising number of married women participating in economic activities changed the definition of childcare. The childcare act enacted of 1990 introduced preschool education, the government began to pay childcare center employees in 1990, and the number of childcare centers increased by 8,928 over 1995-1997.

**Korea: College and university entrance trends**



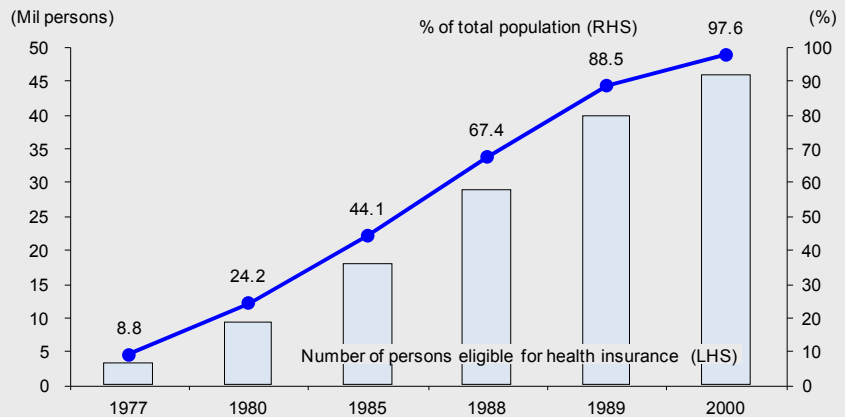
Source: Ministry of Education, Science and Technology ("Annual education statistics"), KDI ("Korean economy: Six decades of growth and development", book V, pp. 472-473)

**Healthcare**

The use of healthcare service surged in the 1990s after the national medical insurance plan expanded—with the covered percentage of the population jumping from 8.8% in 1977 (when only workers at companies with 500 or more employees were covered) to 89.3% in 1989 (when coverage was extended to all urban residents). In the 2000s, workplace and community medical insurance plans were integrated under the National Health Insurance Program. Healthcare spending rose from KRW3.4t (or 4% of GDP) in 1985 to KRW8.1t (4.3%) in 1990 to KRW27.6t (4.8%) in 2000. The public sector played a major role, with the public health service portion of government spending increasing from 4% in 1980 to 6.9% in 1990 and 9.9% in 2000.

An increase in healthcare users has prompted a rise in the number of medical staff and institutions, spurred on by government efforts to produce more medical school graduates since 1980, a laissez-faire approach to healthcare that encouraged more doctors to open offices, and increases in the number of public health centers and doctors aimed at brings better services to rural areas.

**Korea: Health insurance coverage trends**



Source: National Health Insurance Corporation  
KDI, "Korean economy: Six decades of growth and development", Book V, p. 288

**Korea: Developments in medical facilities and manpower (1980-2000)**

	1980 (A)	1990 (B)	2000 (C)	Change (%)	
				(B/A)	(C/B)
<b>Number of medical facilities</b>					
Hospitals and clinics	6,666	11,491	20,338	72.4	77.0
Total medical institutions	11,781	21,701	38,665	84.2	78.2
Hospital beds	65,041	134,176	287,040	106.3	113.9
<b>Number of medical manpower</b>					
Doctors	22,564	42,554	72,503	88.6	70.4
Dentists	3,620	9,619	18,039	165.7	87.5
Doctors of oriental medicine	3,015	5,792	12,108	92.1	109.0
Pharmacists	24,366	37,118	50,623	52.3	36.4
Nurses	40,373	89,032	160,295	120.5	80.0
Total	93,938	184,115	313,568	96.0	70.3

Source: Ministry of Health and Welfare, KDI ("Korean economy: Six decades of growth and development", book V, pp. 133-137)



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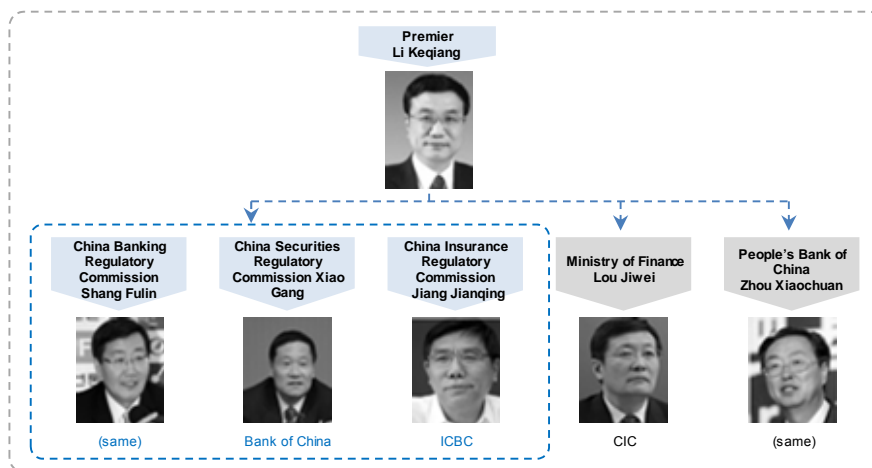
### III. A new administration with new policies

#### Structural reform vs growth

With Xi Jinping and Li Keqiang taking the reins of control in China, we recently visited the country to evaluate the new government’s 2013 policies and medium-to-long-term growth strategy. There has been no drama in the power transition: The Crown Prince Party and Shanghai faction continue to lead the seven-member Central Politburo Standing Committee (PSC), while the Communist Youth League leads the administration. The power splits leave room for conflict over plans for growth and reforms, and the question now boils down to the direction and aggressiveness of policies.

Researchers at the Chinese Academy of Social Sciences (CASS) and the State Council view the government’s pursuit of structural reforms to be well founded, but believe reforms will occur in a more gradual manner than they predicted when we visited China in October. Recent appointments of heads of financial and supervisory bodies do not constitute a major reshuffling, creating concern that the government commitment to reforms may be weakening. The People’s Bank of China (PBOC) chairman was reappointed, the deputy commerce minister under the previous administration was promoted to commerce minister, and the head of the China Investment Corporation was named finance minister.

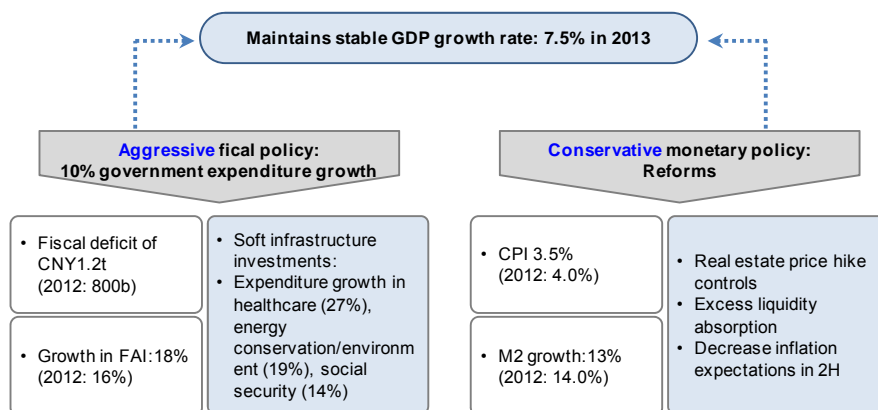
#### China: Heads of financial institutions and regulatory agencies



Source: Media reports

China expects a mix of aggressive fiscal stimuli and conservative monetary measures to achieve stable growth and reform. The government is targeting GDP growth of 7.5%, a fiscal deficit of CNY1.2t, fixed asset investment growth of 18%, CPI growth of 3.5%, and M2 growth of 13%. The 7.5% GDP growth target—more subdued than past years’ goals—reflects a 12th five-year plan that focuses on stability and quality.

**China: Policy targets**



Source: Media reports

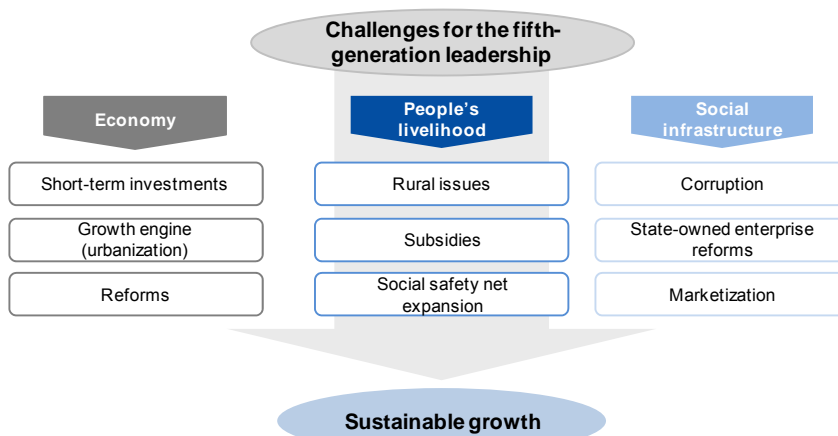
**China: Policy overview**

Focus	Details	Goals
Economic	• Continue economic development	• 7.5% GDP growth, deficit spending • 3.5% inflation (CPI-based)
Agriculture, rural migrant workers	• Stable agricultural supplies	• Price stabilization • Land reform
Restructuring	• Make government more efficient • Qualitative improvement in industrial competitiveness	• Cut government departments from 27 to 25 • Limit industry consolidation • Restructuring of 9 industries
Reform	• Accelerate economic reforms • Continue opening markets	• QFII growth • Accelerate market opening
Quality of life	• Strengthen welfare programs • Improve quality of life	• Raise minimum wages • Improve residency-permit system • Normalize real estate market
Urbanization	• Aggressive, better quality urbanization	• Invest more in environment, healthcare, and soft infrastructure

Source: Samsung Securities

Prime Minister Li Keqiang reportedly has deemed economic growth, welfare, and social justice the government's top priorities for the next five years. To maintain economic growth, the government will increase fiscal spending in the near term and push forward with structural reforms in the medium to long term. To improve the nation's social welfare network, it will raise the minimum wage, eliminate census-taking practices that discriminate against migrant workers, and stabilize the real estate market. On the social justice front, the government intends to fight corruption and address structural inequalities in society.

**Xi Jinping and Li Keqiang: Agenda**

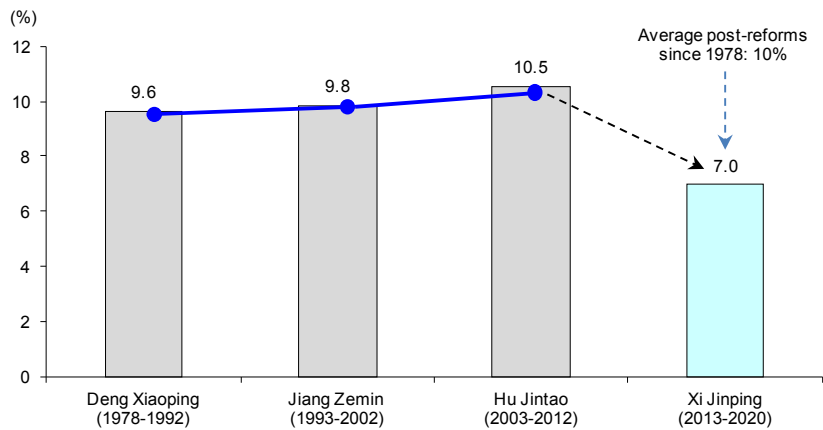


Source: Media reports

**Growth policy—Slow things down:** There is much controversy over how fast China's economy will grow under the Xi Jinping-Li Keqiang leadership. The more than 10% levels of growth enjoyed in the 34 years since China began to open up and reform are unlikely to be sustained, with the new leadership likely to fight the temptation for rapid growth in order to correct imbalances in China's economy. To avoid the hard landings experienced by Korea and Japan after years of rapid growth, China will likely combine appropriate levels of stimulus with moderately paced structural reforms.

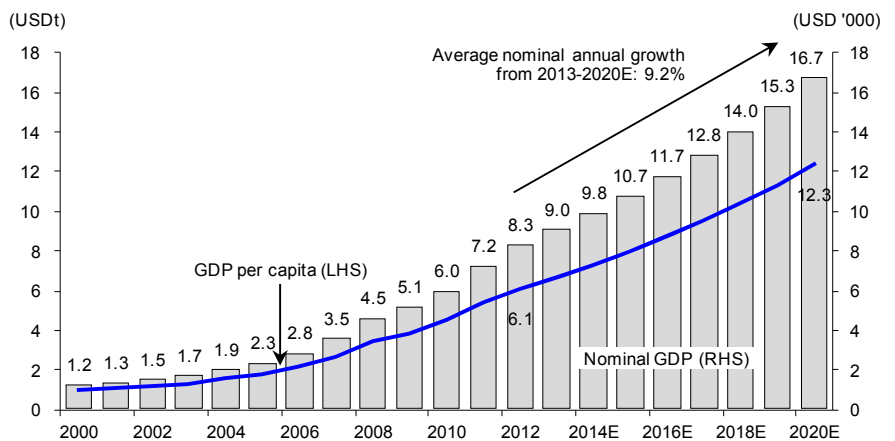
While OECD forecasts have China achieving world-leading purchasing power by 2016, the new leadership's more conservative professed goals of doubling GDP and income levels by 2020 suggest that the nation's real economic growth will stabilize at around 7% *pa* over the next eight years. Given the size of Chinese economy, maintaining even 7% growth will be a challenge. To do this, we believe it will need a two-pronged strategy comprising: 1) new growth engines—including a new urbanization model that is to be announced in April or May; and 2) structural reforms that will likely be discussed in October.

**China: Annual GDP growth over the years**



Source: Wind

**China: GDP forecasts**



Source: Samsung Securities estimates

**Welfare policy—Correct imbalances:** China has transformed itself into a global economic power since it began to open up and reform in 1978—but has failed to broadly distribute wealth. Growth in state-owned industries and government-led investments since 2000 have further exacerbated inequities, and the new administration has made better wealth distribution a key priority.

China’s welfare policy aims to correct imbalances on three fronts: Region-vs-region, urban-vs-rural, and rich-vs-poor. The government plans to create jobs, guarantee employment for college graduates, foster SMEs, emphasize social responsibility at the corporate level, expand the social safety net, and improve the residency-permit system. This year, policies will likely focus on raising minimum wages, improving the census registration process for rural citizens, and land reform.

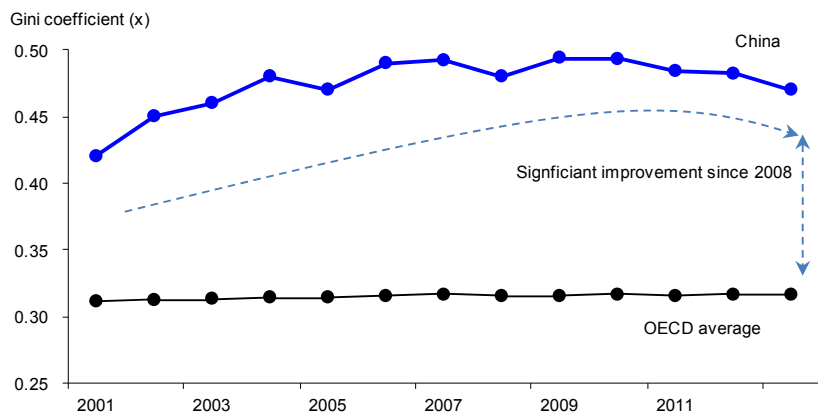
We expect China to keep raising minimum wages 6-13% *pa* for the time being, as per its 12th five-year plan. With a new urbanization model to be announced this year, there is much interest in whether efforts will be taking to eliminate census-taking and other practices that discriminate against migrant workers. Improving public services will be crucial in encouraging rural residents to move to urban centers, and an expansion of the social safety network should bolster consumption in second-, third-, and fourth-tier cities.

**China: Quality of life policies**

Focus	Details
Minimum wages	• Raise wages 6-13% depending on region over 3 years to 40% of urban rates
Migrant workers	• Transition 250m migrant workers into urban dwellers • First tiers: Strengthen residency-permit system / Second-third tiers: Incorporate into urban household registration system ( <i>hukou</i> ) • Strengthen social security benefits
Land reform	• Increase compensation for rural land purchases • Extend rural land-usage period from 30 to 70 years
Quality of life	• Improve welfare benefits, elderly services, and housing availability

Source: Samsung Securities

**China: Gini coefficient vs OECD average**

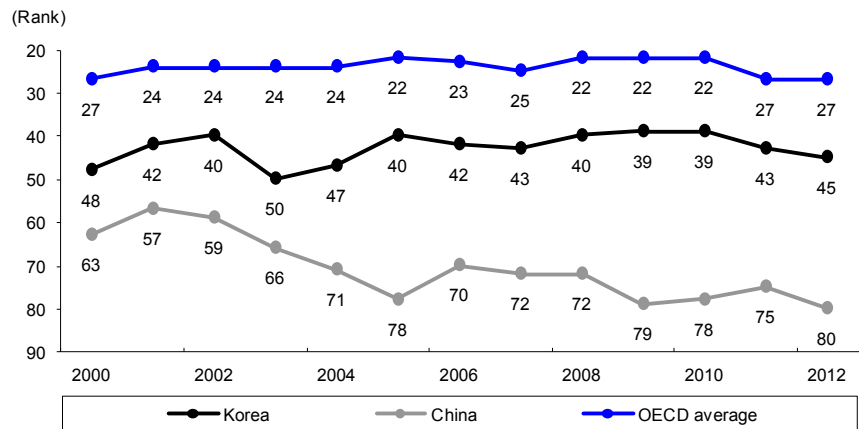


Source: Samsung Securities

**Social justice policy—Essential to wedding socialism and capitalism:** Improving the level of social justice is essential to bridging the gap between socialist political and capitalist economic systems—in his closing speech to the National People’s Congress, former President Xi Jinping stressed his commitment to “fairness, justice, and equality to achieve the Chinese dream.” Eliminating problems will be a daunting task, however. The government will have to fight corruption among the privileged class, reform an inefficient, uncompetitive state-owned industrial system, and further open up industries and financial markets.

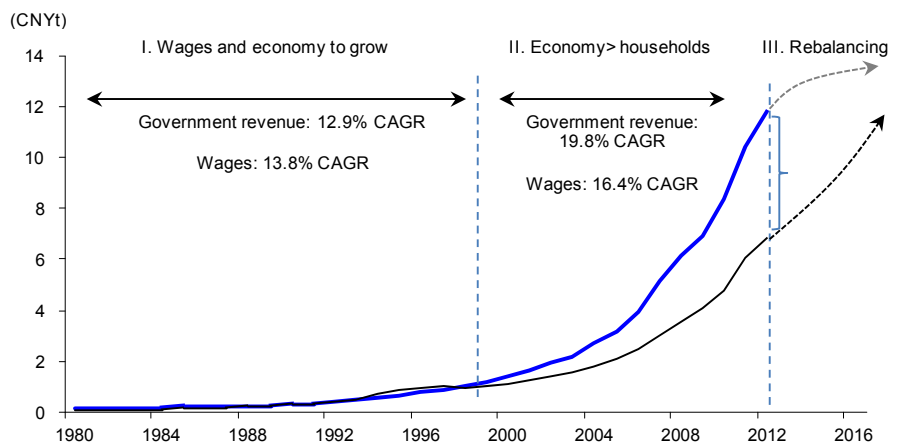
Despite efforts by prior governments, China’s corruption perception index continues to deteriorate. The new leadership will likely look to enact structural reforms to battle corruption for both moral and practical reasons, and redistribute wealth by restructuring state-run companies and opening up markets. The policy shift may hurt demand for luxury goods and other high-end products in the near term but, combined with welfare policy, should encourage healthy consumption by the mid-to-low- income classes.

**Korea, China, and OECD: Corruption perception index trends**



Source: Transparency International

**China: Government expenditures vs household income**

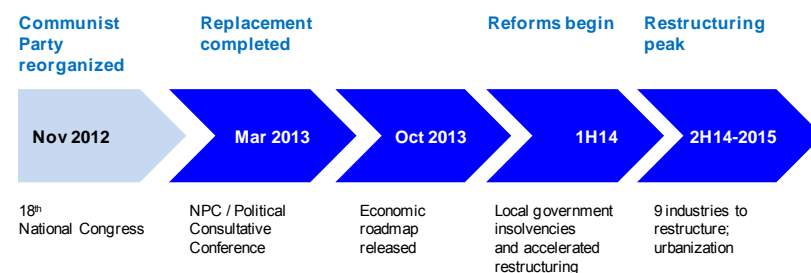


Source: National Bureau of Statistics of China

**Growth strategy: Structural reform and greater openness needed**

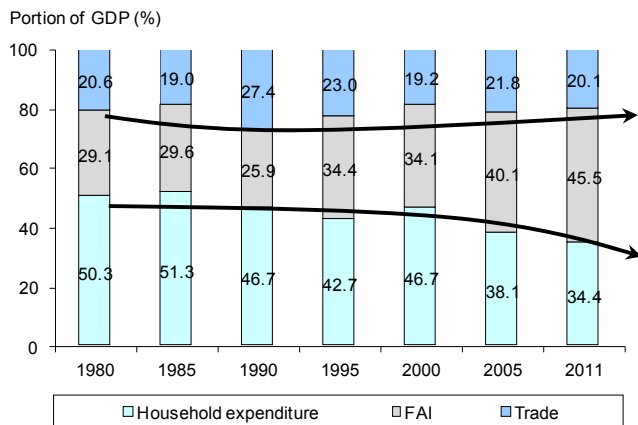
The new leadership wants to turn China into an economic powerhouse, and—given the clashing needs of growth and reform—the issue is how rapidly do they want this to occur? Achieving structural reform will be difficult, entailing corrections to social and economic imbalances and making manufacturing more competitive. Growth pains are inevitable. We believe the next three years will be critical. Infrastructure investment and secondary industries have driven growth since 1978, but if it is to attain its goals China will likely need to improve its industrial and financial market fundamentals as much as it has since up to now. We expect the leadership to present a more detailed economic strategy—centering on growth first and reform second—in October when the National Congress of the Communist Party meets.

**China: Reform roadmap**



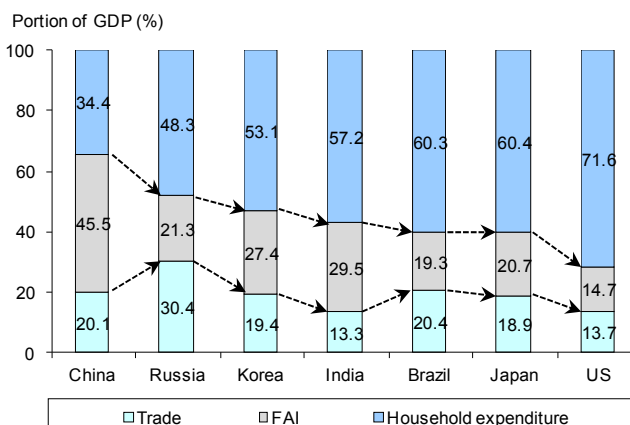
Source: Samsung Securities

**China: Economic structure unbalanced**



Source: Wind, National Bureau of Statistics of China

**China: Global FAI/consumption as % of GDP**

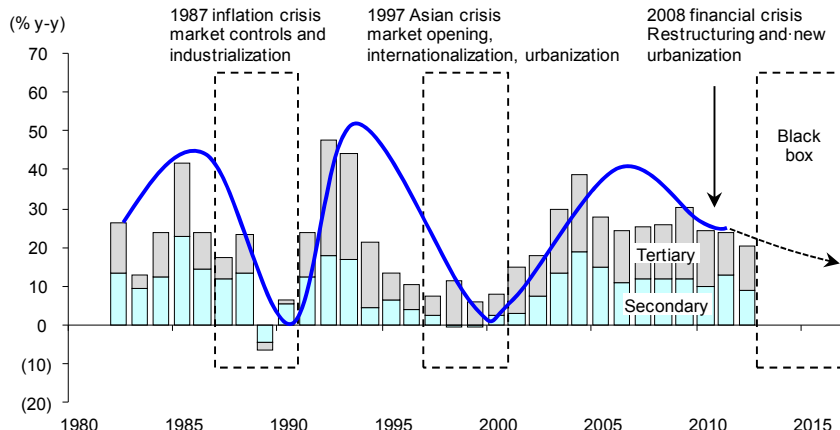


Source: National Bureau of Statistics of China, Bloomberg

**10-year economic cycle:** China has faced a crisis approximately every 10 years since it began to open up: 1987 brought rampant inflation and Tiananmen Square followed in 1989, the Asian financial crisis and defaults of state-owned firms exploded in 1997, and subprime came in 2008. Each time, China has persevered by changing its growth strategy. It pursued aggressive anti-inflationary and industrialization policies in 1987 and accelerated reform in 1997, has become more capitalist (by liquidating state-owned firms, for example), worked to access international markets (by opening up its markets and entering the World Trade Organization), and striven to increase urbanization.

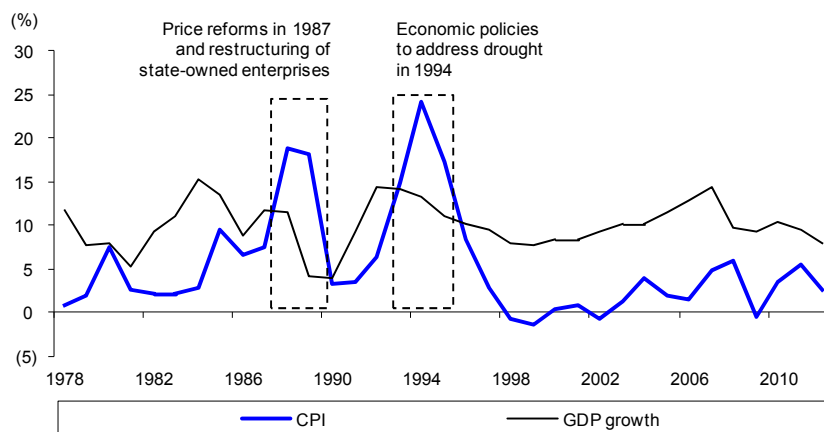
China implemented a CNY4t economic stimulus package to boost the economy after 2008, a move that helped it overcome crisis in the near term but drove up provincial government debts to alarming levels, deepened industrial imbalances, and triggered asset inflation. We believe structural reform is only a matter of time, because if imbalances remain unaddressed, the country will likely incur increasing costs and restructuring will be even more destructive, as seen in Korea and Japan.

**China: FAI trends**



Source: Samsung Securities

**China: Inflation eases after reforms**



Source: Samsung Securities

With imbalances growing and China’s global competitiveness rapidly weakening due to changes in its demographics and industrial structure, restructuring will likely be more drastic than it was in 1987 and 1997, and its pace over the next 3-5 years key. We expect a roadmap to emerge in October with the primary goals of cleaning up provincial government debts, addressing manufacturing gluts, and further opening markets. We believe the new leadership recognizes that systemic risk associated with cleaning up provincial government debts has eased, will focus on actual restructuring by 2015, and will look to address industrial imbalances over a longer (likely 5-10 years) period.

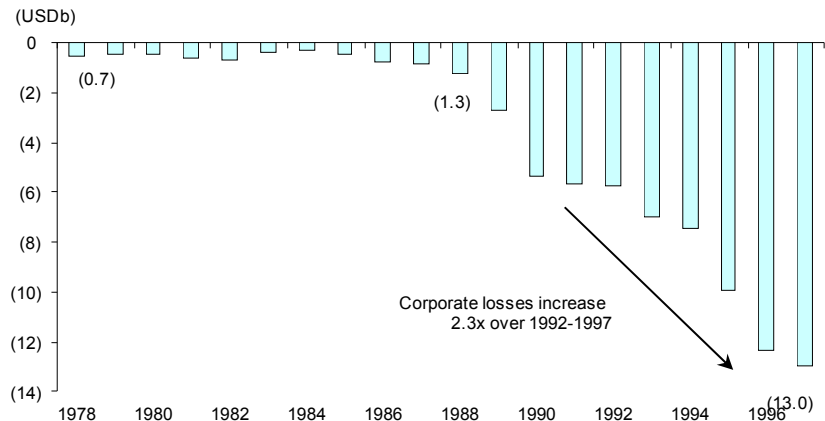
**China: Post-crisis policies**

Issue	Leaders	Period	Details
Inflation	Zhao Ziyang, Jiang Zemin	1987-1990	<ul style="list-style-type: none"> <li>Inflation sets in after dual pricing policies are eliminated</li> <li>Rise of state-owned enterprises sparks employment growth</li> <li>Price reform halted</li> <li>Asymmetric growth strategy (eastern region favored)</li> </ul>
Asian currency crisis	Jiang Zemin	1997-2000	<ul style="list-style-type: none"> <li>Banks fail as state-owned firms default (NPL ratios reach 24%)</li> <li>Banking reform and privatization of state-owned enterprises</li> <li>WTO entry, urbanization, and market reforms</li> </ul>
Subprime and EU crises	Hu Jintao-Xi, Jinping	2007~	<ul style="list-style-type: none"> <li>CNY4bil fiscal stimulus rolled out in 2008</li> <li>Insolvencies and industry gluts</li> <li>Provincial government debt and industries restructured from 2013</li> </ul>

Source: Samsung Securities



**China: Losses at state-owned enterprises increased over 1992-1997**



Source: China Statistical Yearbook (1998)

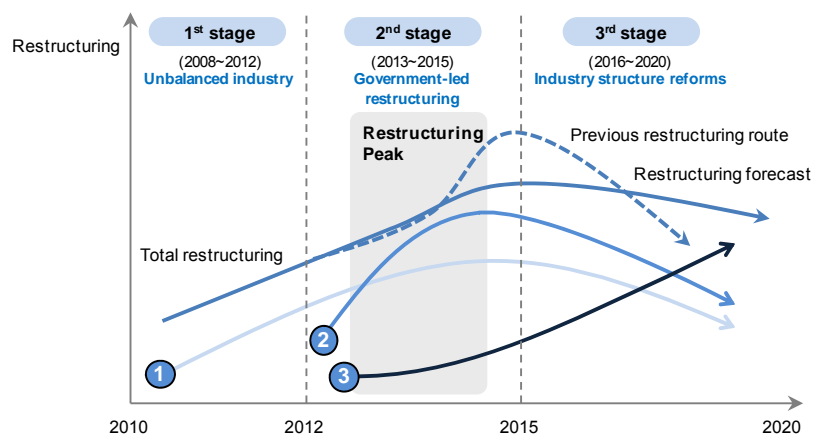
**Restructuring to be gradual:** In January, the new government released a plan to realign the auto, steel, shipbuilding, IT, and five other strategic industries around 10 key firms over 2014-2015—a method similar to the direct approach advocated by the previous leadership. We expected the new leadership to take a more structural approach centered on strengthening banking supervision and improving liquidation and M&A mechanisms. The January plan suggests that restructuring will occur gradually over 5-10 years. A roadmap for restructuring should become more visible around October. Restructuring should start with a cleanup of provincial government debt in 2H13, then move to large-scale industry reform with huge economic implications, with the most critical period of change coming in 2014 and 2015.

**China: Plans for industrial restructuring**

Industry	2015 target
Auto	Top-10 firms control 90% of market, with 3-5 dominating
Steel	Top-10 firms control 60% of market, with 3-5 dominating
IT	5-8 firms to dominate
Shipbuilding	Top-10 firms control 90% of market, with 5 global players
Aluminum	Top-10 firms control 90% of market
Cement	Top-10 firms control 60% of market, with 3-5 dominating
Pharmaceuticals	Top-100 firms control 50% of market (80% share for top-10's main products)
Agriculture	Foster large-scale agricultural firms
Rare earth	Strategic concentration on mining rare earth materials

Source: Media reports

**China: Restructuring roadmap**



Note: 1) Low value-added oversupplied industries, 2) local government insolvencies, 3) oversupplied industries

Source: Samsung Securities

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## IV. Investment strategy

### Outlook revised

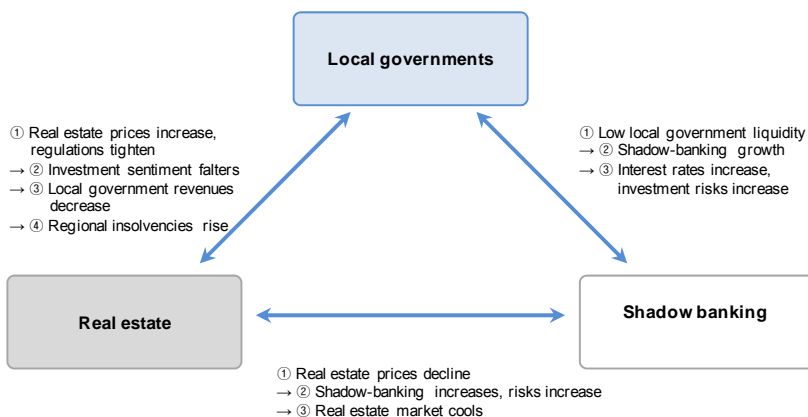
Expectations of government policies and reform have vied with concerns over regulations to address asset bubbles and bad debts this year for control over China's stock market, which after a three-month rally has recently lost steam due to the announcement of stricter real-estate regulations and a slowdown in inventory stocking after the Lunar New Year holidays—reminiscent of what happened when China fell into recession last year.

We are revising our forecasts for China's stock market after our recent visit to the country. We originally expected it to perform strongly in 1H and slowly in 2H, but this assumed the Chinese economy would improve in 1H on stimulus, and inflationary pressure would build and impetus for reform would be strong in 2H. Market participants believe economic and stock market conditions have improved slightly this year, but worry that government policies will disappoint, and while the government has been stepping up regulations of late, we agree that it may dial back reform in 2H. More than anything else, we note that the development of a sophisticated framework for dealing with provincial government bad debt that has considerably reduced systemic risk to the financial sector.

A rise in housing prices since 4Q12 has prompted the government to move to deflate a potential bubble and address a bad-debt triangle comprising provincial governments, real estate, and a shadow banking system. However, we see only limited downside risk for the market from here, believing investors have largely priced in conservative inventory restocking and the financial market environment will improve y-y in 1H.

We expect the Shanghai Composite Index to bottom around 2,200 and stabilize, and the October meeting of the National Congress of the Communist Party to be crucial to the market's direction in 2H. That said, the market could extend a modest rebound if reform proceeds.

**China: Debts, insolvencies, and bubbles**



Source: Samsung Securities

**Figure 2. China: Real estate regulations**

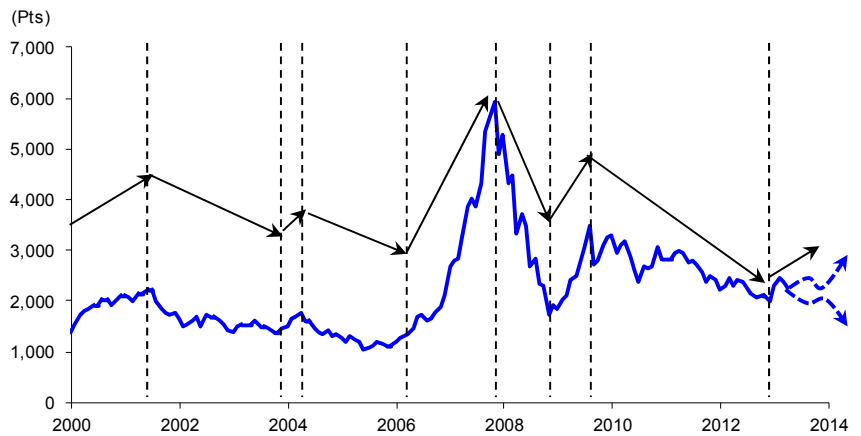
Agency	Date	Main points
State Council	Mar 1	Annual real estate price control targets for local government established Capital gains tax set at 20%; rates to increase in areas where prices have risen Considering raising interest rates on loans for second homes Appraisal values to be announced on quarterly basis Set goal of completing residential information system by 2015
Guangdong Province	Mar 26	20% capital gains tax levied in areas where prices have risen Housing networks to be established in 20 cities Zhuhai and Foshan real estate purchases to be limited
Beijing	Mar 31	Tax on sales of second homes set at 20% Capital gains tax applied to first homes if sold within 5 years Minimum down payment for second residence increased from 60% to 70%

Source: Media reports

The Shanghai Composite has experienced four trough-peak-trough cycles since 2000, with rallies lasting 6-18 months depending on economic conditions. While the recent reports of avian influenza reappearing is a short-term risk, we believe the market will trend up for three to five quarters this year, reminiscent of its rally in 2000.

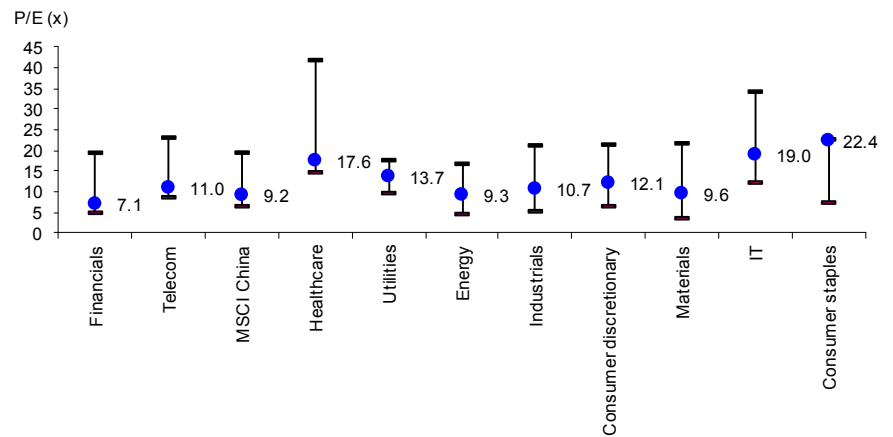
Sources in the steel, shipbuilding, and chemical sectors told us that distributors have already started becoming conservative in inventory restocking—despite expectations that demand would improve after the lunar New Year. Real estate regulations and supply growth may prevent Korean chemical companies from reversing to an uptrend; we recommend taking profits on the steel and chemical sectors in 2Q, when demand should improve y-y. We believe it is time to invest in stocks related to soft infrastructure—an area we believe the new leadership will push over the next 10 years—and top-tier consumption-related players.

Figure 3. Shanghai Composite Index: Performance since 2000



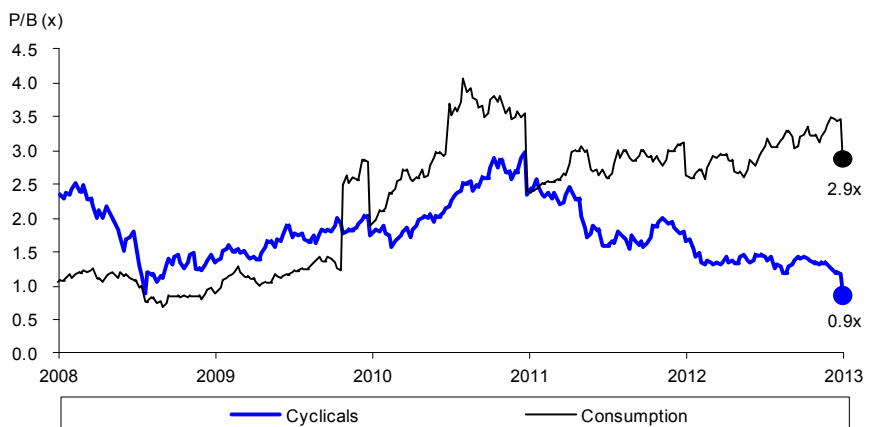
Source: Media reports

Figure 4. MSCI China: Sector P/B trends since 2008



Source: Thomson Reuters

Figure 5. Korea: Consumption and cyclical stock P/B trends



Note: Consumption stocks: Orion, Lock & Lock, Paradise, and CJ O Shopping

Cyclicals: Posco, LG Chem, Lotte Chemical, Doosan Infracore, and Hyundai Heavy Industries

Source: Samsung Securities, WiseFn

**Risk: Avian influenza (vs SARS in 2003)**

A recent outbreak of H7N9 avian influenza strain in southern China has become a risk factor for Asian financial markets—just over 10 years after severe acute respiratory syndrome (SARS) appeared in South China and Hong Kong in Feb 2003, eventually killing 780. Shares in airlines, travel agencies, and poultry producers have been battered by news that the Chinese authorities decided in early April to kill 20,000 chickens after the death toll from avian flu rose to six, and the disease had appeared in Hong Kong. Doomsayers speak of a 21st century pandemic, citing that the strain first was seen in Shanghai, China’s largest trading hub, and thousands of dead pigs were found floating in a local river in early March. But while China’s safety net system leaves something to be desired, we believe the concerns are overblown.

When SARS hit 10 years ago, some foreign institutions slashed 2003 estimates for China’s GDP growth to less than 7% and predicted a contraction for 2Q03. GDP grew 10%. The transportation, airline, and travel industries took the brunt of SARS, but consumption rebounded rapidly not long after the disease appeared.

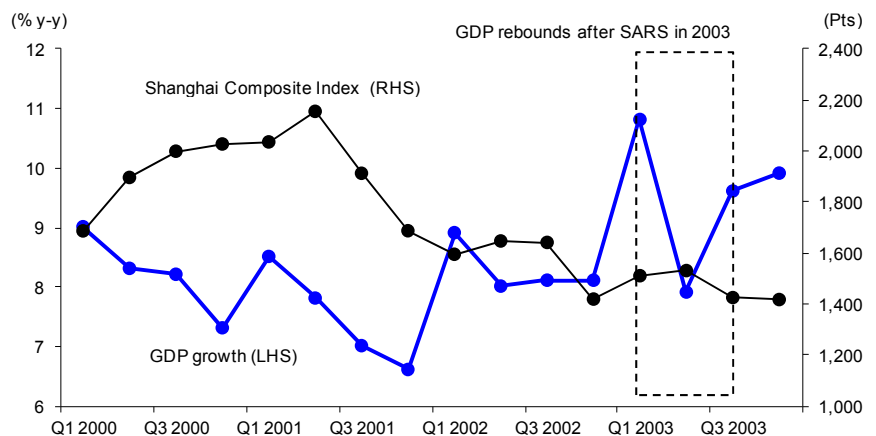
While the appearance of the H7N9 strain will likely discourage outdoor activities and reduce transportation and travel demand, we believe any resulting weakness in the market will provide buying opportunities, given that fears of pandemic should subside as temperatures rise in April and May, and market participants learned a lesson from SARS.

**SARS: Patients and deaths, by country (2002-2003)**

Country	Patients	Deaths	Country	Patients	Deaths
China	5,327	349	Thailand	9	2
Hong Kong	1,755	299	Malaysia	5	2
Canada	251	43	France	7	1
Taiwan	346	37	South Africa	1	1
Singapore	238	33	Australia	6	0
Vietnam	63	5	Korea	3	0
Philippines	14	2	Total	8,096	774

Source: WHO

**China: GDP growth post SARs**



Source: Wind

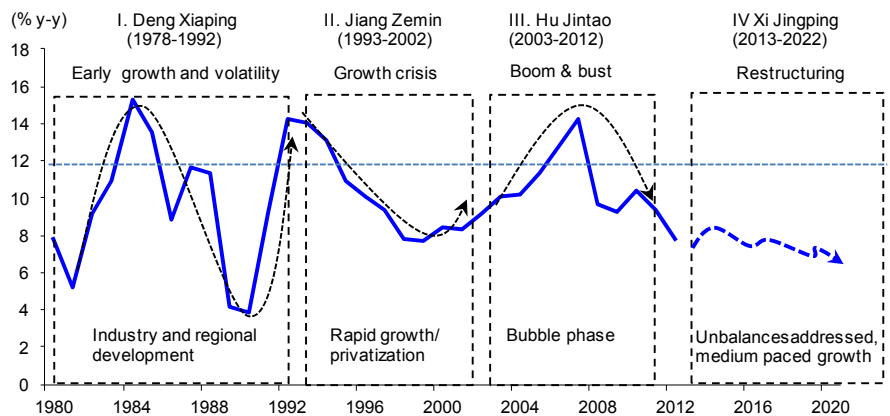
**Soft infrastructure era to begin**

We believe a second wave of infrastructure investment is set to begin in China—this time centered on soft infrastructure, following the hard infrastructure/fixed-asset investment boom that propelled growth to dizzying heights and peaked in 2010 with a “balanced development” bubble under the Hu Jintao leadership.

Reforms under Deng Xiaoping focused on addressing a lack of basic infrastructure and capital power by building infrastructure and nurturing labor-intensive industries. Under Jiang Zemin, privatization and capital-intensive industries drove growth—with industrialization and marketization in the 1990s leading to collapses of numerous state-owned firms. In the 2000s, Hu Jintao presided over a period of double-digit growth driven by urbanization, internationalization, and marketization, but the strategies eventually resulted in oversupply in a variety of industries and infrastructure, and shortages in commodities and human resources.

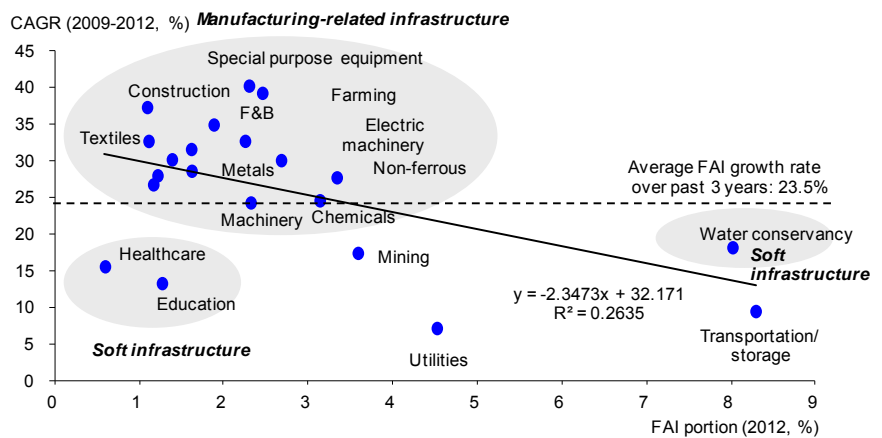
The Xi Jinping-Li Keqiang leadership is focusing on: 1) correcting imbalances between regions, urban and rural areas, and the rich and poor; 2) deflating infrastructure and fixed asset bubbles; and 3) nurturing new sources of growth. If it is to succeed, restructuring will need to be backed by growth in the domestic consumer market and investment in soft infrastructure—*ie*, housing, health care, and education.

**China: Medium- to long-term growth strategy vs GDP growth**



Source: Wind, Samsung Securities

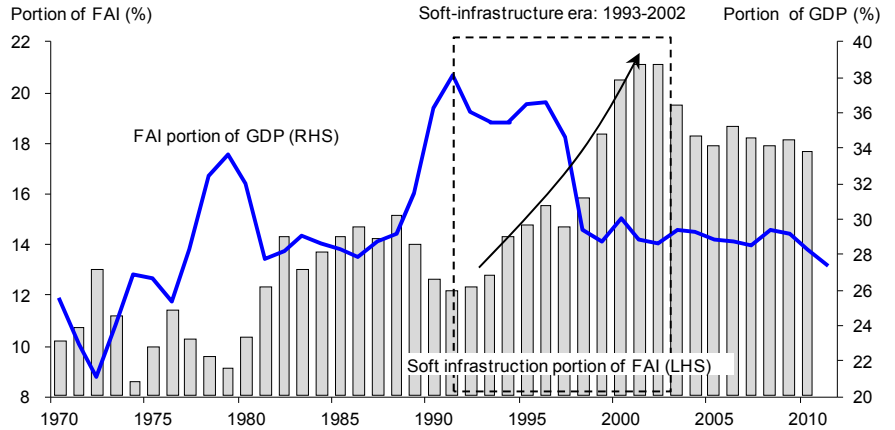
**China: Soft manufacturing vs soft infrastructure FAI comparison**



Source: National Bureau of Statistics of China, Samsung Securities estimates

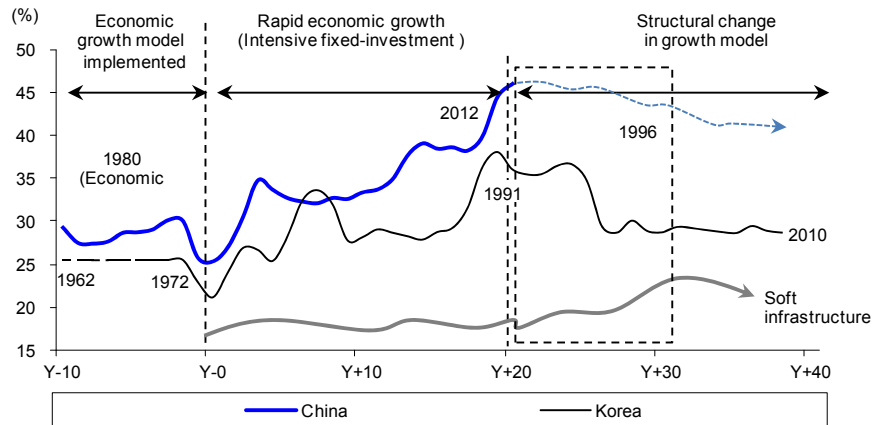
Korea experienced a 10-year soft infrastructure boom in the 1990s—when it built 2m housing units and reformed its education and health care systems—after two decades of rapid growth in fixed asset investment.

**Korea: FAI peak vs soft infrastructure cycle**



Source: Korea Statistical Office, Samsung Securities

**China vs Korea: Soft infrastructure boom and FAI peaks**



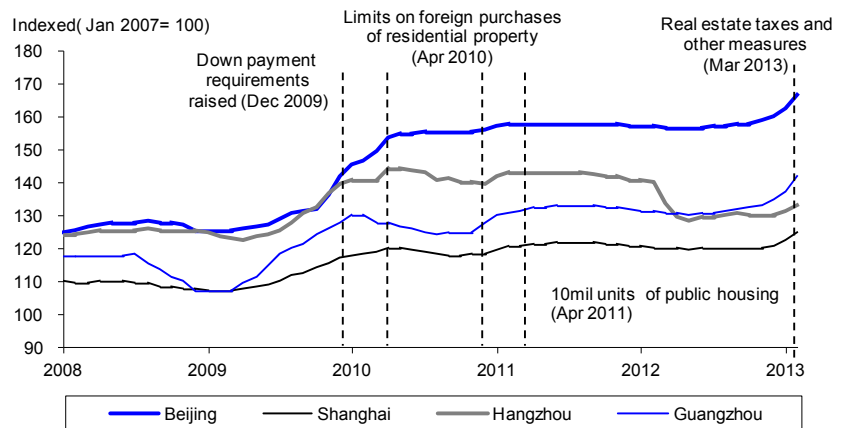
Source: Korea Statistical Office, Samsung Securities estimates



**Housing—a hot potato:** We see housing as the most sensitive issue for China’s soft infrastructure development plans—housing conditions remain extremely poor and the fallout of surge in property prices has served to highlight social imbalances. To achieve the government’s 60% urbanization target by 2020, we believe at least 60m new urban homes will need to be built, housing prices will need to be kept stable, and the supply of affordable housing will need to expand.

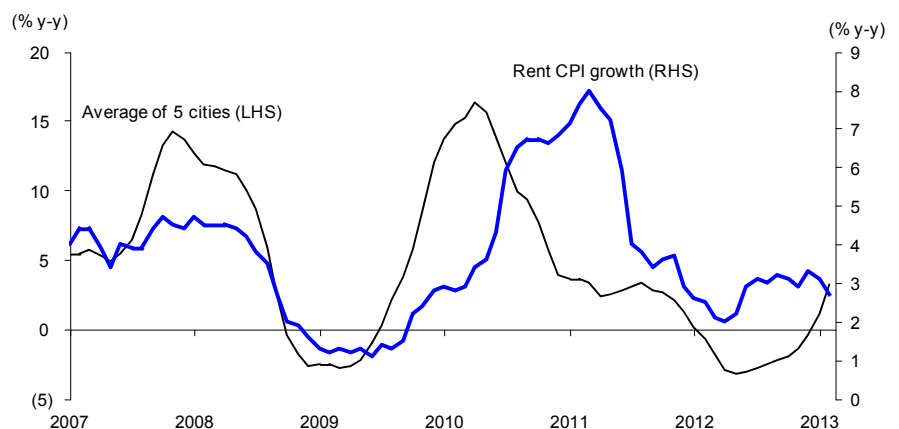
If it is to address social imbalances, the government cannot ignore instability in the real estate market. To this end, it announced five measures on Mar 1, including: 1) a punitive 20% capital gains tax on the sale of second homes; 2) a 10%pt increase in the minimum down payment for multiple residences—to 70% of the purchase price; and 3) plans to increase supply. Many doubt the effectiveness of these regulations, however. Although governments in Beijing, Shanghai, and other first-tier cities (where housing prices are most likely to rise) have imposed high capital gains taxes (20%), enforcement will likely be difficult, as second-, third-, and fourth-tier city governments have shown little willingness to regulate their markets. Meanwhile, the 7-10% caps provincial governments on annual increases in real estate prices are likely to have little nationwide impact.

**China: New home prices and real estate regulations**



Source: Wind

**China: New home prices and CPI trends**



Source: CEIC

Nevertheless, we expect the new administration to continue working to curb rises in real estate prices, which conflict with its goal of improving people's livelihood and could ultimately force it to resort to strong monetary tightening that hurts a fledgling economic recovery. We believe prices will take a breather for due to recent regulatory changes.

Since 2007, the government has released measures to regulate the real estate market five times, with the effects becoming visible three to four quarters after housing prices have begun to rise. We expect the effects of this round of regulations to start being felt in 2H.

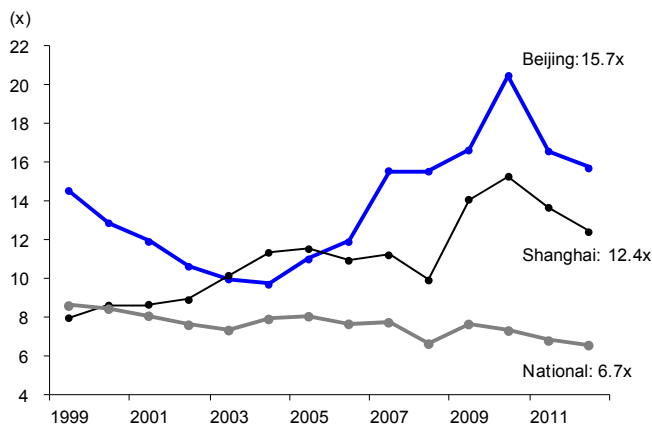
Long term, to prevent a surge in prices the government will need to consider demand growth triggered by rural-to-urban migration, housing price inflation driven by rising disposable incomes, and increasing speculative demand. The government is pushing for urbanization and increased disposable income, but with real estate widely viewed as the only reliable investment asset, it will need to support growth and increased sophistication in financial product markets.

**China: Real estate regulations**

Direction	Time	Major policies	Impact
Market growth	1996-2002	• Commercialization: Shared housing policy eliminated in 1998; market opened in 2001	• Market grows
Regulation	2003-	• Real estate loan regulations strengthened	• Prices fall
	Sep 2007	• Down payment requirement for second residence raised from 30% to 40%	
Deregulation	Oct 2008-	• Support for first-time homebuyers; favorable mortgage rates	• Prices rise
Regulation	Dec 2009	• Down payment requirement for second residence raised from 20-40% to 50%	• Prices continue to increase
	Apr 2010	• Real estate purchase limits announced (single family: one residence, two investment units)	
		• Down payment requirement for second residence raised from 50% to 60%	
	Jan 2011	• Residential purchase limits raised in second- and third-tier cities 100% capital gains tax on sales of homes owned less than 5 years	
	Apr 2011	• Central government invests CNY500b to build 10m units of public housing	
	Mar 2013	• Capital gains tax set at 20%; increase in down payment requirement for second residence (to 70%) proposed	• 1-tier city markets rebound

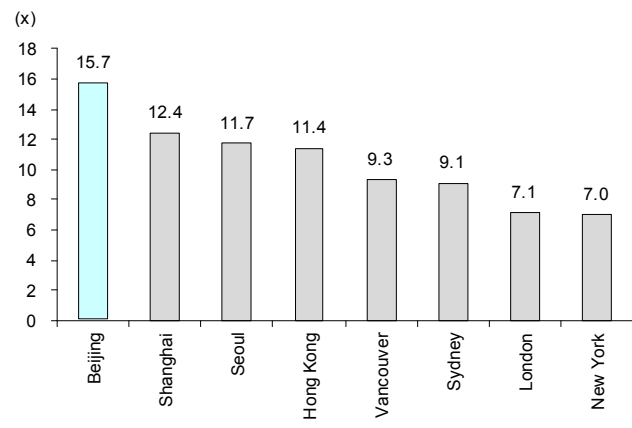
Source: Media reports

**China: First-tier city PIR trends**



Source: Wind, National Bureau of Statistics of China

**Major urban centers: PIR comparison**



Source: National Bureau of Statistics of China, Bloomberg, International Housing Affordability, neonet.cokr

**Health care a key component of soft infrastructure:** We expect demand for health care and environmental services to boom under the Xi Jinping-Li Keqiang administration, particularly given the recent issues with smog and H7N9. Medical services are key target in the country’s plan to establish a social safety net and soft infrastructure. Health care will see the largest y-y increase in government spending in 2013 as the administration looks to prepare for rapid aging among low-income earners, improve living conditions, and boost consumption by overhauling the medical system.

By 2020, the government has pledged to increase medical insurance coverage (in terms of both drugs and people, the latter by 172m to 1b) and open the medical service market to privately owned institutions. This should spark explosive growth in demand for health care services, offering opportunities makers of health care equipment, drugs, and biopharmaceuticals. The US, Japan, and Korea have experienced a similar phenomenon as their populations have aged.

China’s health care market is already growing rapidly—in the past five years, annual health care expenditures increased 128% and the public medical insurance participation rate has almost doubled to 95%. China’s pharmaceutical market ranks third in the world in demand terms (up from ninth from five years ago), and per-capita spending on drugs stood at USD60 in 2012 and—compared to Korea’s USD289 and the US’s KRW1,096—has room to grow in the medium to long term.

**Korea, China, and Japan: Growth in medical expenditures**

(% y-y)	Government expenditures			GDP			Personal expenditures		
	China	Japan	Korea	China	Japan	Korea	China	Japan	Korea
1995	15.9	15.7	7.1	3.5	6.9	3.9	1.8	1.2	2.5
2000	11.1	16.0	9.7	4.6	7.7	4.8	2.9	1.4	2.6
2005	9.9	17.2	11.0	4.7	8.2	5.7	2.9	1.6	2.8
2010	12.1	18.4	12.4	5.1	9.5	6.9	2.4	1.7	2.8

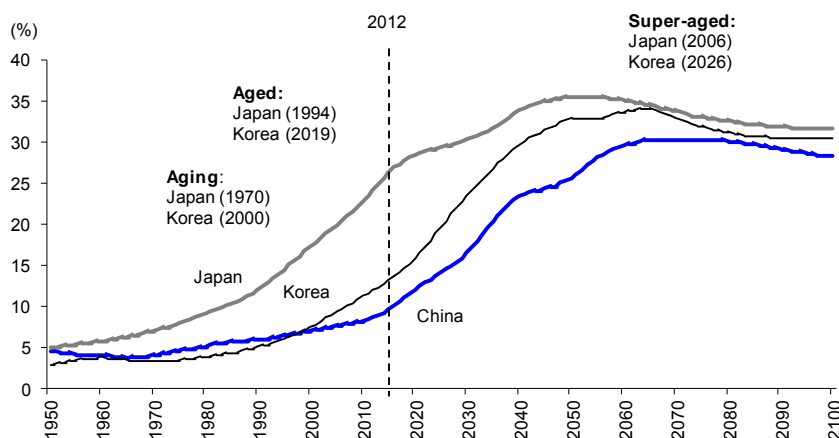
Source: Bloomberg, CEIC

**China: Healthcare market overview**

(USDb)	2006	2011	Growth (%)		2006	2011	Growth (%)
Healthcare	156	357	128	Oriental medicine	6	13	116
Personal expenses (USD)	119	261	119	Vaccines	1.2	2	66
Insurance enrollment (%)	43	95	52%pts	Healthcare	8	20	150
Pharmaceutical market (size)	27	71	163	Pharmaceutical market (global ranking)	9	3	-

Source: Ministry of Health Yearbook SFDA Southern Medical in Economics Research Institute

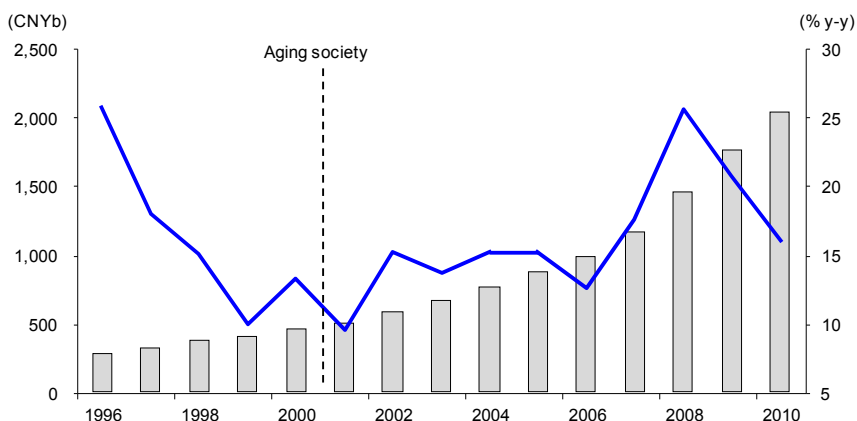
**Korea, China, and Japan: Population aging**



Source: UN

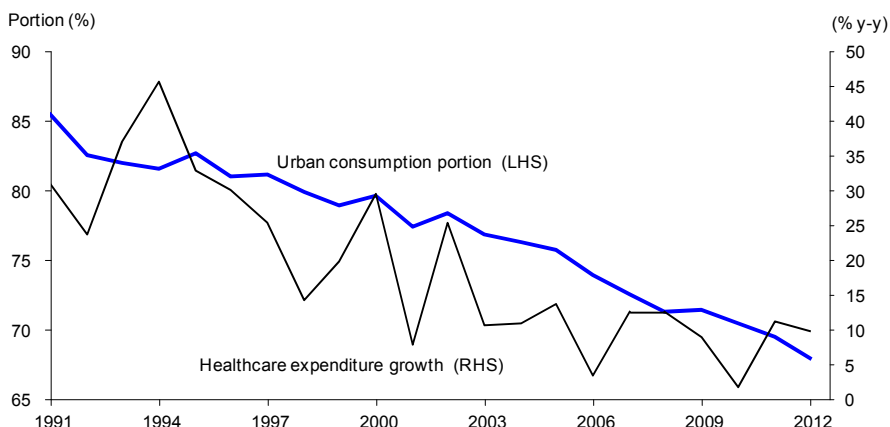
China has been aggressively investing through reforms, consumer demand for health care services is surging, and the markets for cheap, quality drugs and medical equipment should grow quickly. The government has cited the biopharmaceutical sector as one of seven promising industries and plans to invest heavily in infrastructure for it—industry revenues amounted to an estimated 2% of the country’s GDP in 2012, and the government has set a goal of increasing this to 6% (or CNY3t) by 2020. We expect this to result in a surge in demand for drugs and health care services.

**China: Population aging and healthcare market**



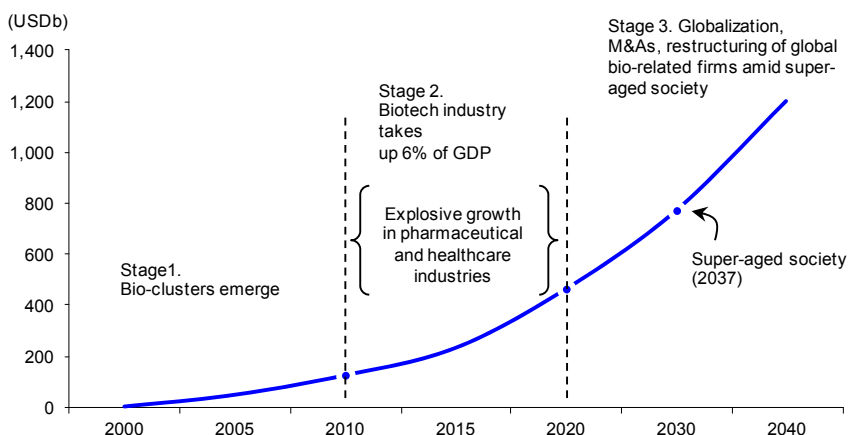
Source: CEIC, Samsung Securities

**China: Medical expenditure trends**



Source: CEIC, Samsung Securities

**China: Biomedical market forecasts**



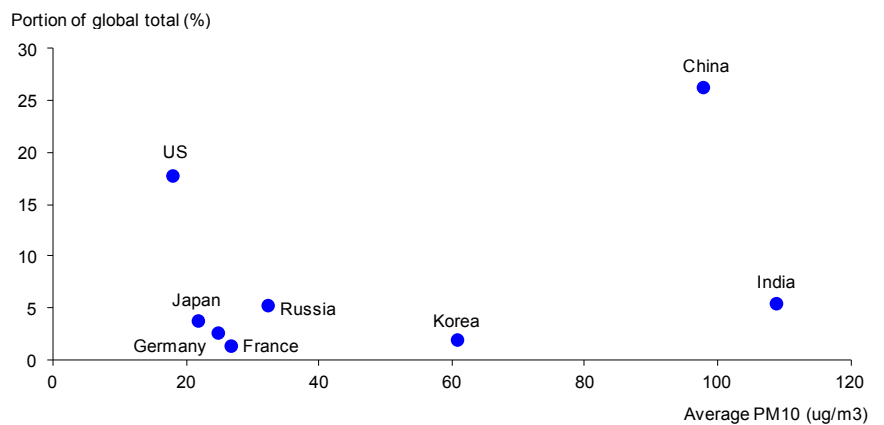
Source: Samsung Securities



**Soft infrastructure and the environment—fallout from rapid growth:** Three After three decades of breakneck growth, environmental issues have become a serious problem for China’s major urban centers—smog and water pollution in and around Beijing and Shanghai was so severe at the start of 2013 that it had a visible negative effect on the strong consumption associated with the Lunar New Year holidays. CO<sub>2</sub> emissions from Brazil, India, and China have expanded rapidly over the past 10 years—in China they have increased 6.5% *pa* since 2000. Air pollution levels in Beijing, Xian, and Wuhan are three to five times as high as those of major cities elsewhere in the world. Korea also experienced pollution in the 1980s but China’s situation is much more serious.

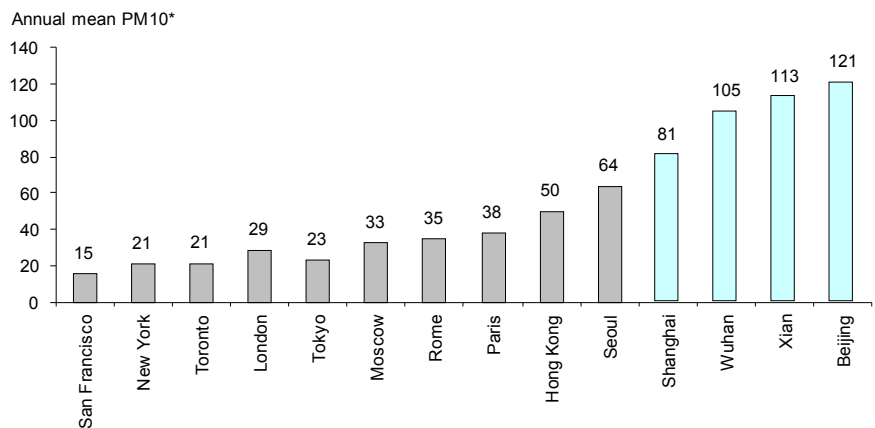
Given the threat, we expect the government and population to call for greater efforts to preserve the environment. The National People’s Congress has already vowed to increase regulatory oversight and invest aggressively to protect the environment. We expect online shopping, healthcare, and eco-friendly energy businesses to benefit.

**CO<sub>2</sub> emissions: Individual nations as percentage of global total (2011)**



Source: WHO, Samsung Securities

**Major urban centers: Pollution comparison**

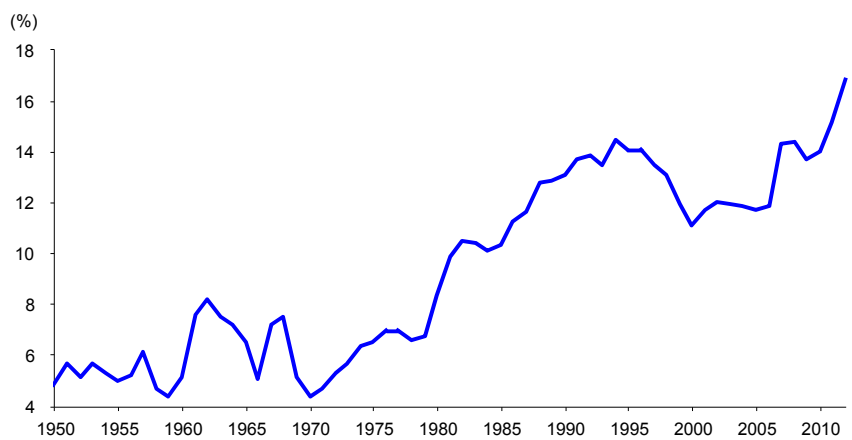


Note: \* Particulate matter with diameter of 10u or less  
Source: WHO

**Education services—investing in China's future:** As part of its goal of pursuing qualitative growth, the government will likely look to create added value in industries, with investments in human resources at the core of this. Public spending on education has soared since 2000—it accounted for nearly 15% of its total spending in 2012—and private-sector demand for education has also jumped.

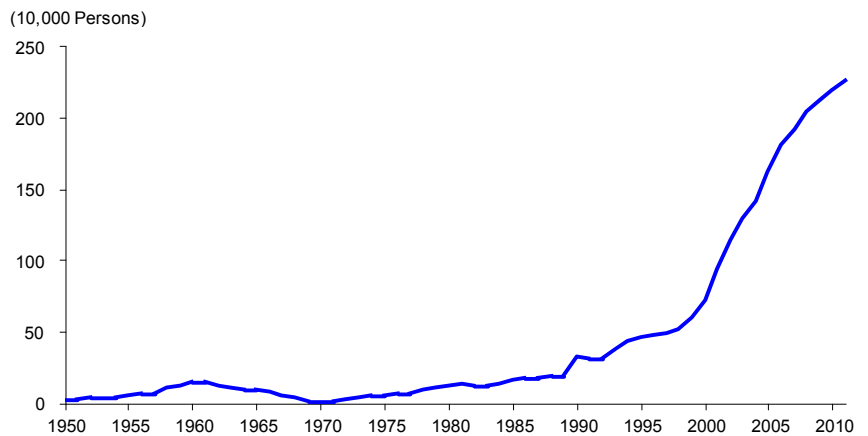
Twenty-five years of a one-child policy have left China with a family structure—consisting of two parents, one child, and four grandparents—that encourages heavy investments in a single child (*eg.* college entrance rates in China have jumped five-fold since 1990). This implies strong growth prospects for the baby & kids market, which we expect to expand 16.5% *pa* in coming years, compared to 13-15% *pa* for the overall retail market. China's education industry remains relatively closed now, but should open up as the new leadership works to boost the nation's tertiary industries.

**China: Educational spending as percentage of government budget**



Source: CEIC

**China: Number of students attending university**

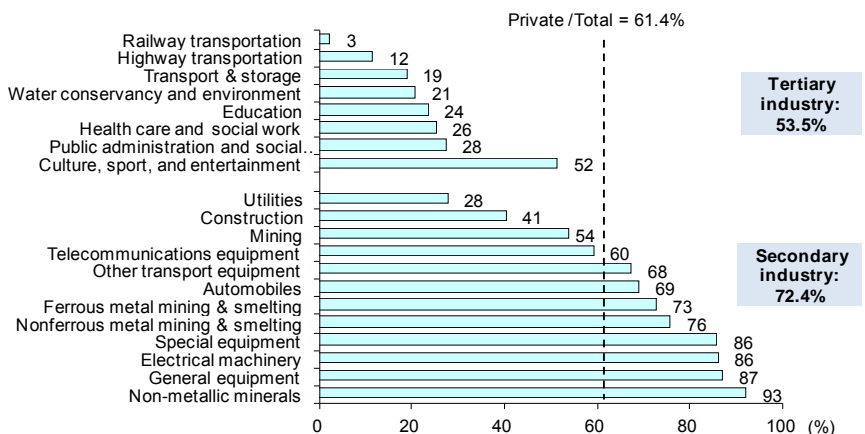


Source: CEI

**Three investment ideas for a soft infrastructure era**

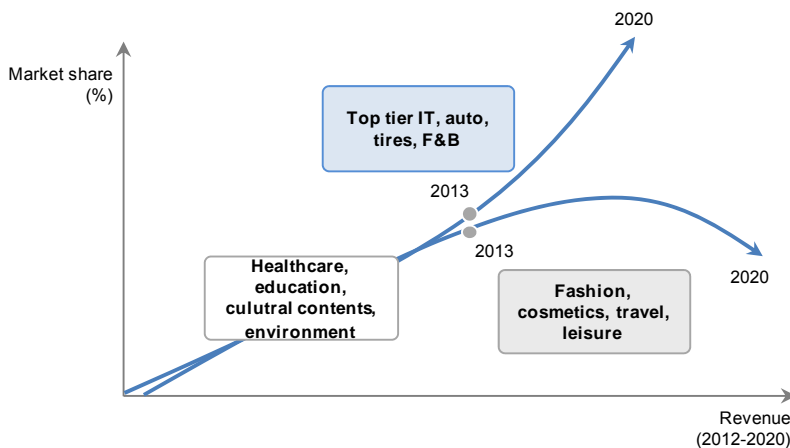
If it is to prevent the country from being confined to a mid-level income nation, the new leadership will need to alter China's growth engine, reducing emphasis on investment and exports in favor of a consumption/domestic demand-oriented model that. We expect this to result in a second wave of fixed investment focusing on soft, not hard, infrastructure, and advise investing in industries that should gain from new urbanization and efforts to adjust imbalances, increased service-industry openness and a household demand boom, and growing domestic demand. We believe the biggest beneficiaries will be: 1) companies in the healthcare, environment, education, and cultural content industries; 2) top-tier IT, auto, and food & beverage players; and 3) the fashion, cosmetics, and travel sectors. Trading opportunities should also emerge in the industrial goods and materials industries.

**China: Sector FAI trends**



Source: CEIC

**China: Soft infrastructure beneficiaries**



Source: Samsung Securities



# Sector Update

## Chemicals (NEUTRAL)

### Derating underway

THE QUICK VIEW

**New leadership to help normalize China's petrochemical demand:** We expect China's polyolefin demand to rise 6.6% *pa* through 2016 thanks to the growing purchasing power of its consumers. Such demand is unlikely to beat our forecasts, however, as that nation's stimulus should be sized as forecast, and from its looming triple threat of: 1) inefficient provincial government spending; 2) an overheated housing market; and 3) a shadow banking system.

**Capacity expansions to be a burden from this year:** The capacity of China's ethylene facilities expanded considerably over 2009-2010 before slowing to around 4% *pa* over 2011-2012, with many now forecasting the capacity to expand at a CAGR of more than 13% over 2013-2017. Such an increase appears natural for that nation to create jobs and reduce its still heavy reliance on major petrochemical imports. China's 12th 5-year plan has its olefin self-sufficiency rising from 54% in 2010 to 70% in 2015.

**Government policies to boost CTO technology...:** CTO is projected to account for 40% of China's capacity ethylene capacity additions over 2013-2017, with the nation likely the most aggressive in Asia in developing related technology to produce olefin (*eg*, ethylene and propylene) from coal. The nation's related facilities should utilize ample domestic coal reserves as its advantages (*eg*, feedstock diversification) are too good for the government to ignore, with China's 12th 5-year plan having CTO technology being used in around 20% of olefin facilities by 2015.

**...which remains attractive, despite environmental concerns:** We met recently with local Chinese petrochemical firms, analysts with securities firms, and traders at Samsung C&T's petrochemical business, all of whom pointed out the likely difficulties of obtaining government approval for CTO projects in China—as such production requires waste-water and gas treatment facilities to deal with related byproducts. We note that five CTO/MTO projects in China (with a combined capacity of 2.3m tonnes *pa*) have already commenced operations, while 11 more (7.2m tonnes) have been green lighted. With CTO/MTO being more cost competitive than the naphtha-to-olefin (NTO) method, China should pursue technologies to address environmental issues and develop a viable CTO strategy.

**China's olefin imports to fall, limit upside of petrochemical uptick:** We expect capacity expansions to push China's polyolefin imports down 7% *pa* through 2016, while its polyolefin imports (excluding those from the Middle East) may contract a whopping 20.6% *pa* over the same period, which bodes ill for Korean chemicals players.

**Despite likelihood of near-term rebound, medium-term upside limited:** Asia's chemical sector has inexplicably contracted since the Lunar New Year in mid-February, with several regional NCCs already cutting utilization rates, so further downside appears limited. China's falling polyolefin imports could drag on Korea's chemical sector, while many of the former's NTO projects are set to commence operations over 2013-2014, and most new facilities over 2015-2016 are expected to be for CTO/MTO projects. Ethylene-to-olefin (ETO) projects that utilize US shale gas should begin operating from 2017, so exports from the US to Asia will likely rise. The earnings upside of petrochemicals firms should therefore take a hit, while a sector derating ought to continue until new alternative markets emerge.



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■ AT A GLANCE

**LG Chem** (051910 KS, KRW239,500)

SELL HOLD BUY **KRW335,000**(+39.9%)  
Target price

**Lotte Chemical** (011170 KS, KRW159,500)

SELL HOLD BUY **KRW190,000**(+19.1%)  
Target price

**Hanwha Chemical** (009830 KS, KRW16,600)

SELL HOLD BUY **KRW20,000**(+20.5%)  
Target price

**Korea Kumho Petrochemical**  
(011780 KS, KRW90,900)

SELL HOLD BUY **KRW120,000**(+32.0%)  
Target price

**KPIC** (006650 KS, KRW38,700)

SELL HOLD BUY **KRW40,000**(+3.4%)  
Target price

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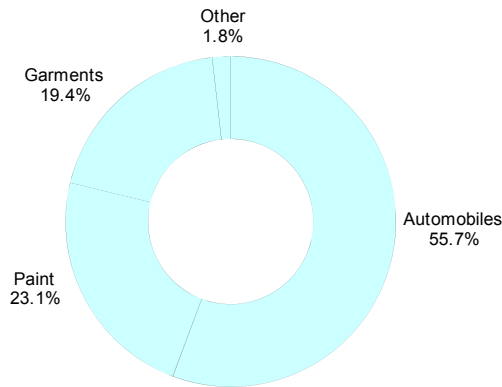
## V. Chemicals

### Policies of new leadership to help normalize China's petrochemical demand

China's new leadership is focused on improving public welfare, achieving sustainable growth, and resolving urban-rural and wealthy-poor inequalities as well as those between industries. They should also focus on boosting consumption in China's second-, third-, and fourth-tier cities has, which is in line with the government's long-term vision of engineering a soft economic landing while shifting growth focus from fixed investments to domestic consumption. We believe the new policies will help normalize that nation's petrochemical demand, with paint production (related to fixed assets) accounts for around 25% of polyolefin demand, whereas production of other consumption-related products is more important to such demand. (For more details, see our Sep 25, 2012 report, "Impact of China rebalancing on Korean chemicals and steel firms".)

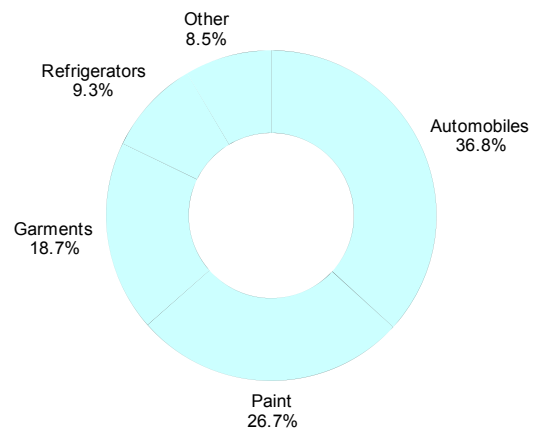
China's polyolefin demand jumped 31.5% in 2009 (vs a CAGR of just 5.7% over 2004-2008) on sizeable stimuli that began with a CNY4t package in 2009, but it slowed to 3.2% *pa* over 2011-2012 after official belt tightening that began in 1H11. We believe the country's polyolefin demand will grow at a CAGR of 6.6% over 2013-2016, and is unlikely to better our forecasts as stimuli should fall short of market expectations—due to a debt triangle comprising provincial governments, real estate, and a shadow banking system.

Factors behind China's PE demand



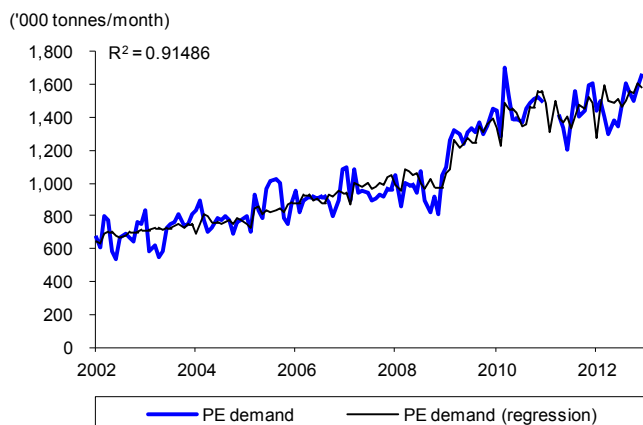
Source: Samsung Securities estimates

Factors behind China's PP demand



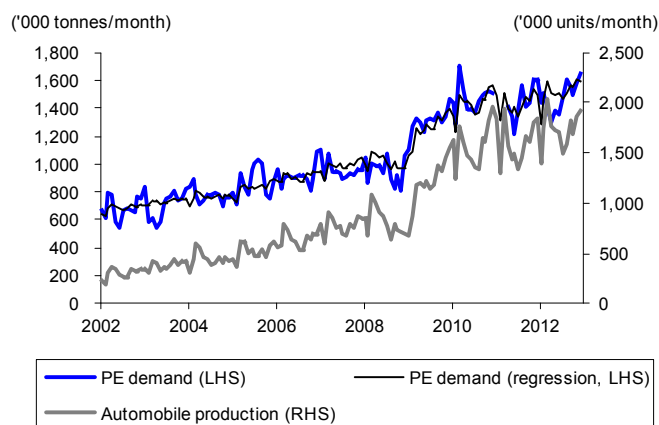
Source: Samsung Securities estimates

**China's monthly PE demand, restructured by regression analysis**



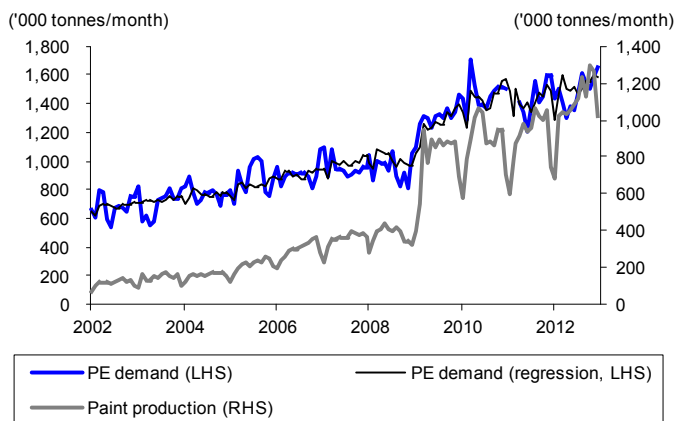
Note: \* PE demand = a × garment production + b × paint production + c × automobile production + d (a, b, c, and d are our proprietary estimates)  
Source: CEIC, Samsung Securities estimates

**China's monthly PE demand vs auto production**



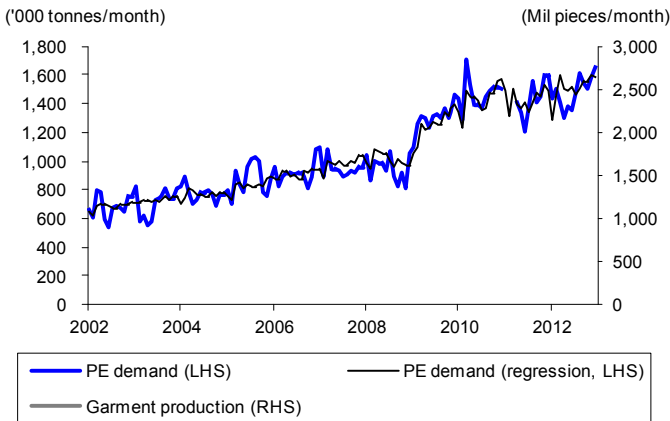
Source: CEIC, Samsung Securities estimates

**China's monthly PE demand vs paint production**



Source: CEIC, Samsung Securities estimates

**China's monthly PE demand vs garment production**



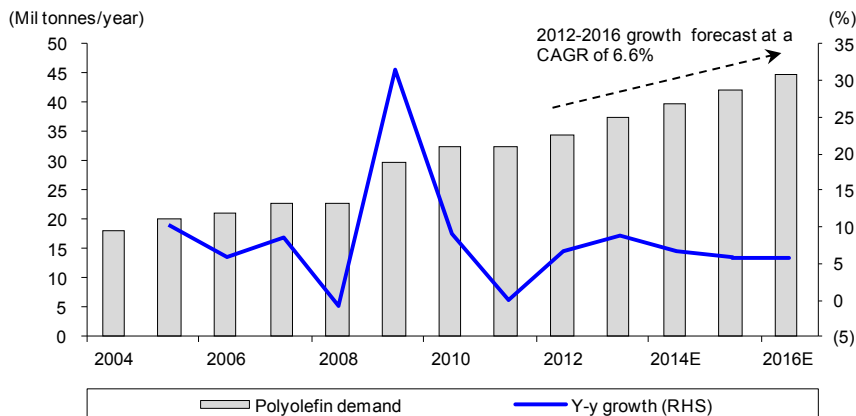
Source: CEIC, Samsung Securities estimates

**Assumptions**

(% y-y)	2008	2009	2010	2011	2012	2013E	2014E	2015E	2016E
<b>Market growth</b>									
<b>Consumer goods</b>									
Garments	5.9	20.4	14.5	(6.5)	1.3	11.5	10.9	10.3	9.6
Refrigerators	(3.1)	30.9	26.6	14.0	2.0	0.5	(1.2)	5.5	5.2
Automobiles	4.8	47.1	32.1	2.3	7.5	11.0	9.5	8.6	8.4
<b>Industrial goods and materials</b>									
Paint	9.1	101.2	16.1	2.9	16.7	14.3	12.1	12.2	10.5
<b>Demand for petrochemical products</b>									
PE ('000 tonnes/year)	11,647.6	16,105.2	18,062.1	17,707.4	18,243.8	19,970.9	21,373.3	22,864.7	24,334.1
Growth	(0.7)	38.3	12.2	(2.0)	3.0	9.5	7.0	7.0	6.4
PP ('000 tonnes/year)	10,891.6	13,522.5	14,255.0	14,585.0	16,180.5	17,404.2	18,446.0	19,231.8	20,173.3
Growth	(1.3)	24.2	5.4	2.3	10.9	7.6	6.0	4.3	4.9

Source: CEIC, Samsung Securities estimates

**Polyolefin demand in China**

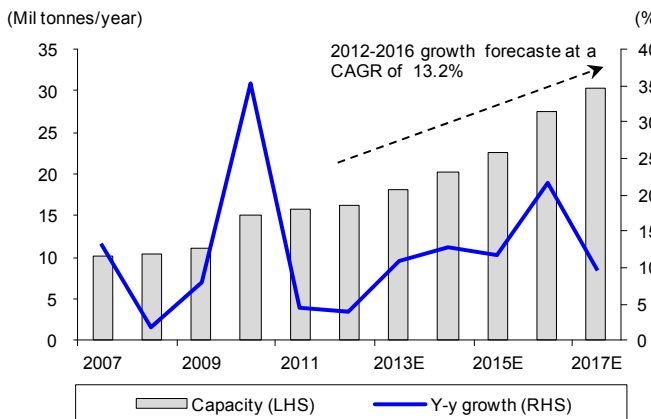


Source: CEIC, CMAI, METI, Samsung Securities estimates

**Steady capacity expansions from this year to be a burden**

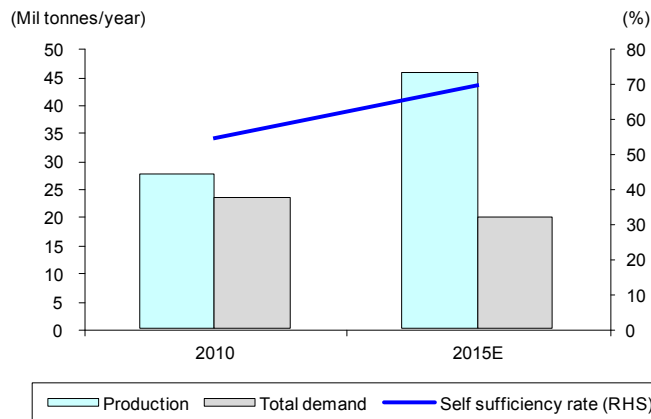
The capacity of China's ethylene facilities expanded considerably over 2009-2010 before slowing to around 4% pa over 2011-2012, with many now forecasting the capacity to expand at a CAGR of more than 13% over 2013-2017. Such an increase appears natural for that nation to create jobs and reduce its still heavy reliance on major petrochemical imports. China's 12th 5-year plan has its olefin self-sufficiency rising from 54% in 2010 to 70% in 2015.

**China's ethylene capacity outlook**



Source: CMAI, company data, ICIS, METI

**China's olefin self-sufficiency rate**



Source: China's 12th five-year-plan

## Samsung Market Strategy

### China's net import of petrochemical products, by product

(USDm/year)	MEG	PX	PTA	PET	Benzene	ABS	PS	PVC	Caustic soda	Butadiene	BPA	BR	SBR	PP	PE
2002	876	103		99	(17)		135	974	11	41	99	14	233	1,623	2,690
2003	1,574	518		39	(41)		126	1,109	6	89	165	27	267	2,012	2,395
2004	3,021	813		206	33		118	1,273	(0)	182	233	34	311	2,545	3,316
2005	3,516	1,381		(445)	201		51	977	(6)	174	427	47	400	2,986	3,667
2006	3,426	1,995		(614)	92		(75)	591	(15)	68	489	91	652	3,276	3,947
2007	4,849	3,057	5,288	(862)	203		(282)	292	(6)	91	852	146	684	3,814	3,787
2008	5,302	3,601	4,489	(955)	249		(335)	241	(37)	198	742	200	642	3,941	4,568
2009	3,519	3,177	4,096	(391)	78	311	(193)	1,093	(32)	170	541	209	610	4,493	5,747
2010	5,762	3,442	5,111	(589)	81	437	(342)	1,075	(23)	188	802	351	653	5,038	6,276
2011	8,602	7,220	6,775	(1,351)	92	461	(401)	844	(15)	92	1,206	563	702	5,598	6,954
2012	8,299	9,236	4,600	(1,585)	480	376	(392)	722	(23)	504	902	489	859	5,563	7,452

Source: KITA

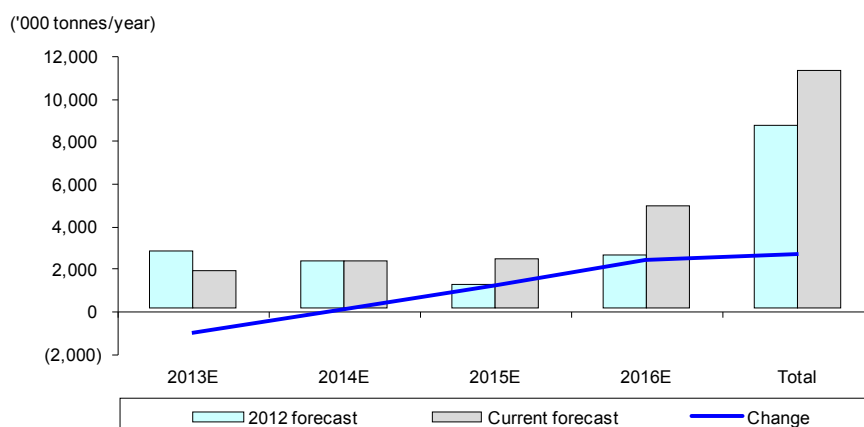
### China's net import to demand ratio, by product

(%)	MEG	PX	PTA	Benzene	PS	ABS	PVC	BR	SBR	PP	PE
2006	73.2	37.7		2.8	(1.4)		8.3	9.6	52.0	37.3	46.5
2007	65.7	45.4	44.8	4.5	(4.2)		3.2	13.5	47.8	28.3	41.0
2008	76.8	51.6	36.0	4.9	(4.8)		2.6	11.0	31.8	31.6	40.9
2009	67.5	45.9	31.1	1.7	(3.8)	0.0	12.5	17.5	39.9	38.1	49.0
2010	71.7	43.6	31.1	1.4	(5.2)	0.0	8.9	15.7	25.9	33.3	42.8
2011	74.7	58.6	30.6	1.1	(4.7)	0.0	6.1	15.0	16.0	31.0	43.2
2012	76.0	57.9	21.5	4.9	(4.1)	0.0	5.2	14.3	20.7	29.2	44.8

Source: KITA

Ethylene facility forecasts have changed considerably since last year, when China had been expected to concentrate capacity expansions over 2013-2014 before slowing over 2015-2016. Current estimates have most planned capacity expansions for this year being postponed into 2014 or 2015, with the total projected amount up y-y, as: 1) many projects originally set to commence in 2H12 or this year face delays due to the petrochemical industry trending down throughout 2012; and 2) the government green lighted several CTO projects.

### China's ethylene capacity outlook

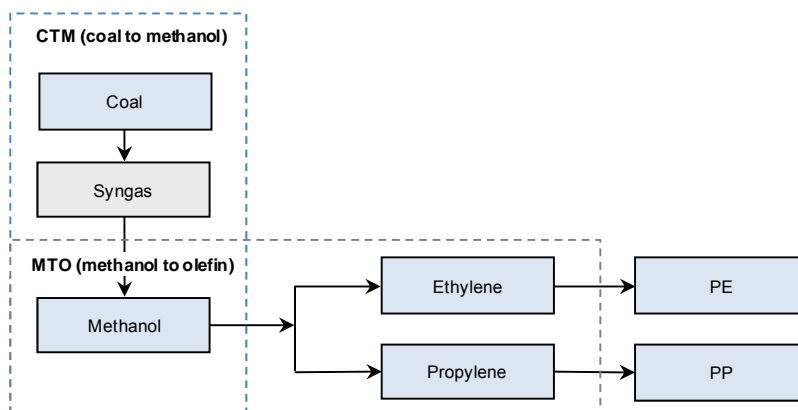


Source: CMAI, ICIS, METI

**CTO technology congruous with government policy**

China has been the most aggressive Asian country in developing coal-to-olefin (CTO) technology—used to produce olefin (eg, ethylene and propylene) from coal. Naphtha is used as main raw material for olefin in Northeast Asia where natural gas is hard to secure. But the coal-based technology provides an alternative route to make olefin from the methanol produced from coal. Methanol-to-olefin (MTO) method belongs to the CTO technology in a broad sense.

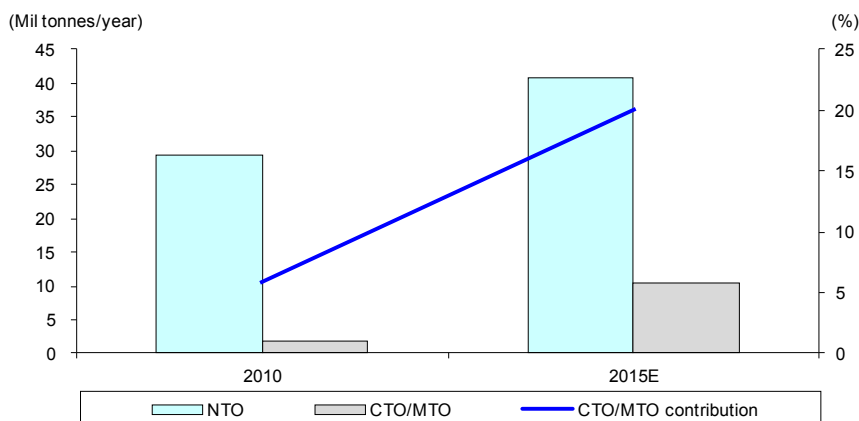
**CTO flowchart**



Source: Industry data

China’s 12th 5-year plan proposes CTO technology comprising around 20% of the nation’s olefin facilities in 2015, but implementation could be delayed due to: 1) continuation of a downtrend in Asia’s petrochemical cycle that began in 1H11; and 2) myriad environmental problems expected from the coal-based technology. Nonetheless, the facilities have a good chance of succeeding as their advantages should out disadvantages in the eyes of China’s government.

**China’s olefin capacity, by feedstock**

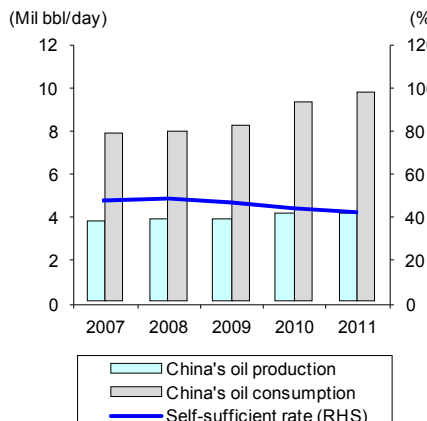


Source: China’s 12th five-year-plan for olefin industry

We classify China’s chemical sector policies into the following three areas.

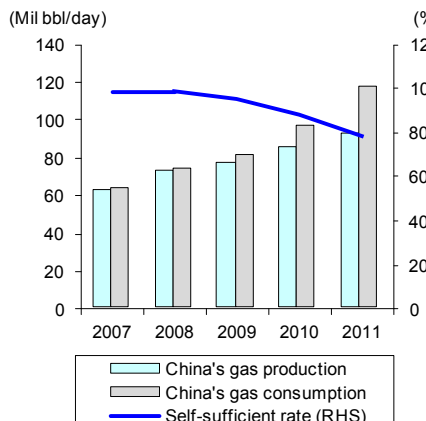
**Feedstock diversification:** China is the world’s fifth-largest crude oil producer, but imports still comprise over 60% of its petroleum needs. The nation also produces natural gas, but such production falls far short of its potential demand growth, and despite having larger shale gas reserves than the US, it is not expected to start commercial production before 2020. Consequently, China pursues feedstock diversification, while its fair coal self-sufficiency makes another good reason to adopt a CTO strategy.

**China's oil demand, production, and self-sufficiency**



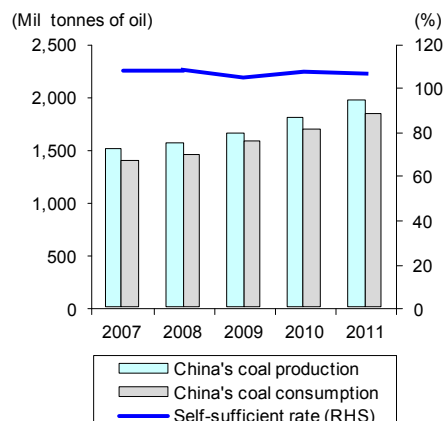
Source: BP

**China's natural gas demand, production and self-sufficiency**



Source: BP

**China's coal demand, production, and self-sufficiency**

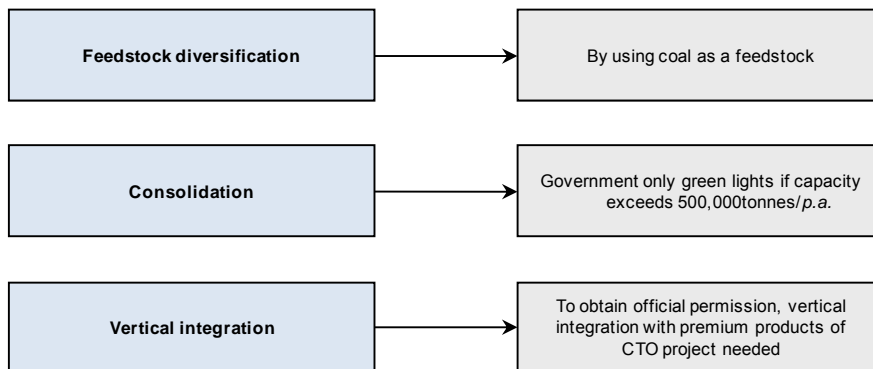


Source: BP

**Industry consolidation:** China's growth-oriented economic policy has attracted myriad small-scale players to its chemicals market, and thus led to serious environmental problems and inefficient resource allocation. Since the government only intends to green light CTO projects with annual capacities of at least 0.5m tonnes, the industry should toe the government line of industry consolidation.

**Vertical integration:** China stresses the necessity of vertical integration to enhance facility efficiency, slash downstream-upstream transportation costs between facilities, and prevent possible oversupplies. Therefore, in order to gain government approval, CTO projects must be vertically integrated toward high-value-added petrochemicals (eg, PE, PP, MEG, EVA and acrylic), which should make such products in greater demand down the road (or if the nation's self-sufficiency is low).

**China's petrochemical industry policies, suitability of CTO**



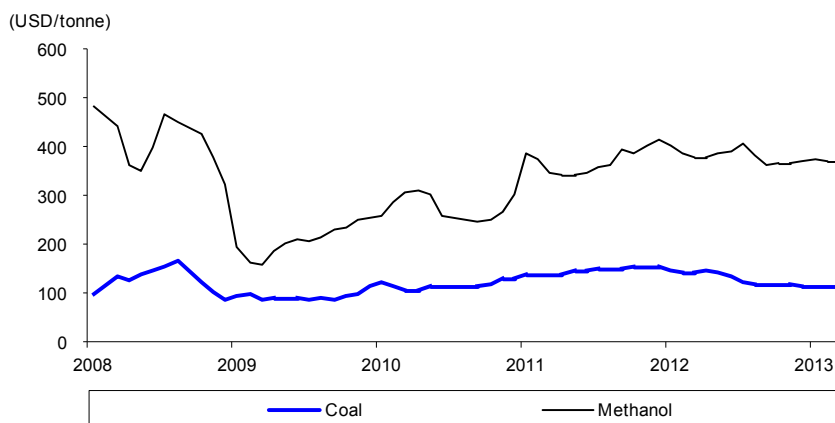
Source: Sinopec, China's 12th five-year-plan

**CTO technology still attractive, despite related environmental issues**

We met recently with local Chinese petrochemical firms, analysts with securities firms, and traders at Samsung C&T's petrochemical business, all of whom pointed out the likely difficulties of obtaining government approval for CTO projects in China—the production of which requires waste-water and gas treatment facilities to deal with related byproducts. Second, the process produces sizeable carbon dioxide emissions, and may thus eventually lead to carbon taxes. Third, the coal-based technology necessitates at least 40 tonnes of water for every tonne olefin produced, but most of China's coal mines are located in areas lacking adequate water supplies, meaning related supply accessibility should determine government approval.

The negatives surrounding CTO in China are understandable, as: 1) new government leadership is likely to closely assess any potential environmental impact; and 2) pollution that enveloped that nation's major cities over the Lunar New Year holidays once again raised public awareness of such issues. Consequently, methanol-to-olefin (MTO) projects may gain government approval more easily than CTO ones, and as most of the environment problems associated with the latter occur during methanol production, meaning the methanol-based technology is relatively free from such issues. Furthermore, MTO projects might alleviate China's methanol oversupply, while also being more cost-competitive than NTO. If all planned MTO projects are approved and commence operations, methanol oversupplies may disappear and lead to subsequent price hikes in that nation while simultaneously and reducing cost competitiveness (*ie*, negative to firms planning MTO investments).

**Methanol and coal prices in China**



Source: Bloomberg, Platts

Although CTO projects require greater initial investments than NTO ones, the former are more cost competitiveness as coal is cheaper than crude oil in China, in addition to gelling with the government's chemical-sector policy (excluding environmental issues). To pursue its CTO strategy, China will likely focus on developing technologies to address environmental problems, with large vertically-integrated projects (comprising firms with solid capital and strong technologies) having the best chance of winning government approval.

**Olefin process comparison**

Process	CTO	MTO	NTO	ETO
Cost competitiveness	★★★	★★	★	★★★★
Environmental friendliness	★	★★★	★★	★★
Suits government policy *	★★★	★★★	★	n/a**

Source: \* Excludes environmental issues

\*\* Chinese firms have practical difficulties adopting ETO

Source: Industry data



### CTO facilities to represent 40% of ethylene capex in China

Of five CTO/MTO projects in China (including the Ningbo Heyuan that came online at end-2012), Shenhua Baotou is seen as the most successful as its average utilization ratio exceeded 80% over 2011-2012. ICIS news shows that China green lighted eleven related projects, will add 7.3m tonnes of annual capacity by 2015, and was constructing or planning at least 30 CTO/MTO projects (with a combined annual capacity of 20m tonnes) as of Jul 2012. Additional projects may be approved depending on the development of related technologies.

#### China's underway CTO/MTO projects

Project	Location	Type	Capacity ('000 tonnes/year)	Utilization rate
Datang International Power Generation	Inner Mongolia	MTP	460	50-60%
Shenhua Group	Inner Mongolia	MTO	600	>80%
Shenhua Ningxia Coal Industry Group	Ningxia	MTP	500	Below 50%
Sinopec Zhongyuan Petrochemical	Henan	MTO	200	80-90%
Ningbo Heyuan	Zhejiang	MTO	600	Unknown
<b>Total</b>			<b>2,360</b>	

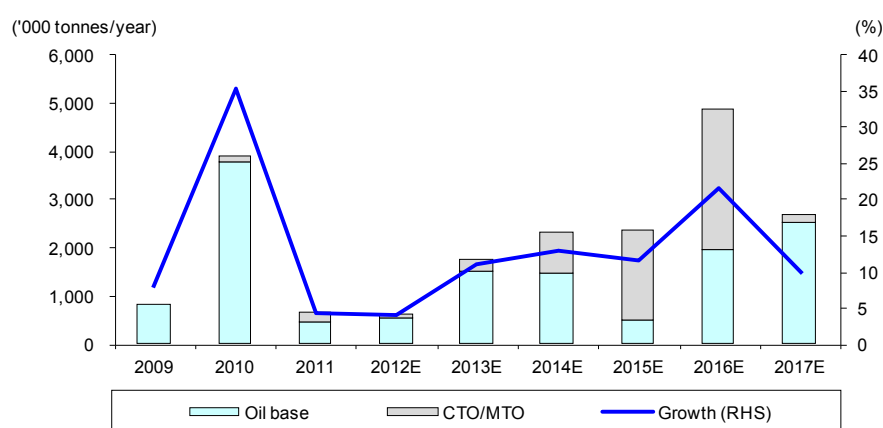
Source: ICIS

#### China's approved CTO/MTO projects

Project	Location	Type	Capacity ('000 tonnes/year)	Start from
Zhejiang Xingxing New Energy Technology	Zhejiang	MTO	600	n/a
Wison Nanjing Clean Energy	Jiangsu	MTO	300	2013
Zhengda New material	Changzhou	MTO	1,000	2013
Shaanxi Pucheng Clean Energy Chemical	Shaanxi	MTO	700 (1,800 of integrated methanol)	2014
Ningxia Coal Industry	Ningxia	MTP	500	2014
Shanxi Coking	Shanxi	MTO	600 (200 of existing methanol)	2014 4Q
Shenhua Shenmu Chemical	Shanxi	MTO	600	2014
Jiutai Energy	Inner Mongolia	MTO	600	2014
Sinochem YiYe	Shaanxi	MTO	800	2014
Shaanxi Yangchang	Shaanxi	MTO	600	2014
Xinjiang Guanghui Coal Chemical Industry	Xinjiang	MTO	1,000	2015
<b>Total</b>			<b>7,300</b>	

Source: ICIS

#### China's ethylene capacity, by feedstock



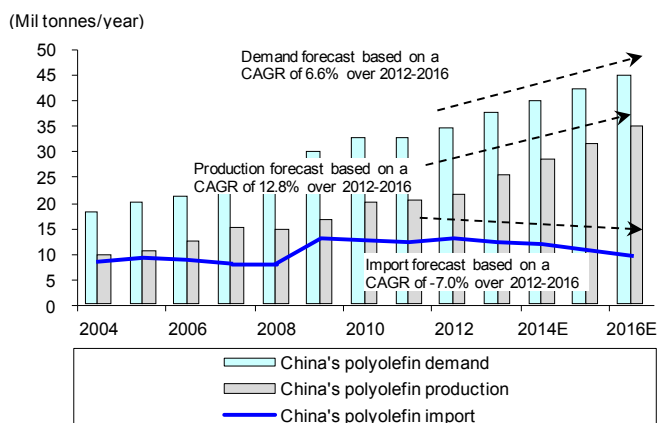
Source: CMAL, ICIS, METI

**China's olefin imports to drop, limit petrochemical upside**

We expect China's polyolefin demand to rise 6.6% *pa* through 2016 thanks to the growing purchasing power of its consumers, but polyolefin imports should decline 7% *pa* over the same period amid accelerating capacity expansions or up to 20.6% *pa*—excluding those from the Middle East—as: 1) as those in the Middle East remain steady—although slower than the historic rate; and 2) sluggish economic recoveries in Europe. All of this may bode ill for Korean chemical firms as China is their largest export market, and given the lack of an alternative major market.

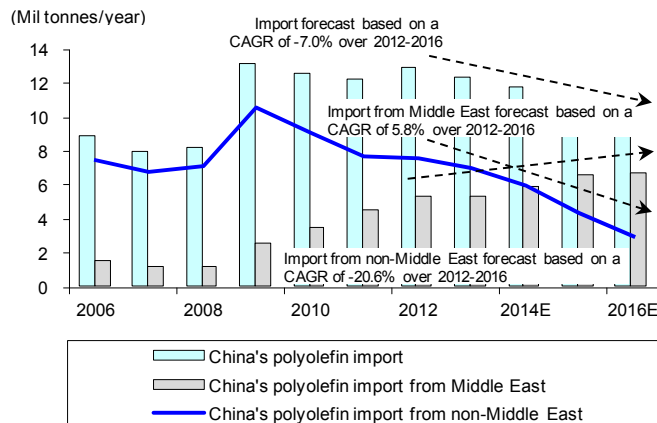
Our analysis is based on the unrealistic assumption of all polyolefin manufacturers in the Middle East, Korea, and China producing products of identical quality—since classifying demand by product grade is virtually impossible. If Chinese players take time to catch up with Korean players in terms of technology, the former's imports may decline slower than expected, but Sinopec (that nation's largest petrochemical players) says that its technological gap with Korean players is not overly wide, while it focuses on technological development and sales mix improvements (vs top-line growth). All in all, we expect China's polyolefin imports to eventually decline.

**China's polyolefin demand, production, and imports**



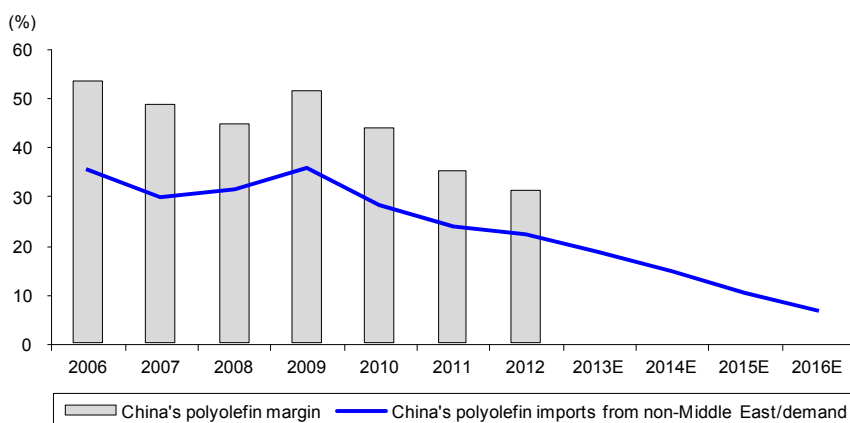
Source: CEIC, KITA, Samsung Securities estimates

**China's polyolefin imports, by region**



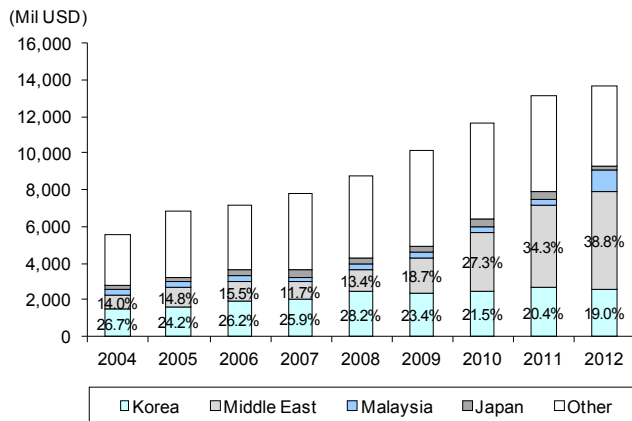
Source: CEIC, KITA, Samsung Securities estimates

**Polyolefin margin vs import portion of China's PE demand (excluding the Middle East)**



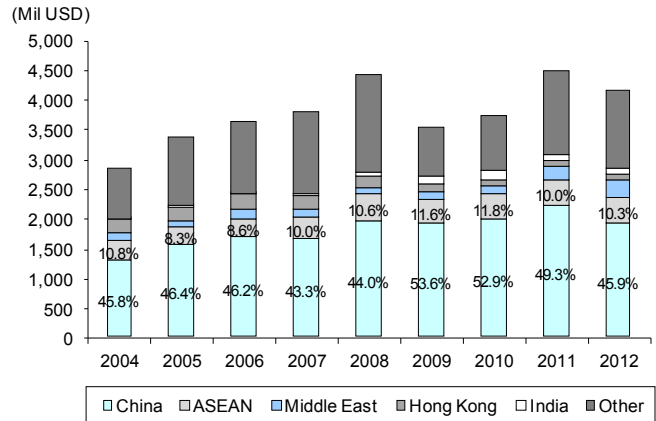
Source: CEIC, KITA, Platts, Samsung Securities estimates

Value of China's polyolefin imports, by nation



Source: KITA

Value of Korea's polyolefin imports, by nation

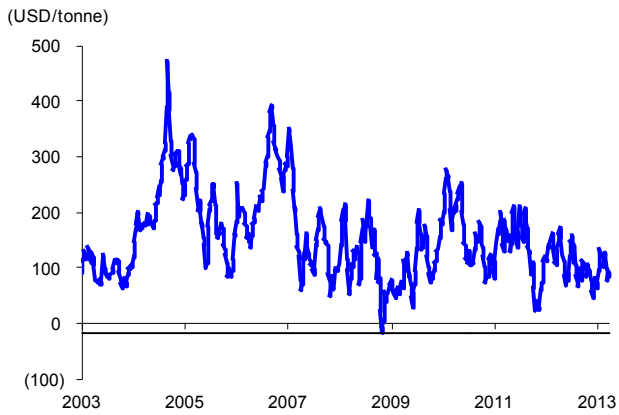


Source: KITA

Since the lunar New Year holiday in mid-February, petrochemical prices have plummeted throughout Asia, but we believe additional downside will be limited since regional NCC players began lowering utilization ratios. The prospect of China's petrochemical imports gradually declining suggests the likelihood of a limited industry rebound, while most of that nation's NTO projects are set to commence operations over 2013-2014 (and most of its new facilities over 2015-2016 are set to be CTO/MTO projects). We expect many ETO projects that use US shale gas to go operational from 2017, so US to Asia exports will likely rise at that time.

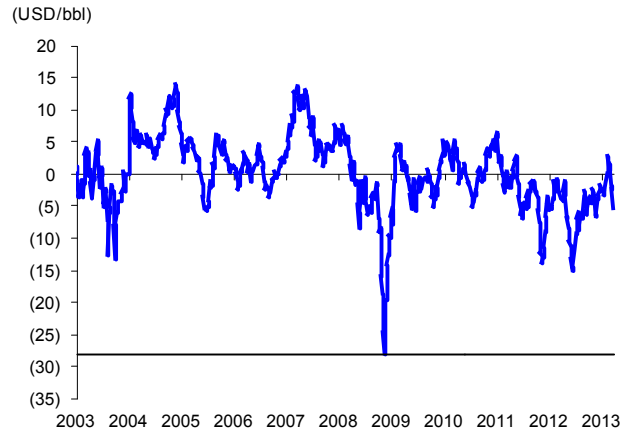
The capacity expansions mentioned above will likely weigh on the market going forward—unlike the boom of 2009-2010 that was concentrated in the Middle East and China—and thus dilute the earnings upside of petrochemical firms and make a sector de-rating unavoidable unless new alternative markets emerge.

**NCC spread**



Source: Bloomberg, Platts

**Naphtha-Dubai spread**



Source: Bloomberg, Platts

**Chemicals sector: P/E**



Source: Bloomberg

**Chemicals sector: P/B**



Source: Bloomberg

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## ■ AT A GLANCE

Posco (005490KS, KRW320,000)

SELL HOLD BUY **KRW420,000(+31.5%)**  
Target price

## Steel (NEUTRAL)

## Takeaways from China visit

## THE QUICK VIEW

**China desperately pursuing industrial restructuring:** We visited China over Mar 24-26 to meet managers involved in product sales and raw material purchases at that nation's large steelmakers. The country appears to be desperately pursuing industrial restructuring, despite many related obstacles.

China's government in 2009 announced it would restructure nine key industries starting then through 2015, but the speed of implementation has been slow. We still expect restructuring to accelerate, however, for two reasons. First, pollution from Hebei Province—which consumes 120m tonnes of coal *pa*—reportedly contributes some 20% of Beijing's air pollution, so additional steel industry regulations appear inevitable. Second, the nation's steelmakers suffer from oversupply and falling margins, so they can ill afford to spend generously on R&D activities to develop premium products. The restructuring will likely take place gradually over three years, due to expected impacts on the tax revenue of provincial governments as well as exacerbating unemployment. Once restructuring proceeds, local retail prices should become less volatile while simultaneously improving the earnings visibility of East Asian steelmakers.

**Policies of China's new government:** To accelerate the restructuring of its sluggish steel sector, China may scrap the export tax rebate on boron steel. That nation's boron-added HRC and rebar exporters are mainly small-to-medium-sized firms that contribute greatly to pollution and oversupply, with their production and exports both up dramatically since Jun 2009—which is when boron steel became entitled to an export tax rebate of 13%. China has historically been flexible with the related policy, which directly affects global freight volume and steel product prices. We would therefore expect the rebate's scrapping to significantly impact Korea's steel market—as related imports from China should rise by USD60-80/tonne—and make its steel products more competitive.

**Steel demand vs production:** Most of the managers we met on our trip forecast full-year steel demand growth just exceeding last year's figure, citing China's: 1) fixed-asset investment growth target of 18%—vs 16% in 2012; 2) 2020 urbanization rate target of 60%, which implies an additional 270m tonnes of steel demand *pa* over the next eight years—as every 1%pt rise in urbanization has created around 34m tonnes of new steel demand since 2006. Many market watchers also expect that nation's steel production to grow further given planned capacity expansions of its larger steel makers. Overall, if production utilization rates remain steady (near their current 77%), capacity expansions may only worsen oversupply somewhat vis-à-vis 2012.

**NEUTRAL on sector, Posco our top pick** Steel prices rallied over January-Lunar New Year in China on anticipation of seasonally strong demand, but current demand points to overblown market expectations, while that nation's daily steel production has risen since February to a record high, which has kept steel prices from recovering. We believe steel prices are bottoming, as: 1) they are near cash-cost levels; and 2) utilization rates at end industries should soon recover on seasonally strong demand. We expect China to implement steel industry restructuring gradually through 2015 and the discounts of larger players to dissipate—as their earnings become more visible and the volatility of related prices narrow. Our NEUTRAL rating on the sector remains unchanged and we keep Posco as our top pick.

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## VI. Steel

### Steel market overview and outlook

**Demand in China falls short of forecasts since Lunar New Year; production growth attributable to falling prices**

We visited China over Mar 24-26 to meet managers involved in product sales and raw material purchases at large steelmakers, to ascertain: 1) local steel demand and inventories; 2) steel industry restructuring and policy direction in that nation; and 3) the product competitiveness of Korean steelmakers.

Steel prices rallied over January-Lunar New Year in China on anticipation of seasonally strong demand, but current demand points to overblown market expectations, while that nation's daily steel production has risen since February to a record high, which has kept steel prices from recovering.

**Steel prices near bottom and cash cost levels, with end-industry utilization rates recovering ahead of seasonally strong demand**

Steel prices appear to be bottoming, as: 1) they are near cash cost levels; and 2) utilization rates at end industries should soon recover on seasonally strong demand. We nevertheless do not expect to see a meaningful recovery anytime soon given China's oversupplies.

HRC prices (China)



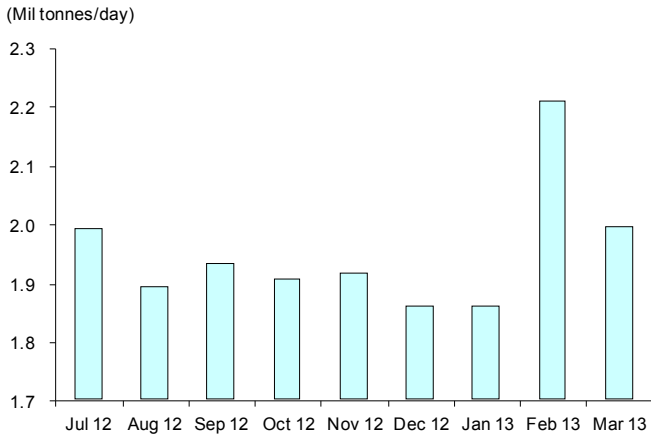
Source: Bloomberg

Iron-ore import prices (China)



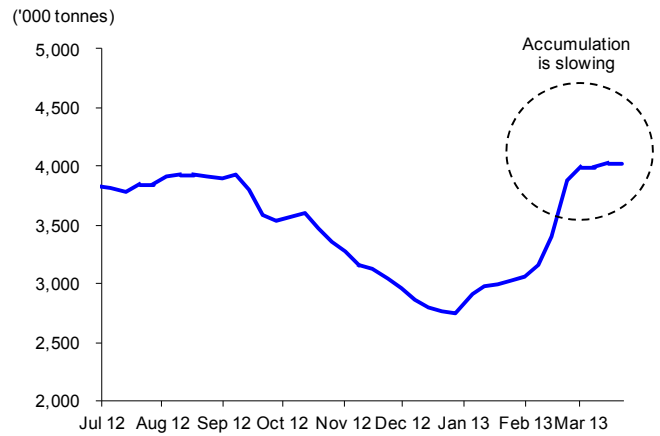
Source: Bloomberg

**Daily crude steel output (China)**



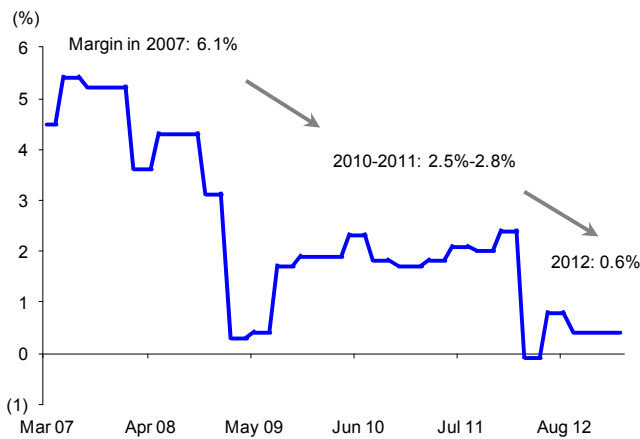
Source: Bloomberg

**Inventories of HRC distributors (China)**



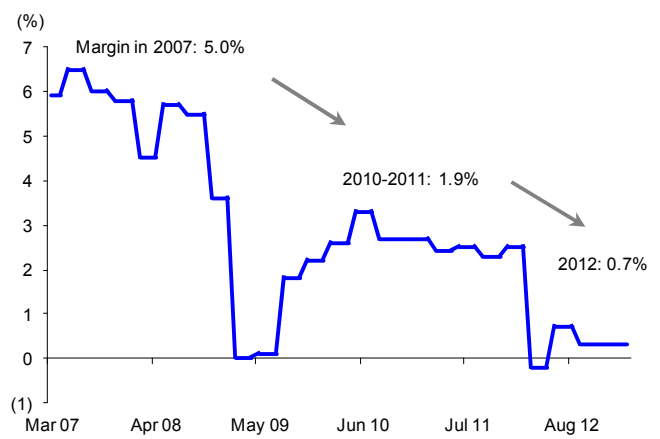
Source: Mysteel

**Margins of steel smelters (China)**



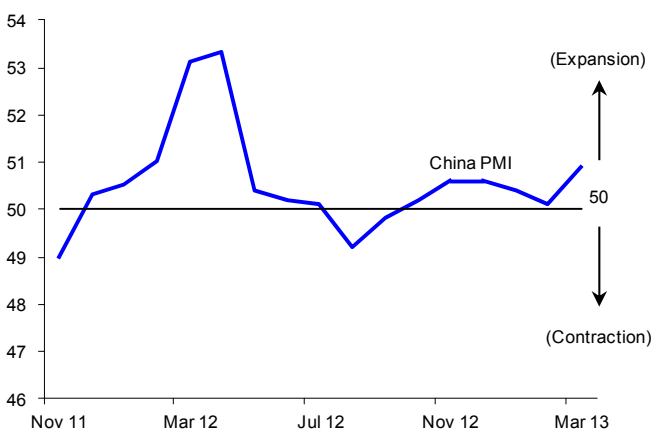
Source: Bloomberg

**Margins of steel re-rollers (China)**



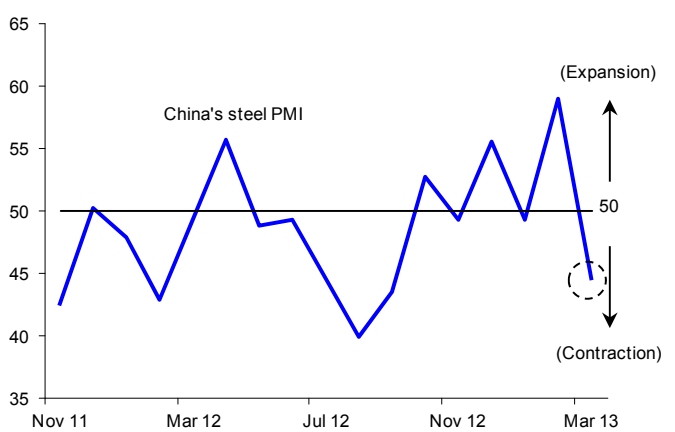
Source: Bloomberg

**China PMI: Manufacturing**



Source: Bloomberg

**China PMI: Steel manufacturing**



Source: Bloomberg

**Steel demand vs production**

**Steel demand growth this year to outpace that of 2012**

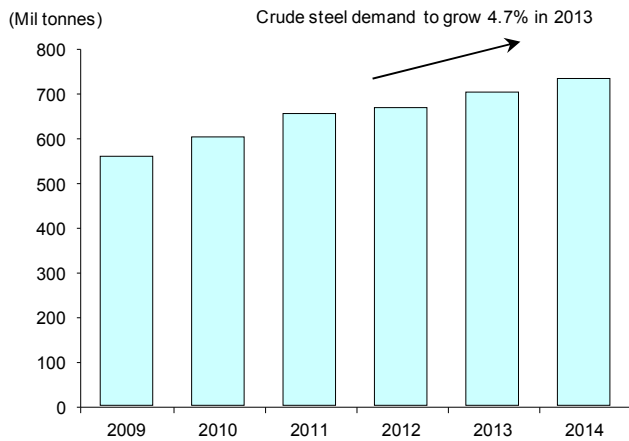
Most of the managers we met on our trip forecast full-year steel demand growth just exceeding last year's figure, citing China's: 1) fixed-asset investment growth target of 18%—vs 16% in 2012; 2) 2020 urbanization rate target of 60%, which implies an additional 270m tonnes of steel demand *pa* over the next eight years—as every 1%pt rise in urbanization has created around 34m tonnes of new steel demand since 2006.

Market pundits also expect China's steel production to continue growing, and they cite the planned capacity expansions of large steel makers—eg, Baoshan's 16m tonnes by 2018 and Hebei's 15m tonnes—and significant time needed to restructure the industry.

**China's steel demand to hit 700m tonnes this year, production to come in at 970m tonnes**

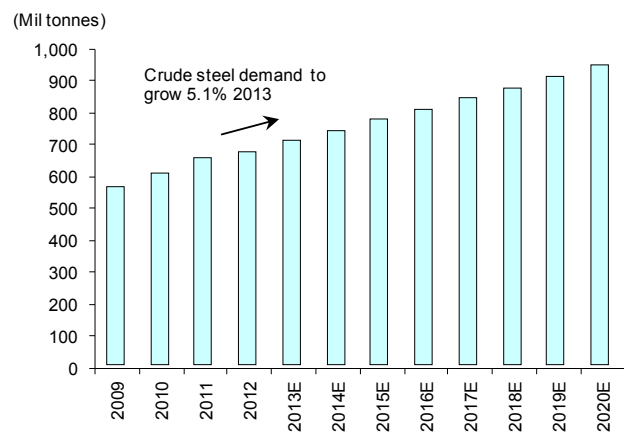
We expect China's steel demand to grow 4.7% this year to 700m tonnes, but if production utilization rates stay near their current 77%, capacity expansion should lift that nation's steel production to 970m tonnes, and thus lead to an oversupply of 270m tonnes (vs 25m in 2012).

**Crude steel demand forecast by China's GDP elasticity**



Note: Applies China's GDP growth at 7.8% and 7.2%, respectively, in 2013 and 2014 with GDP elasticity 0.6  
Source: Bloomberg, NDRC, Samsung Securities estimates

**Crude steel demand forecast by China's urbanization ratio**



Note: Applies a 60% urbanization ratio in 2020  
Source: CEIC, NDRC, Samsung Securities estimates



**Net exports to increase further**

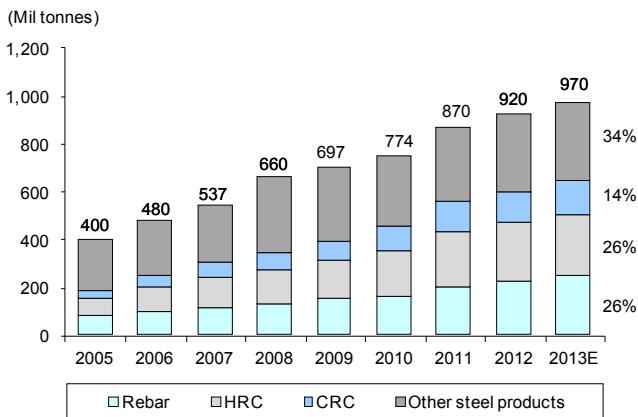
**China's crude steel capacity forecast to rise 50m tonnes this year**

The China Iron and Steel Association (CISA) expect that nation's crude steel capacity to grow 50m tonnes this year to 970m tonnes, so steel exports are set to surge, with net export growth to be especially apparent in construction-use steel.

**Net exports set to grow 12.9% y-y to 48m tonnes**

We believe China's net steel exports will increase 12.9% this year to 48m tonnes with rebar export growth of 12%.

**Capacity, by product (China)**



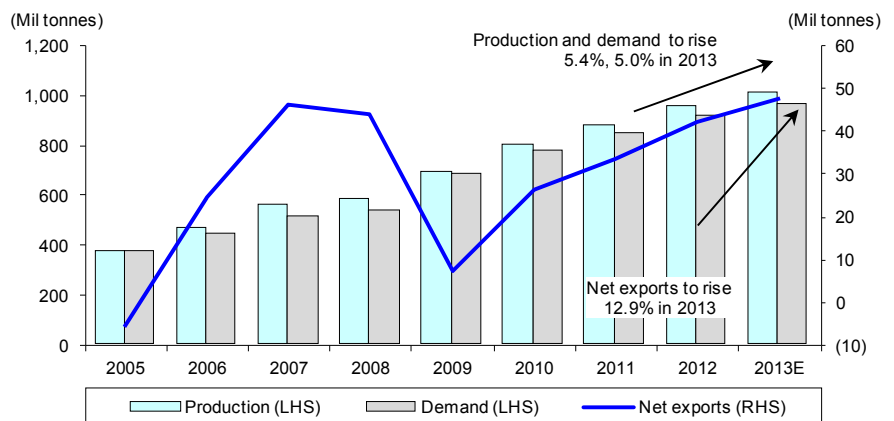
Source: CEIC, SMM, Samsung Securities estimates

**Capacity, by product**

(Mil tonnes)	Total capacity	Rebar	HRC	CRC and coated sheet	Other
2005	400	78	74	31	217
2006	480	93	106	49	232
2007	537	109	128	64	235
2008	660	128	139	77	317
2009	697	151	162	79	304
2010	744	156	196	105	288
2011	870	199	231	130	310
2012	920	224	244	131	321
2013E	970	250	253	138	328

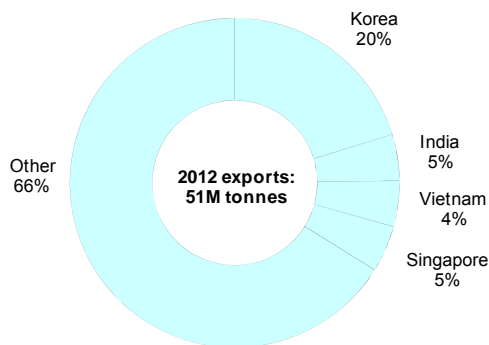
Source: CEIC, SMM, Samsung Securities estimates

**Net exports of steel (China)**



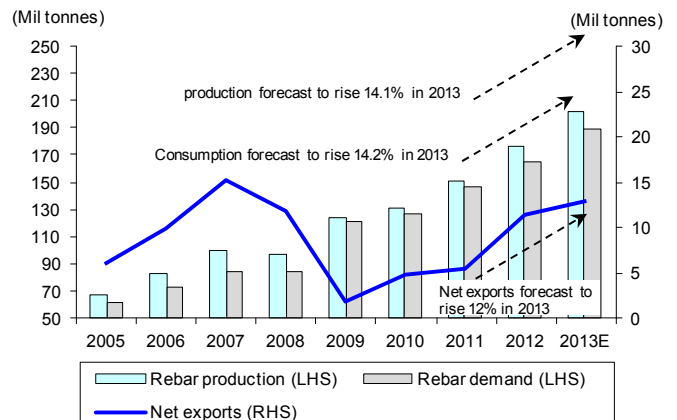
Source: SMM, Bloomberg, Samsung Securities estimates

**Steel exports from China, by nation**



Source: Bloomberg

**Rebar exports (China)**



Source: CEIC, Samsung Securities estimates

**China announces industrial restructuring plan in 2009...**

We expect this round of steel industry consolidation will differ from that of 2009. China's government in 2009 announced it would restructure nine key industries from that time through 2015, and as of last year had accordingly shuttered iron- and steel-making facilities with combined respective annual capacities of 98m and 62m tonnes. The combined market share of top steelmakers jumped from 34% in 2005 to 40% in 2012.

**...but national steelmakers see margins trend down**

The average margin of Chinese steelmakers nevertheless fell from 1.1% in 2009 to 0.6% in 2012, due to: 1) surging crude steel production capacity; and 2) less-than-cooperative provincial governments—some overstated the amount of steel production capacity taken offline and number of steel facilities closed.

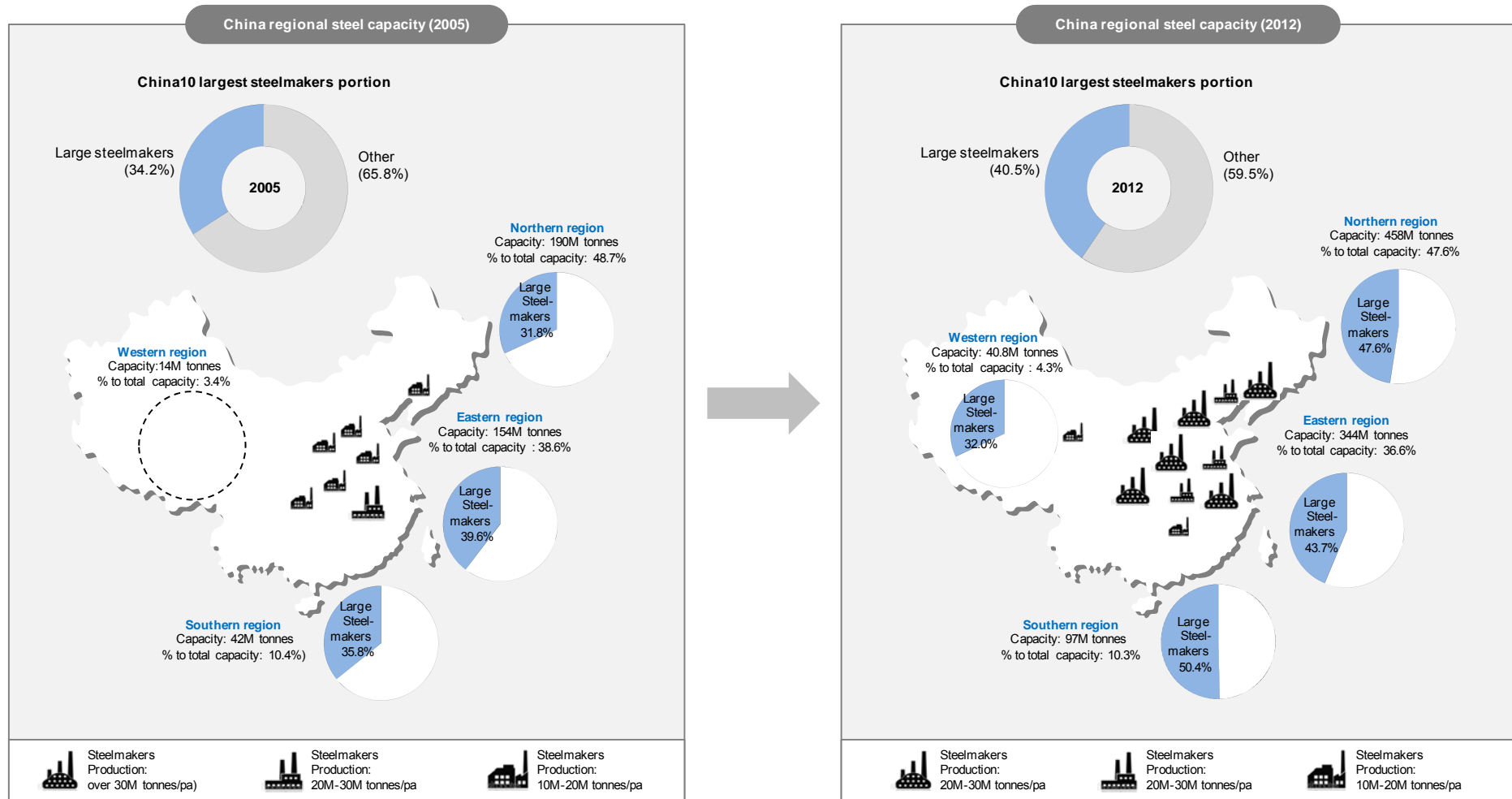
**China finds additional industrial restructuring necessary...**

Industrial restructuring should still accelerate, however, for two reasons. First, pollution from Hebei Province—which consumes 120m tonnes of coal *pa*—reportedly contributes some 20% of Beijing's air pollution, so additional steel industry regulations appear inevitable. Second, the nation's steelmakers suffer from oversupply and falling margins, so they can ill afford to spend generously on R&D activities to develop premium products. To address such issues, China will reportedly: 1) slash crude steel capacity in Hebei Province by 50m tonnes by 2020; 2) not approve the construction of new steel factory in 47 cities, including Beijing and Shanghai; and 3) encourage industrial consolidation and raise the combined market share of China's top-ten steelmakers to 60% by 2020—to create major players capable of making premium products.

**...and may scrap export tax rebate on boron steel**

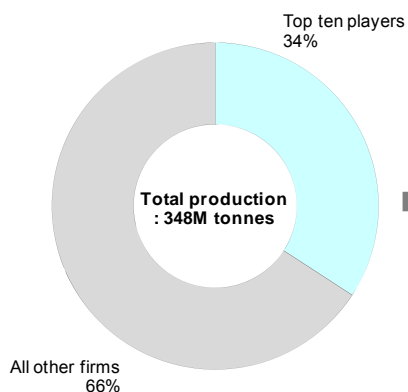
To accelerate the restructuring of its sluggish steel sector, China may scrap the export tax rebate on boron steel. That nation's boron-added HRC and rebar exporters are mainly small-to-medium-sized firms that contribute greatly to pollution and oversupply, with their production and exports both up dramatically since Jun 2009—which is when boron steel became entitled to an export tax rebate of 13%. China has historically been flexible with the related policy, which directly affects global freight volume and steel product prices. We would therefore expect the rebate's scrapping to significantly impact Korea's steel market, as related imports from China should rise by USD60-80/tonne, and thus make Korea's steel products more competitive.

China's regional steel capacity in 2005 and 2012



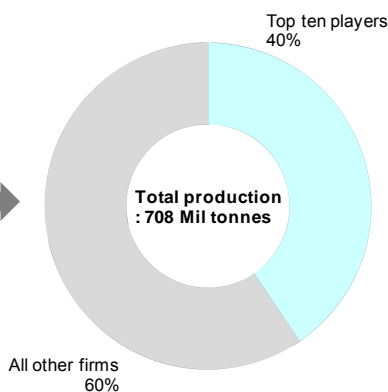
Source: WSA, Bloomberg, Samsung Securities estimates

China's steel production (2005)



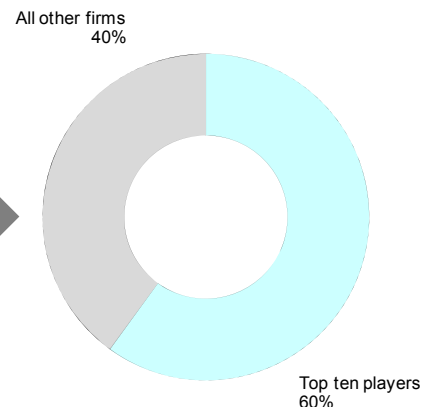
Source: WSA, Bloomberg

China's steel production (2012)



Source: WSA, Bloomberg

China's steel production (2015E)



Source: Mysteel, NDRC

**Restructuring plans for China's steel industry**

Overview	Goal	Detail	Target date
Outline	<ul style="list-style-type: none"> <li>Alleviate oversupply, limit steel exports</li> <li>Address pollution and environmental issues</li> <li>Promote large R&amp;D capable steelmakers</li> </ul>	<ul style="list-style-type: none"> <li>Guidelines for mergers in the Shandong and Hebei regions</li> <li>Support by the Ministry of Industry and Information Technology for energy efficient production and energy saving</li> <li>Iron-ore spot trading system, incentivize participation</li> </ul>	2020
Primary plan	<ul style="list-style-type: none"> <li>Shutter outdated facilities and those with limited capacities</li> <li>Restructure regardless of firm's ownership</li> <li>Develop high-end steel products</li> <li>Designate government-friendly steelmakers</li> </ul>	<ul style="list-style-type: none"> <li>Hebei Group formed in 2008, Pohai Group in 2010</li> <li>M&amp;A activities for 10-15 steelmakers in Hebei region</li> <li>Relocate Baoshan's steelworks from Shanghai</li> <li>Increase high-end steel product portion from 10% to 20%</li> </ul>	2015
Regional	<ul style="list-style-type: none"> <li>Northern: Strong integration</li> <li>Eastern: Shut/relocate outdated capacity</li> <li>Southern: Merge and consolidate in Sichuan region</li> <li>Western: Production aimed at regional development</li> </ul>	<ul style="list-style-type: none"> <li>Northern: Shutter 60 mil tonnes, restructure 15 steelmakers, capacity of 200 mil tonnes</li> <li>Eastern: Integrate and restructure 21 steelmakers down to six</li> <li>Southern: Restructure 90% of capacity at the Panggang and Sichuan groups</li> <li>Western: Expand annual capacity to 32mil tonnes in Xinjiang region</li> </ul>	2020

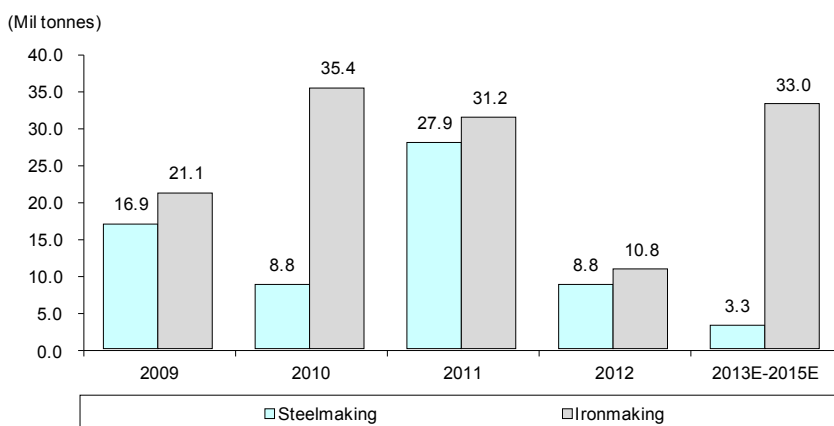
Source: NDRC, MIIT, Mysteel, Steelorbis

**Capacity shutdowns planned over 2009-2015 (China)**

(Mil tonnes)	2009	2010	2011	2012	-2015E
Iron making	21.1	35.4	31.2	10.8	33.0
Steelmaking	16.9	8.8	27.9	8.8	3.3

Source: NDRC, Mysteel

**Capacity shutdowns planned over 2009-2015 (China)**



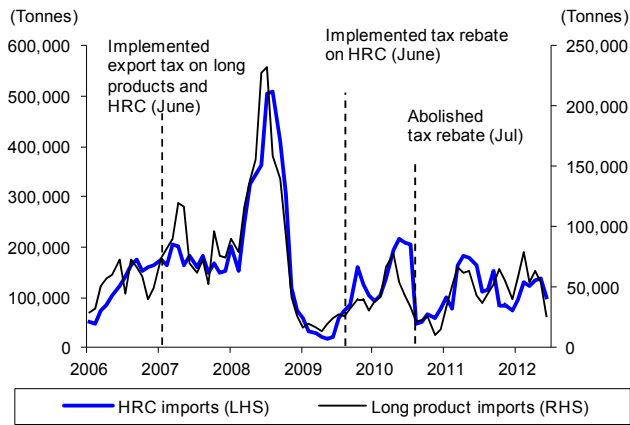
Source: NDRC, Mysteel

**Steel export tax rebate, by product (%)**

Products	Sep 2006-	Apr 2007	Apr 2009-	Jun 2009-	Jul 2010
HRC	8	0	0	9	0
CRC	8	5	13	13	0
Rebar	8	0	0	0	0
Beam	8	0	0	0	0
Boron-added wire rod	8	5	13	9	9
Boron-added rebar	8	5	13	13	13
Boron-added HRC	8	5	13	13	13

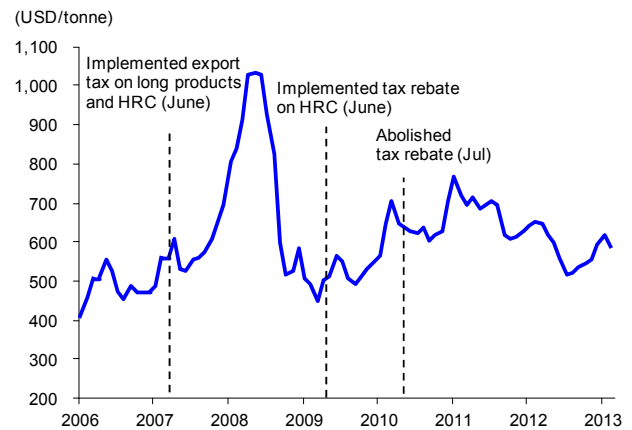
Source: Mysteel, Steeldaily, NDRC

**Korean HRC and long product imports and China's tax rebate policy**



Source: Kosa, Steeldaily

**China HRC export price and tax rebate policy**



Source: Bloomberg, Steeldaily

**Changes to China's tax-rebate policy**

Date	Action	Notes
May 2005	Cancel and reduce tax rebate on most steel products from 13% to 11%	
Sep 2006	Reduce tax rebate on most steel products from 11% to 8%	Excludes rail, specialty steel, and seamless pipes
Nov 2006	Impose export tax of 5-10% on iron ore, coking coal, semi-finished goods, and alloy steel	Export tax on raw materials
Apr 2007	Reduce tax rebate on STS, CR, and coated sheet from 8% to 5%, abolish that on crude steel, beams, rebar, plate, and HR	
Jun 2007	Impose export tax of 5-10% on general steel, long products, plate, and HR	Export tax on finished goods (except wide CR, coated sheets)
Jul 2007	Abolish tax rebate on long specialty steel, STS HR, and narrow CR	
Jan 2008	Raise export tax on general steel long products from 10% to 15% and on iron ore, semi-finished goods, and alloy steel from 15% to 25%	
Aug 2008	Raise export tax on cokes from 25% to 40% and coking coal from 5% to 10%	
Dec 2008	Abolish tax rebate for most steel products, except long (15%) specialty steel and plate from (5%), H beam (10%), and welded pipes (15%)	
Apr 2009	Raise tax rebate on wide CR, coated sheets, and STS from 5% to 13%	Policy changes from limiting exports to promoting them
Jun 2009	Reinstate tax rebate on plate, HR, STS, and narrow CR at 9%	Includes most products except for rebar and wire rod
Jul 2010	Abolish tax rebate on HR, CR, and beams	Except STS, coated sheet, wide CR
Jan 2011	Abolish tax rebate of 9%, including on ferrous scrap	

Source: Steeldaily, Mysteel

**Investment strategy: Gradual reform expected**

**China's steel sector to be restructured gradually through 2015**

We expect China to pursue steel sector restructuring, as its: 1) air pollution is getting worse; and 2) steelmakers have margins that average less than 1%, which makes R&D nearly impossible. The restructuring will likely take place gradually over three years, due to expected impacts on the tax revenue of provincial governments as well as unemployment.

**Higher combined market share of top players would improve price visibility**

If such reforms increase the combined market share (in terms of production) of China's top steelmakers to 60% by 2015, local retail prices should become less volatile while greatly improving the earnings visibility of East Asian steelmakers.

**NEUTRAL on sector, Posco our top pick**

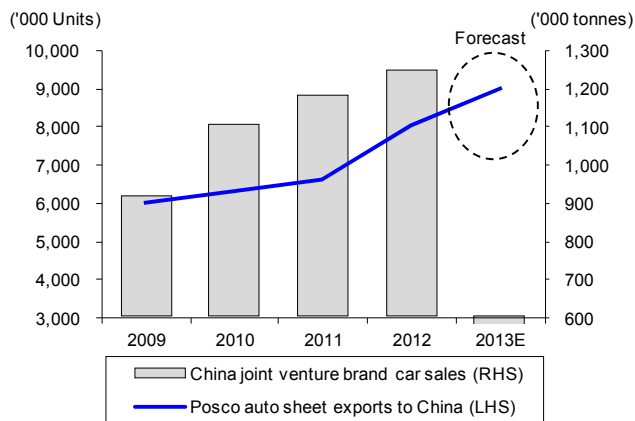
We maintain our NEUTRAL rating on the steel sector and Posco as our top pick at BUY with a 12-month target price of KRW420,000. The ASPs of Korean steelmakers have declined since 4Q12, while China's steel prices have been lower than expected, even after the Lunar New Year, which increases the likelihood downward forecasts revision for 2Q. Posco faces little such risk, however, as: 1) its auto-sheet shipments are on the rise thanks to China's growing auto market and the Nippon Steel-Sumitomo Metal Corporation merger; and 2) its subsidiaries should see margins improve amid group restructuring.

**Valuations and scheduled capacity expansions**

	Posco	Hyundai Steel	Hyundai Hysco	Dongkuk Steel
P/E	10.2	10.0	8.1	nm
P/B	0.6	0.6	1.2	0.2
EV/EBITDA	7.7	8.7	5.0	6.7
Capacity expansions	- Dec 2013, Finex 3 (2 mil tonnes) - Dec 2013, Indonesia (3 mil tonnes)	- Sep 2013, 3rd blast furnace (4 mil tonnes)	- 2013, Dangjin CGL (1.5 mil tonnes)	

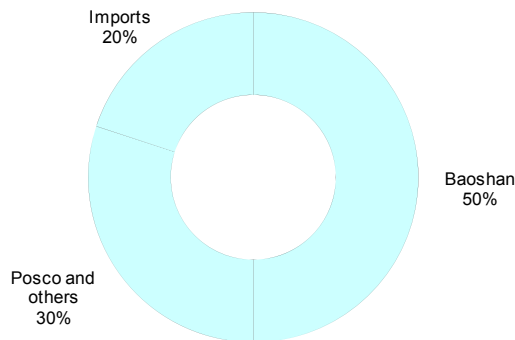
Source: Bloomberg consensus, company data

**Posco's auto-sheet exports to China vs China's auto sales**



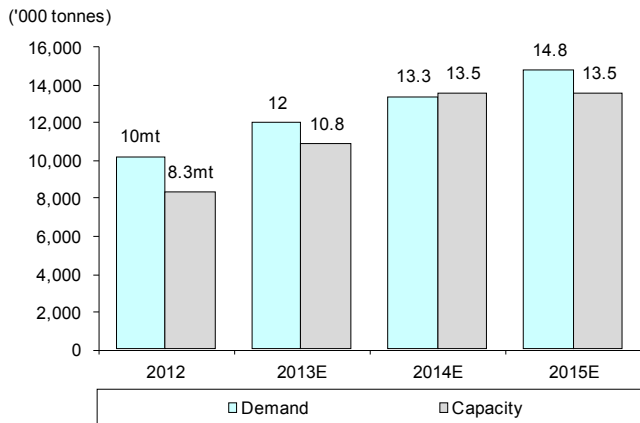
Note: China auto sales include joint-venture brand vehicles only  
Source: Posco, WardsAuto, Samsung Securities estimates

**China's auto-sheet market, by firm**



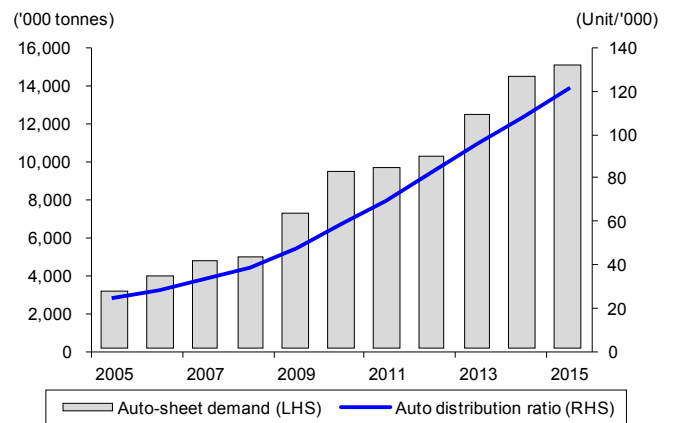
Source: Mysteel, company data

China's auto-sheet capacity and demand



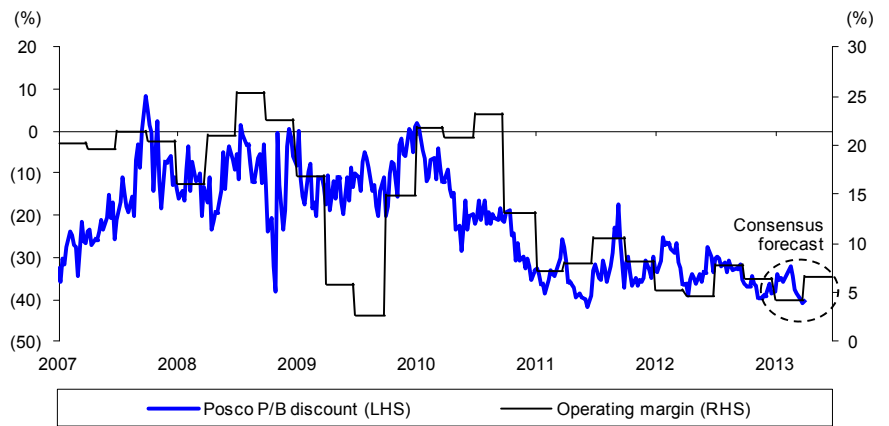
Source: SBB, Japan Metal Bulletin, Samsung Securities estimates

China's auto-sheet demand



Source: CEIC, Samsung Securities estimates

Posco: P/B discount\* vs operating margin



Note: Relative to the Kospi  
Source: Datastream, QuantWise

Sector  
Update

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## ■ AT A GLANCE

**Samsung Heavy Industries**

(010140 KS, KRW30,650)

SELL HOLD BUY **KRW48,000**(+57%)  
Target price

**DSME**

(042660 KS, KRW23,600)

SELL HOLD BUY **KRW35,000**(+48%)  
Target price

**Hyundai Mipo Dockyard**

(010620 KS, KRW106,500)

SELL HOLD BUY **KRW120,000**(+13%)  
Target price

**Hanjin Heavy Industries**

(097230 KS, KRW7,440)

SELL HOLD BUY **KRW9,300**(+25%)  
Target price

## Shipbuilding (OVERWEIGHT)

## Big 3 to ride out China's restructuring

## THE QUICK VIEW

**Commercial vessel segment still important for two reasons:** The commercial vessel segment has become less important of late as the offshore-structure portions of orders at Korea's big three shipbuilders—Samsung Heavy Industries, Daewoo Shipbuilding & Marine Engineering, and Hyundai Heavy Industries—have grown sharply. We, however, see two reasons why a recovery of the segment is key to a structural upturn in the industry. First, to optimize their product mixes, even large shipbuilders need commercial vessel orders (for which the construction period is short). Second, a recovery in the commercial segment should lead to an easing of competition over high-value-added vessels among large shipbuilders—*ie*, high-value-added vessel prices should rebound only when commercial vessel demand bounces back.

**Overcapacity responsible for commercial vessel slump:** Global commercial vessel order placements last year hit just 36.5mGT—the lowest level since 2002 (excluding 2009). Intuitively, a further decline in order quantity is unlikely this year. Intuition aside, vessel demand should improve gradually, led by recoveries in the global economy and ship financing. At issue, however, is massive overcapacity due to Chinese shipbuilders expanding aggressively during boom years. Chinese shipbuilding capacity has jumped 10.6x from its level in 2003 and now accounts for 40% of total global capacity. In our view, an upturn in the commercial segment requires restructuring in China.

**China restructuring needed:** The market has been pessimistic over possible restructuring of the Chinese shipbuilding industry, fearing that the government will support the industry through order placements. Indeed, in 2009 and 2010, China placed a respective 20% and 17% of total global orders with its own shipbuilders. Such order placements are unsustainable, however, as the Chinese shipbuilding industry is: 1) too large for a government bailout; and 2) suffering amid a dearth of new orders, with most being placed for high-end vessels these days. Shipbuilders that fail to win new orders will see their order backlogs depleted. As there are no inventories in the shipbuilding industry, those firms without backlogs cannot sustain employment—a reason for the government not to support them. The portion of orders Chinese ship owners have placed with Chinese shipbuilders has been falling steadily, dipping to 35% of its 2010 level in 2012.

**Korea's big three the best bet:** Restructuring should come in the form of: 1) consolidation of smaller players; and 2) government-led capacity reduction. We expect any restructuring in China to be gradual given that Chinese shipbuilders are owned by a variety of entities and China's top ten players (based on order backlog) account for just 30% of its shipbuilding volume vs Korea's 94%. In sum, Chinese shipbuilders that see their entire order backlogs depleted will likely be forced out of the market at a painstaking pace. During a prolonged period of restructuring, marginal players will likely pursue a strategy of bidding very low. Thus, we prefer Korea's large shipbuilders, which are heavily exposed to high-value-added vessels and can avoid taking low-priced orders. Such firms have achieved top-line growth through product-mix improvement—despite a delay in vessel prices rebounding—and should benefit most from an industry upturn. We like Samsung Heavy Industries and DSME.



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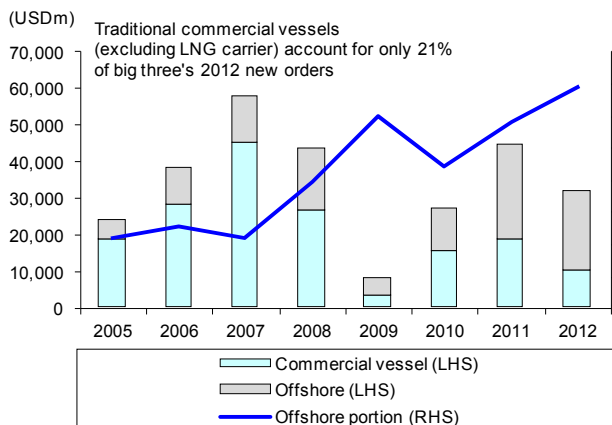
## VII. Shipbuilding

### Commercial vessel segment still important for two reasons

As new orders at Korea's major shipbuilders have been concentrated in the offshore-structure and high-value-added vessel segments, investors are beginning to ascribe less importance to commercial vessels. Indeed, the commercial vessel portion of new orders at Korea's big three shipbuilders—Samsung Heavy Industries, Daewoo Shipbuilding & Marine Engineering, and Hyundai Heavy Industries—fell from 56% in 2010 to 42% in 2011 to 31% in 2012—or 48%, 24%, and 21% if only counting containerships, bulk carriers, and oil tankers (*ie*, excluding LNG carriers, which are high-value-added commercial vessels). In terms of order backlogs, the commercial vessel portion fell from 58% to 49% and 39% over the same three years. Assuming shipbuilders' sales mirror their order backlogs over the long term, the commercial vessel portion of total sales should decline down the road.

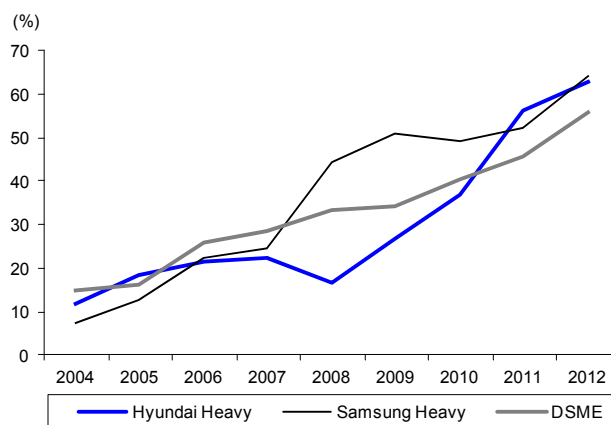
All that said, the segment remains important to Korea's big three players and is instrumental in predicting the shipbuilding industry's overall outlook for two reasons. First, even the big three need commercial vessel orders to create an optimum product mix. Second, a rebound in offshore-structure prices requires an upturn in the commercial vessel segment, as it would ease competition among the big three in the offshore segment.

Big three: New order trends



Note: LNG carriers classified as commercial vessels  
Source: Clarksons

Big three: Offshore portion of order book



Source: Clarksons

**Commercial vessel orders necessary for effective use of facilities:** One key characteristic of the shipbuilding industry is that both high- and low-value-added vessels are constructed at the same facilities. Shipbuilders can maximize sales when they use their facilities (eg, docks and quays) to their fullest potential. One critical issue is that construction periods vary greatly depending on the type of vessel being built. Building high-value-added vessels takes longer—as does outfitting work done on such vessels. Thus, if a shipbuilder were to take orders only for high-value-added vessels (eg, drillships), it would face a bottleneck in outfitting work while leaving its docks idle. Accordingly, to maximize use of its facilities, a shipbuilder should include commercial vessels in its product mix.

#### Construction period by ship type

(Months)	Design	Assembly	Dock	Quay	Total
Bulk carrier	8	3	2	2	15
Tanker	9	4	2	3	18
Large containership	11	5	3	3	21
LNG carrier	12	6	2	9	28
Drillship	12	6	2	10	29

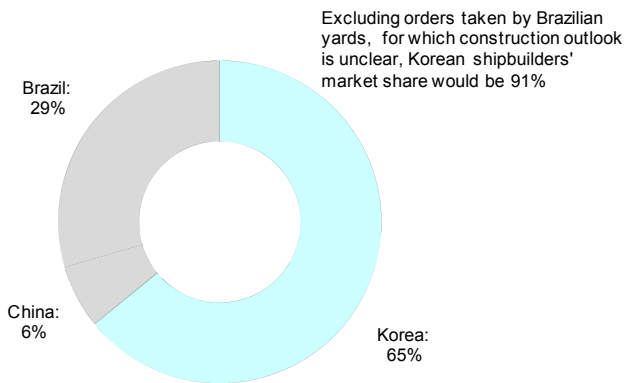
Source: Industry source, Samsung Securities estimates

Human resource allocation is also important. No matter how skilled they are, commercial-vessel workers cannot simply switch to working on offshore structures. For maximum productivity, those employees need time to retrain. (Thus a sharp increase in offshore sales over a short period is impossible, even at Korea's big three players.) In sum, it takes time to retrain employees, and during that time the shipbuilder must continue to build commercial vessels.

**Commercial vessel prices must rise for offshore-structure prices to rebound:** The offshore-structure and high-value-added vessel segments, where Korean players are faring well, have high entry barriers. Korean firms account for 65% of the global drillship order backlog and 78% of the global LNG carrier order backlog. Excluding an order taken by a Brazilian yard—for which the construction outlook is unclear—Korean players' share of the global drillship market stands at 91%—exceedingly high by comparison with Korean handset makers, which control just 35% of the global smartphone market despite smartphones being one of Korea's biggest export items. We attribute the dominance of Korean shipbuilders to the fact that very few firms have the technological knowhow or track record to construct offshore structures and high-value-added vessels.

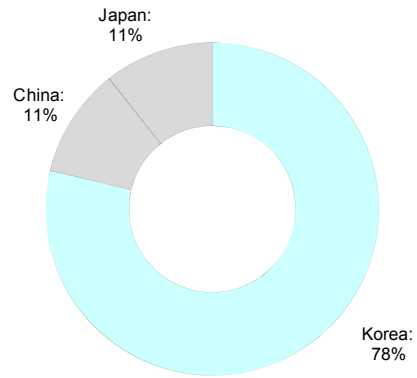
All the same, despite high entry barriers, prices for offshore structures and high-value-added vessels have edged down, with prices for drillships and LNG carriers falling 17.8% and 5.7%, respectively, over the past four years. We attribute this to intensifying competition in the commercial vessel segment. If there is enough demand in the commercial vessel segment, a shipbuilder that fails to win offshore project orders can offset the loss. It can also create demand in the commercial vessel segment by lowering prices thanks to the existence of the commercial vessel spot market. However, when demand for commercial vessels is low, the shipbuilder's order backlog will plunge if it fails to win large offshore project orders. Currently, even Korea's big three do not have enough backlogged orders that they can be selective in taking orders. Moreover, as commercial vessel resources are increasingly transferred to the offshore segment amid a commercial vessel slump, competition over offshore orders is getting fiercer. In sum, offshore-structure prices should rise only when competition among Korea's big three falls—and that likely depends on an upturn in the commercial vessel segment.

**Korean firms' share of drillship market**



Note: Based on number of vessels and current global order book  
Source: Clarksons

**Korean firms' share of LNGC market**



Note: Based on number of vessels and current global order book  
Source: Clarksons

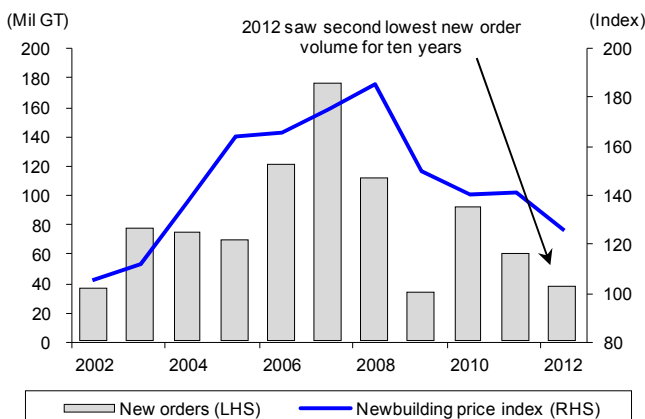
**Overcapacity responsible for commercial vessel slump**

Predicting how things will unfold in the commercial vessel market requires consideration of vessel supply-demand dynamics and shipbuilders' construction capacity. The former determines the quantity of orders placed globally, while the latter determines vessel prices (*ie*, the quality of the orders). A full-blown industry recovery requires rebounds in both order quantity and quality. While there have been signs of order quantity improving, overcapacity in China will likely hinder a structural recovery of the commercial vessel market.

**Demand side—Order placements to rebound for two reasons:** Global order placements last year came in at just 36.5m GT—the lowest level since 2002 (excluding 2009) and equal to a meager 20.7% of the 2007 level. Intuitively, a further decline in order quantity is unlikely. Intuition aside, order placements are highly likely to rise this year given that the global economic outlook is improving, order backlogs are falling, and ship financing appears likely to improve.

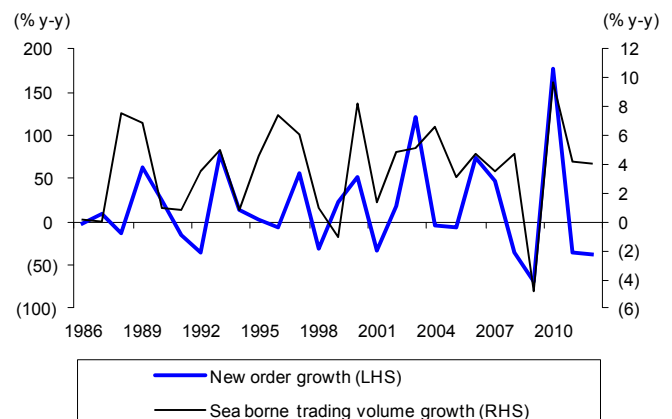
Vessel demand ebbs and flows in line with trading volume, which, in turn, is affected by economic growth. The economic outlook thus plays a key role in ship owners' decisions to purchase vessels. Improving 2014 outlooks for the European and global economies should lead to a rise in vessel orders placed. High oil prices are also positive for order placement, as: 1) vessels are a commodity; and 2) demand for highly fuel-efficient vessels is on the rise. Furthermore, a prolonged low interest-rate environment should encourage ship owners to purchase vessels, which are, after all, assets.

**Global new shipbuilding orders vs price**



Source: Clarksons

**Global new order growth vs sea-borne trade volume growth**

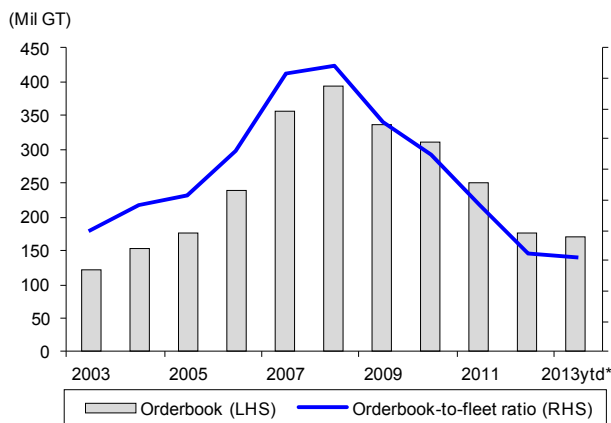


Source: Clarksons

Global economic recovery comes hand in hand with financial market recovery, and the latter is positive for ship financing. What 2009 and 2012 (years when order placements hit their lowest) have in common is that each was preceded by a financial crisis. We note that global order placements jumped 2.8x in 2010 thanks to demand deferred from 2009. That financial institutions in Korea, China, and Japan—key shipbuilding countries—are expanding ship financing of late is another clear positive.

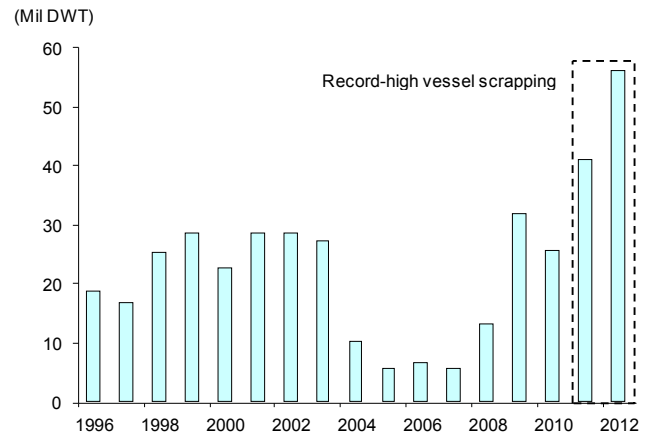
Vessel supply-demand dynamics have also improved significantly thanks to order backlogs falling. The global order backlog currently stands at 169m GT—the lowest level since 2003. A low backlog portends a decline in vessel supply. We note that the global order backlog for vessels stood at a record high in 2008, 2.3x higher than it currently is and equivalent to 47% of the global fleet. The current order backlog is equivalent to a mere 15% of the global fleet, significantly easing the oversupply burden on the part of ship owners. Fleet growth is also subdued due to order cancellations and record-high vessel scrapping during the bust years (2009-2010).

Global order book trends



Source: Clarksons

Global vessel scrapping trends

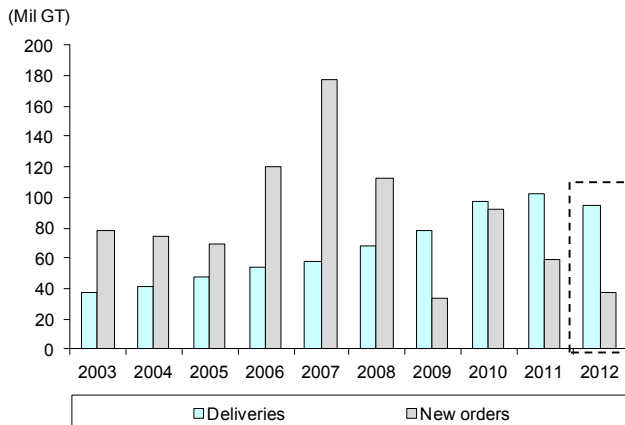


Source: Clarksons

**Overcapacity the biggest hurdle to industry recovery:** The last hurdle to a shipbuilding industry recovery is overcapacity. If supply exceeds demand, a rebound in vessel prices is impossible, even when demand rebounds. Overcapacity is a key cause for increased competition and a decline in vessel prices, with the latter hurting not only profitability but also top-line growth. Some financially strained shipbuilders are currently taking orders at prices that will lead to losses, as the nature of the industry makes access to advance payments critical.

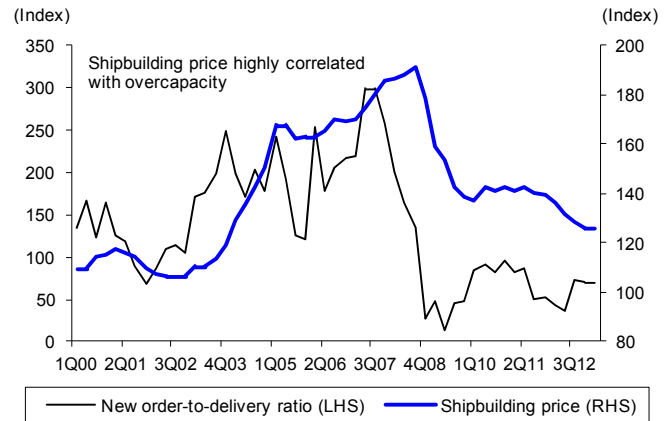
While we estimate global supply capacity at 100m GT, global order placements in 2012 stood at just 37m GT. In our view, the current state of overcapacity cannot be resolved by demand growth alone, as order placements exceeded 100m GT only over 2006-2008, when the industry was in a super cycle. In sum, we believe a recovery in demand requires supply-side restructuring.

**Global new orders vs deliveries**



Source: Clarksons

**Shipbuilding prices vs order-to-delivery ratio\***



Note: \* [New orders/deliveries x 100]; a lower ratio implies greater burden from overcapacity  
Source: Clarksons

**Outlook for restructuring in China**

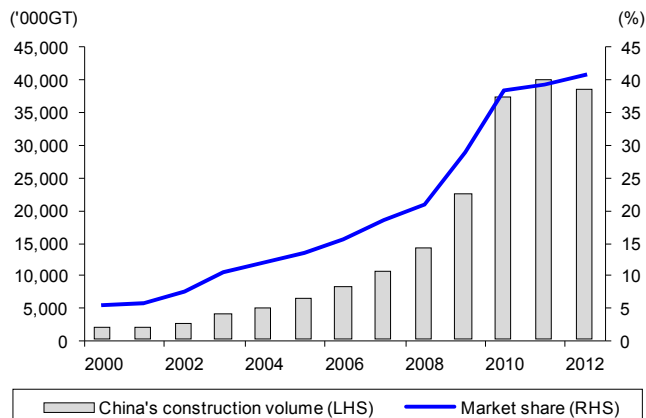
Industry overcapacity is the result of facility expansions during the 2003-2008 boom years. Global capacity now stands at 2.8x the 2003 level and 1.9x the 2006 level, and the key cause of overcapacity is aggressive Chinese facility expansions. China's vessel deliveries have jumped 10.6x and 4.9x from their 2003 and 2006 levels, respectively. In our view, resolving the problem requires restructuring of the Chinese shipbuilding industry. Market participants, however, are pessimistic on that front, noting that: 1) the Chinese government is supporting the industry; and 2) China has yet to succeed in restructuring any of its industries.

**Government strategy change:** When shipbuilding demand plunged after 2008, the Chinese government forced Chinese ship owners to place massive orders with Chinese shipbuilders. Such orders accounted for 20% and 17% of global order placements in 2009 and 2010, respectively.

In January, the Chinese government announced a plan to restructure nine key industries (including shipbuilding) by 2015. The centerpiece of the plan includes nurturing five shipbuilders into global top-ten players, and boosting the top ten firms' combined share of the Chinese market to more than 70%—signs that the government will focus its support on market leaders.

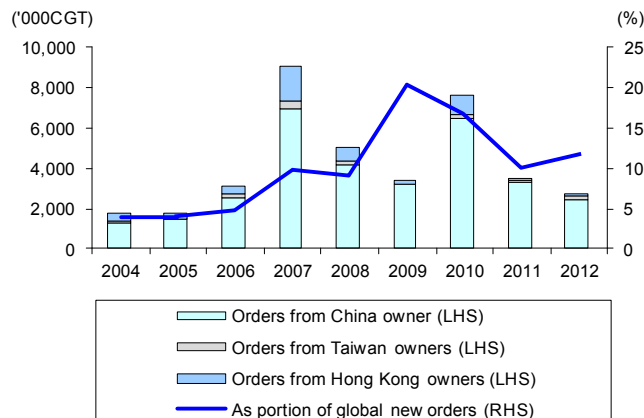
We believe restructuring of China's shipbuilding sector is inevitable given that the industry is too big and has been in a prolonged slump. China accounts for an enormous 41% of global vessel construction capacity—a level no single government can support over the long term. Chinese ship owners' order placements with Chinese shipbuilders hit 7.6m CGT in 2010, but have since declined, reaching just 2.7m CGT in 2012—or 35% of the 2010 level.

**Chinese shipbuilders: Vessel construction volume**



Source: Clarksons

**Chinese shipbuilders: Orders placed by Chinese ship owners**



Source: Clarksons, Samsung Securities estimates

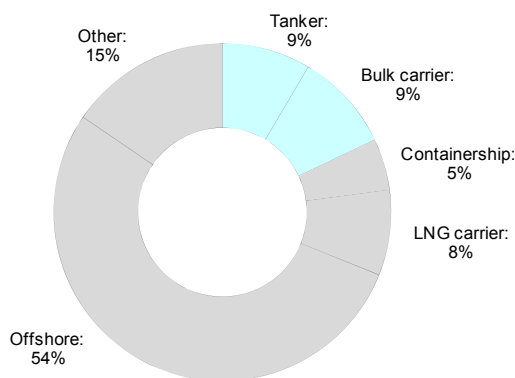
We believe recent concentration of new orders in the high-value-added segment has the potential to trigger a change in the government's stance of supporting the industry. As stated above, traditional commercial vessels include oil tankers, bulk carriers, and containerships, and the entry barriers to building such vessels are low compared to those for building LNG carriers and offshore structures. Excluding containerships, for which construction has increasingly been focused on larger vessels that are difficult to build, truly low-value-added vessels have been just oil tankers and bulk carriers over the past three to four years. Of global order placements, the oil-tanker and bulk-carrier portions are steadily falling, and over the past two to three years, new vessel orders have concentrated on LNG carriers and offshore structures. Amid falling orders, Korean players have seen their share of the market rise. Although the Chinese government wants vessel orders to be placed with Chinese shipbuilders, such firms cannot handle high-value-added orders.

**Order book breakdown, by ship type**

(USD\$b)	Korea	Japan	China
Tanker	12.1	2.4	9.5
Bulk carrier	4.3	22.0	26.9
Containership	22.1	0.7	11.8
LNGC	13.5	1.6	1.7
Offshore	46.9	1.6	16.5
Other	4.8	2.6	6.3
<b>Total</b>	<b>103.7</b>	<b>30.9</b>	<b>72.7</b>
<b>Portion (%)</b>			
Tanker	11.7	7.8	13.1
Bulk carrier	4.1	71.2	37.0
Containership	21.3	2.3	16.2
LNGC	13.0	5.2	2.3
Offshore	45.2	5.2	22.7
Other	4.6	8.4	8.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Note: Based on end-February  
Source: Clarksons

**2012 global new order breakdown, by ship type**



Source: Clarksons

**Industry nature calls for restructuring:** Chinese overcapacity is not confined to the shipbuilding industry. The country's steel and auto industries also need to restructure, though attempts to do so have thus far failed. That, however, does not condemn restructuring of the Chinese shipbuilding industry to failure. Rather, industry-specific employment conditions should make the difference.

The biggest reason governments support certain industries is to create or sustain jobs. In terms of employment, however, the shipbuilding industry differs from other manufacturing industries in two regards. First, vessels are custom-built; there are no inventories in the industry. When a firm's order backlog is depleted, it cannot sustain employment. Chinese shipbuilders currently have a combined order backlog of 66m GT—equivalent to 1.7x annual capacity and less than 1.5 years' worth of work. According to Japanese magazine *Marine Net*, order backlogs at some medium-to-large Chinese shipbuilders have already fallen below 1.5 years' worth of work. While governments can provide manufacturing financing, they cannot bridge an order shortfall.

Second, human skill is more important than facilities—*ie*, shipbuilding competitiveness is rooted in human experience and knowhow, not facilities, as the mechanization and automation of some tasks is impossible. Even top-tier players lose competitiveness when they stop building certain vessel types for more than four years. When skilled workers leave a firm after its order backlog has been completely depleted, that firm will struggle to win new orders even if it has the facilities. According to Chinese mass media reports, a growing number of medium-to-large shipbuilders in China have failed to pay wages for more than four months.

In short, there is no way to prevent shipbuilders lacking order backlogs from exiting the market, as the government can go only do so much to offset a shortfall in orders. As we stated above, China accounts for an enormous 41% of global shipbuilding capacity—a level no single government can support over the long term.

**Restructuring to be painful; focus on large players**

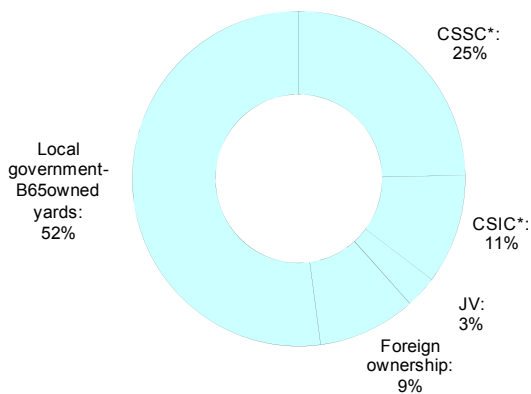
China's shipbuilding sector is ripe for restructuring. The process, however, will likely prove painful as shipbuilders run out order backlogs and bid at low prices. Restructuring may also unfold more slowly than some expect, as the market is crowded by shipbuilders owned by various entities. If it takes time for capacity to decrease, large shipbuilders would make the best investments. Even amid severe industry weakness, Korea's major players have sustained order inflows at boom levels thanks to their strength in offshore structures, which have high entry barriers. Such firms have also enjoyed top-line growth—despite no price increases—by improving product mixes, and they stand to benefit from a recovery in the commercial vessel market, which would likely trigger steeper rises in higher-value-added vessel prices.

**Natural selection to drive China restructuring:** Restructuring of Japan's shipbuilding sector was government-led. In the first round of restructuring in the 1970s, the government prodded the sector to cut working hours and dock facilities. During that period, the number of shipbuilding docks plunged from 138 to 73. In the second round of restructuring, 22 shipbuilding groups consolidated around 7 players. Major players were encouraged to engage in M&A activity, while smaller players with single docks were forced out of the market. Korean shipbuilding-sector restructuring differed little. In 1989, the government restricted capacity expansions and encouraged M&As with smaller players. Daewoo Shipbuilding & Marine Engineering consolidated with affiliates, while Halla Heavy Industries (currently Hyundai Samho Heavy Industries) and Hanjin Heavy Industries merged with Incheon Shipbuilding and Daehan Shipbuilding, respectively.

We expect the Chinese government to pursue a similar path, forcing out marginal players to cut capacity and encouraging sector consolidation. Such restructuring, however, will likely take quite a while to complete given the sheer number of shipbuilders and variety of their owners. China currently has 157 shipbuilders with commercial vessel order backlogs. Moreover, its top ten players (based on order backlog) accounted for just 30% of its shipbuilding volume in 2012 vs Korea's 94%.

As Chinese shipbuilders are owned by a variety of entities ranging from central and provincial governments to joint ventures and foreign firms, the restructuring process will likely be hindered by conflicts of interest, which in turn will hamper government efforts to control shipbuilders' consolidation and capacity-adjustment decisions. Ultimately, restructuring will likely be driven by natural selection as order backlogs are depleted. Despite the urgency, restructuring in China will likely happen more slowly than the market expects.

**China: Combined order book, by shipbuilder ownership**



Note: Based on end-March  
 \* Shipbuilding group controlled by main government  
 Source: Clarksons

**Market share of top 10 shipbuilders: Korea vs China (2012)**

('000CGT)		Korea		China	
Rank*	Shipbuilder	Delivered volume	Shipbuilder	Delivered volume	
1	Samsung Heavy	2,419	Jiangsu Rongsheng	577	
2	DSME	2,497	STX Dalian	830	
3	Hyundai Heavy (Ulsan)	2,487	Dalian Shipbuilding	1,010	
4	STX O&S (Jinhae)	1,034	Hudong Zhonghua	423	
5	Hyundai Mipo	1,295	Jiangsu New YZJ	596	
6	Hyundai Samho	1,527	Shanghai Waigaoqiao	695	
7	Sungdong	720	Jiangnan Changxing	542	
8	SPP (Sacheon)	305	Jinhai Heavy	535	
9	SPP (Gosung)	118	Shanghai Shipyard	303	
10	Hyundai Heavy (Gunsan)	381	Zhejiang Yangfan	301	
Total		12,783		5,812	
<b>Portion of nation's total delivery volume (%)</b>		<b>94</b>		<b>30</b>	

Note: \* Based on order book  
 Source: Clarksons



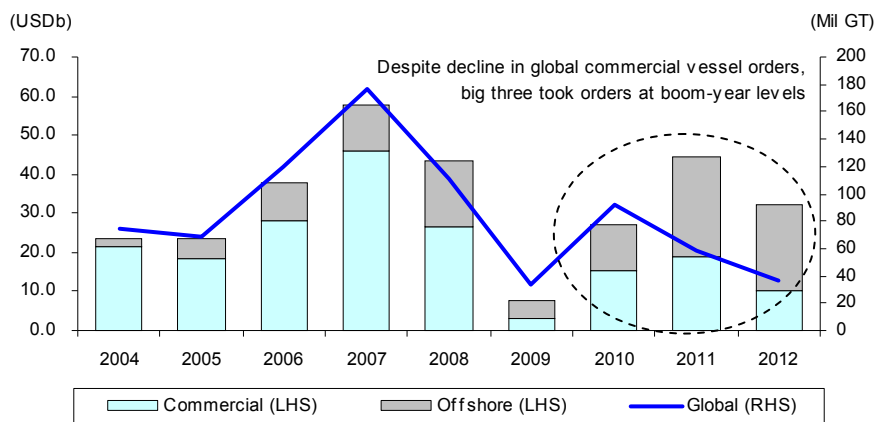
**Invest in large shipbuilders:** If restructuring in China proves more painful and lengthy than expected, investors should focus on Korean shipbuilders that can avoid competing with Chinese firms. We like Korea's big three shipbuilders, which are capable of constructing offshore structures and high-value-added vessels. Even amid a dearth of orders worldwide over the past three years, the big three have enjoyed boom-level order inflows and have achieved top-line growth despite shipbuilding prices dropping to all-time lows, by improving product mix.

Korea's big three shipbuilders should manage to sustain their shares of the high-value-added vessel and energy facilities markets for the time being, as track record is the foremost consideration among those placing orders; where technology can be bought or licensed for a fee, track records are not for sale. Unlike commercial vessels, for which there is a spot market, offshore structures have a predetermined use. Clients are therefore sensitive about timely delivery. The Deepwater Horizon oil spill, which heightened awareness of safety practices, made track records all the more important. Hence, clients, mostly oil giants flush with cash, ascribe greater significance to proven track records than to attractively-priced bids.

Such conservativeness on the part of clients is evidenced by the fact that only one Chinese shipbuilder has a track record in LNG carriers (which are actually classified as commercial vessels). Another case in point is the Egina Oil FPSO project, which we believe SHI will soon win. A Chinese Dalian Shipbuilding-led consortium—which included a subsidiary of the China National Offshore Oil Corporation (CNOOC)—participated in the bid, but dropped out of the race despite aggressive support from the CNOOC. Clients are reluctant to place orders with inexperienced shipbuilders for expensive vessels meant to last 30 years. Among numerous industries where Chinese firms are playing catch-up, shipbuilding appears to be the sector where Korean firms enjoy the widest lead over their Chinese rivals.

Even if the commercial vessel market recovers quickly (counter to our assumptions), large shipbuilders would still be the best investment choice. Such firms strategically chose to lower exposure to commercial vessels, and they can increase their exposure whenever they decide to do so. Moreover, in the event of a recovery of the commercial market, prices for higher-valued-added vessels would likely rise more steeply. If Korea's big players partially fill their order books with commercial vessels, they have little reason to compete as fiercely for high-value-added vessels. Thus, irrespective of the timing of a recovery of the commercial vessel market, we believe Korea's large shipbuilders are the safest investment.

**New orders at big three vs global commercial vessel orders**



Source: Company data, Clarksons

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