2013 Bond market outlook

Bond yields set to rise in 2013
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I. [Summary] Economy is set to show a cyclical rebound

The economy faces structural headwinds but is set to show a cyclical recovery in 2013.

Trending down KTB yields along with downward shift in GDP

Cyclical upturn in 2013, not a complete recovery

Source: BoK, KOFIA, KDB Daewoo Securities Research
I. [Summary] Cyclical recovery to weigh on bond prices

In 2013, bond yields are set to rise as the economy is expected to show a cyclical recovery against the gravity of structural factors.

<table>
<thead>
<tr>
<th>Structural factors</th>
<th>Cyclical factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustained low growth</td>
<td>Growth to bottom and pick up in 2013</td>
</tr>
<tr>
<td>Overcapacity &amp; subdued investment</td>
<td>Private sector-driven US recovery</td>
</tr>
<tr>
<td>Europe-led deleveraging</td>
<td>Systemic risks from Europe to ease</td>
</tr>
<tr>
<td>Global monetary easing</td>
<td>China to bounce back</td>
</tr>
<tr>
<td>Trade imbalances</td>
<td>US-China political risks to subside</td>
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<td></td>
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<tr>
<td>Internal</td>
<td>Domestic economy and exports to bottom out</td>
</tr>
<tr>
<td>Global growth uncertainties</td>
<td>New governments &amp; fiscal easing</td>
</tr>
<tr>
<td>Real estate &amp; household debt risks</td>
<td>Improved business confidence</td>
</tr>
<tr>
<td>Domestic demand stimulus</td>
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</table>

Source: KDB Daewoo Securities Research
II. Still living in an era of stall speed

In the era of stall speed, low interest rates prevail

- Growth has been anemic since the 2008 global crisis
- Growth risks have pushed interest rates to historic lows
- Recovery much slower this time than in past recessions
- A secular rise in bond yields occurs when the economy grows

Historically, in the US, robust growth underpinned by investment caused sustained uptrends in bond yields during 1950~1980

- Inflation and higher interest costs are not problems for an economy underpinned by an investment upturn
- The US investment down cycle that began in 1980 coincided with a secular downtrend in both growth and interest rates

US recovery much slower than in the past

<table>
<thead>
<tr>
<th>Year</th>
<th>US real GDP growth (2Y average after the end of each recession)</th>
<th>Average growth of past 8 recoveries from recessions</th>
<th>Average growth since 2008 financial crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1882</td>
<td>4.5</td>
<td>6.0</td>
<td>4.0</td>
</tr>
<tr>
<td>1883</td>
<td>4.5</td>
<td>6.0</td>
<td>4.0</td>
</tr>
<tr>
<td>1907</td>
<td>8.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>1913</td>
<td>8.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>1929</td>
<td>10.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>1973</td>
<td>10.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>1981</td>
<td>10.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>1990</td>
<td>10.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Apparent slowdown in economic recovery

US fixed investment growth (5Y average)

Increasing investments caused a high-yield environment in the US

Source: John B Taylor

Source: US BEA, Bloomberg

2013 Bond market outlook
II. Still living in an era of stall speed

Investment is the driver of growth; innovation adds fuel

GDP growth and investment's contribution to growth in DM

![Graph showing GDP growth and investment-to-GDP ratio in advanced economies.](image1)

IMF forecasts investment in advanced economies should rise to catch up with growth.

Source: IMF

GDP growth and investment's contribution to growth in EM

![Graph showing GDP growth and investment-to-GDP ratio in emerging economies.](image2)

Higher ratio explains why emerging nations are seeing more solid growth momentum than advanced nations.

Source: IMF

Lack of investment momentum pushed Japan into a low-rate era

![Graph showing Japan's investment as a % of GDP and 10Y JGB yield.](image3)

As investment cycle collapsed, momentum of economic recovery weakened.

Source: IMF

Can Korea find a new growth driver?

![Graph showing Korea's investment as a % of GDP and Korea 3Y corporate bond yield.](image4)

Source: IMF
II. Still living in an era of stall speed

Debt crisis is still far from over

- The 2008 global crisis was a debt crisis that transferred the burden of debt from the private sector to the government
- Private sector deleveraging is nearing an end in the US, but is still in its early stages in Europe
- Emerging markets, including China, also face debt challenges; Korea’s household debt problem is worsening

Trajectory of the debt crisis: Deleveraging still remains a risk in the US public sector and has only just begun in Europe

<table>
<thead>
<tr>
<th>Time line</th>
<th>US</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to crisis</td>
<td>10yrs</td>
<td>10yrs</td>
</tr>
<tr>
<td>Real GDP growth</td>
<td>3%</td>
<td>-3%</td>
</tr>
<tr>
<td>Change in debt/GDP ratio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private sector</td>
<td>60%p</td>
<td>8%p</td>
</tr>
<tr>
<td>Public sector</td>
<td>3%p</td>
<td>15%p</td>
</tr>
<tr>
<td>Economic recovery,</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Public sector deleveraging</td>
<td>-26%p</td>
<td>21%p</td>
</tr>
<tr>
<td>~10yrs</td>
<td>3%</td>
<td>-30%p</td>
</tr>
</tbody>
</table>

Source: McKinsey Institute, KDB Daewoo Securities Research
II. Still living in an era of stall speed

Private sector deleveraging in the US may almost be over, but public debt deleveraging has just started

- Over-indebtedness is the biggest obstacle to recovery
- Private sector deleveraging has yet to start in Europe
- Growth and debt are highly correlated; the speed of deleveraging hinges on the speed of growth recovery

- Global growth to be led by the relatively resilient US and Asian economies
- Still, US fiscal debt remains a risk
- Even if private sector deleveraging is over, fiscal consolidation could keep growth from returning to trend levels

Still more room for private deleveraging, particularly in Europe

No quick fix for government debt in advanced nations

Notes: Continuation assumes our baseline growth; Completion assumes a 0.75% p upside to our baseline; and Expansion assumes a 1.5% p downside to our baseline
Source: KDB Daewoo Securities Research

Source: IMF
II. Still living in an era of stall speed

Globalization faces headwinds; Demand is shrinking

- Trade imbalances have decreased, but this is only due to the global economic slowdown
- Global financial crisis has dented demand in the developed world and exports of emerging economies
- Amid strengthening protectionism, emerging economies are under currency appreciation pressure
- As a result, global trading volume has contracted
- If trading volume shrinks amid intensifying trade disputes, the global economy should remain sluggish
- Trade imbalances and disputes should be resolved to drive global growth again

Improvement in trade imbalances due to global economic slowdown

Contraction in global trading volume

Source: IMF

Recovery in world trade volume is critical, but also susceptible to global imbalance

Source: IMF, CPB
II. Still living in an era of stall speed

Continued monetary easing indicates policymakers have little faith in the economy

- Global monetary easing: quantitative easing in advanced economies and rate cuts in emerging economies
- The Fed’s QE3 and the ECB’s OMT suggest an unfavorable economic outlook for 2013
- Global interest rates continued to fall amid asset growth at central banks of advanced nations
- Emerging economies cut benchmark rates to boost consumption
- Average real benchmark rate for major emerging countries is 2.75%p lower than the pre-crisis level
- Global monetary easing should continue until the economy stabilizes

Continue quantitative easing efforts by DM

Interest rates cuts in EM aimed at boosting consumption

Note: Major countries’ central banks include the Fed, ECB, BoJ, and BoE
Source: Fed, ECB, BoE, BoJ, JPMorgan

Source: IMF
III. Economy in a cyclical upturn

Even the “new normal” economy has its own cycle

- The era of stall speed (the “new normal”) has not ended yet
- In 2012, the economy will likely end up being much weaker than expected
- The global economy is forecast to improve in 2013, driven by the US and China

- However, market prices are unlikely to rebound substantially in 2013 as economic growth is expected to be lower than the 2011 level
- Bond yields are expected to rise in line with an economic rebound

Global economy to improve steadily in 2013

There are signs of the economy bottoming out

Source: IMF

Source: ISM, National Bureau of Statistics of China
III. Economy in a cyclical upturn

The US economy appears to be on a path to recovery

- US economic outlook is looking increasingly positive
- Private sector (households in particular) deleveraging appears to be nearing completion, raising expectations that the sector will drive economic growth going forward
- Household deleveraging is also important for housing market stabilization

- The bottoming of housing prices in 2012 is boosting confidence in a recovery of the US economy
- Once the US successfully overcomes fiscal cliff risks, economic recovery is anticipated to pick up speed
- Households' interest burden is at its lowest level since 1990. If income growth accelerates in line with asset market stabilization, the economy's dependence on the government should decrease further

Household deleveraging is nearing an end

<table>
<thead>
<tr>
<th>Year</th>
<th>US HH deleveraging enters into the final stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Long-term trend of household debt as a % GDP</td>
</tr>
</tbody>
</table>

Major US economic indicators are on the uptrend

<table>
<thead>
<tr>
<th>Year</th>
<th>US consumer confidence (L)</th>
<th>US retail auto sales (L)</th>
<th>US housing prices (L)</th>
<th>S&amp;P 500 (L)</th>
<th>US nonfarm payrolls (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>29</td>
<td>60</td>
<td>74</td>
<td>81</td>
<td>83</td>
</tr>
<tr>
<td>2009</td>
<td>94</td>
<td>83</td>
<td>83</td>
<td>97</td>
<td>83</td>
</tr>
<tr>
<td>2010</td>
<td>92</td>
<td>97</td>
<td>97</td>
<td>84</td>
<td>84</td>
</tr>
</tbody>
</table>

With a rebound of US housing market data, other major economic data are expected to pick up even more strongly

Source: US FRB

III. Economy in a cyclical upturn

Systemic risks should ease in Europe despite the grim economic outlook

- Europe was at the center of global financial troubles in 2012 due to high uncertainties in Greece and Spain
- The euro-zone economic outlook remains bleak as long as the region is pressured to meet rigorous austerity targets
- However, policy efforts have reduced private sector risks significantly

Exposure to PIIGS countries

Systemic risk-related indicators improved significantly

- Financial indicators have returned to pre-crisis levels
- Efforts to clear up uncertainties, including Spain’s bailout issue, the possibility of a Grexit, and German elections, should continue
- If the euro-zone risk remains well capped, global risk premium should decrease going forward

Source: BIS, EFSF, ECB

Source: Bloomberg
III. Economy in a cyclical upturn

Concerns about China’s hard landing have eased

- China played a major role in yanking the global economy from the global financial crisis
- But economic growth should slow to the mid-7% level in 2012
- China refrains from aggressive stimuli due to, the property market bubble, the banking sector bubble, and high local government debts
- New leadership is unlikely to shift policy priority back to growth

China's GDP growth to rebound after bottoming in 3Q12

- China's economy should bottom out thanks to a pickup in the US economy and the easing of the euro-zone debt crisis. China's economy should improve after bottoming at 7.4% in 3Q12
- Major economic data, including exports, liquidity, and investments, have turned up, mitigating concerns about a hard landing of the economy
- We forecast China's GDP to grow 8% in 2013

China's major economic data turned up, easing hard landing concerns

In order to guide world’s second-largest economy to a soft landing, the Chinese gov’t is likely to maintain its investment and liquidity control measures until exports recover.
III. Economy in a cyclical upturn

Emerging economies should seek to boost domestic consumption via low interest rates and currency appreciation

- Emerging economies are vulnerable to economic slowdowns in developed economies
- Emerging economies are relatively stable given their fiscal prudence and ample room for monetary policy (i.e., interest rate cuts)
- Lingering uncertainties about developed economies are prompting emerging economies to bolster their domestic consumption

Currencies and interest rate trends of EM and EM Asia

- Among emerging economies, ASEAN countries boast remarkably sound fiscal and external debt positions, high population growth, and stable domestic consumption
- After a weak performance in 2011, ASEAN countries are expected to post robust growth in 2012 despite the global slowdown. In 2013, they are likely to lead economic growth in emerging economies

ASEAN stands out among EM economies

- Emerging economies should seek to boost domestic consumption via low interest rates and currency appreciation
III. Economy in a cyclical upturn

Concerns about inflation appear overblown despite ample liquidity

- In 2013, inflationary pressures are likely to mount amid a global cyclical economic recovery
- Liquidity expansion in developed economies and monetary easing in emerging economies should increase inflationary pressures. However, we believe inflation will remain tamed given a contraction in global demand
- Most institutes, such as the IMF, predict inflation to be flat in developed economies and fall in the emerging world

Both EM and DM to see inflation pressure ease

From 2009 to mid-2011, global inflationary pressure rose on strong commodity prices (commodity up cycle)
- During this period, ample liquidity and BRICS countries’ investment expansion drove up inflation
- Inflationary pressures should remain low in light of 1) the end of China’s investment boom cycle and 2) a projected slowdown in BRICS economies

BRICS’ nominal GDP growth to remain low: Inflation to stabilize

Source: IMF

Source: Thomson Reuters, IMF
III. Economy in a cyclical upturn

Uncertainties: Euro-zone debt issue and US fiscal cliff issue

- High political uncertainty keeps risk appetite low
- Uncertainties over Spain and Greece could hamper a cyclical recovery in 2013 → If Spain refuses to accept a bailout or if Greece fails to meet its austerity targets, the euro-zone could run amok again
- The OMT program has mitigated concerns. However, worries are still lingering, given that Spain remains lukewarm toward seeking a bailout

Impact of fiscal-cliff failure on GDP growth

- The deadline for the fiscal cliff deal could be extended. The deal should be concluded by 1H13
- The failure to reach an agreement on the fiscal cliff would drive down GDP growth by more than 3%p due to abrupt spending cuts: Annual GDP growth is forecast at -0.5% to -2.0%; 10-year UST yield to fall below its historical low of 1.4%

High political uncertainty strengthens flight from risk

Note: Policy uncertainty indices are based on policy news, the differences between projected and actual economic data, and tax-related events
Source: www.PolicyUncertainty.com, Bloomberg

Estimated fiscal cliff impact on GDP:
- CBO: -0.7%, PIMCO: -1.5%, Goldman Sachs: -1.8%
- UST yield to fall below record-low 1.4%

Source: CBO, Goldman Sachs
III. Economy in a cyclical upturn

Yields to rebound globally when external uncertainties ease

- Expectations of yields falling further are losing steam
- In 2012, bond yields hit historical lows due to weaker-than-expected economic conditions, fueling controversy over overvaluation
- In 2013, given the likely cyclical economic recovery, upward pressure on yields is expected to increase

We expect yields to reach an inflection point in mid-1Q when external uncertainties ease
- If a fiscal-cliff deal is reached, the 10-year UST yield could rise to 2.1%
- If external uncertainties linger, flight from risk will likely mount, sending the 10-year UST yield falling to its historical low of 1.4% again

Yields to see inflection points in both DM and EM in 1Q13

10-year UST yield: Expect an upside, rather than a downside

Fiscal cliff agreement along with strong economic data to push the yield up to 1.9%–2.1% (80% odds)

In the case of a failure to reach an agreement on the fiscal cliff. UST yield to test 1.4% level (20%)

Source: JPMorgan, Bloomberg, KDB Daewoo Securities Research
IV. Outlook for Korea’s bond market

Era of low interest rates in Korea still far from over

- Growth set to slow: A cyclical rebound next year may not signal an end to the era of low interest rates
- Growth decelerators: Aging population, low potential growth rate, real estate market downturn, and household debts

Low interest rate

(1) Slow growth
(2) Contraction of real estate market
(3) Deleveraging (private sector)

Age dependency ratio

Real estate price and retail sales

Household debt growth

Note: Ratio of dependents to the working-age population
Source: BoK ‘Economics of Debts (2012,4)’
Source: KB, Statistics Korea
Source: BoK
IV. Outlook for Korea’s bond market

Slow growth → low bond yields

- Bond yields reflect economic fundamentals
- Any cyclical rebound in yields next year will likely be only temporary
- Yields should remain low overall due to growth concerns

- Bond yields in Japan have been low since 1989 as the country’s economy has been struggling (“Lost Two Decades”)
- Structural declines in Korea’s growth rates signal a downtrend in bond yields

Japan’s bond yields fell in tandem with falling growth rates

<table>
<thead>
<tr>
<th>Japan’s growth trend (L)</th>
<th>10Y JGB yield (R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(YoY, %)</td>
<td>(%)</td>
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</table>

Korean bond yields also declined along with slowing growth

<table>
<thead>
<tr>
<th>10Y KTB yield</th>
<th>Korea’s growth trend</th>
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<tbody>
<tr>
<td>(%)</td>
<td>(%)</td>
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</table>

Note: Long-term growth indicates the 10-year average real GDP
Source: Cabinet Office (Japan), Bloomberg

Note: Long-term growth indicates the 10-year average real GDP
Source: KOFIA, BoK
IV. Outlook for Korea’s bond market

Korea’s bond yields should rise in 2013, but only modestly

- Korea’s bond market performed well in 2012 due to the weaker-than-expected economy and monetary easing.
- As both the global and domestic economies should stage cyclical rebounds in 2013, bond yields are anticipated to rise, but only temporarily.

- Yields are anticipated to remain flat until 1Q13, and then pick up until early 3Q.
- The base rate is forecast to stay at 2.75% through the end of the year (unless the BoK cuts the rate in 1Q).

Korean economy to bottom out in 2013

The base rate likely to stay flat, but uncertainty always exists

Source: BoK, Statistics Korea, KOFIA, KDB Daewoo Securities Research

Source: BoK, KDB Daewoo Securities Research, David Rosenberg
IV. Outlook for Korea’s bond market

Growth: The economy remains sluggish, but things are getting better

- Both domestic sales and exports slowed in 2012
- Real GDP grew only 1.6% YoY in 3Q12
- The BoK cut its economic forecast to 2.4% for 2012 and to 3.2% to 2013 (from 3.0% and 3.8%, respectively)
- We forecast more conservatively, at 2.2% for 2012 and 2.9% for 2013
- We expect Korea’s economy to improve from 4Q12
- The deflationary gap will likely persist next year, but at a lesser degree than in the current year

Contribution to real GDP growth

Growth forecasts (BoK vs. KDB Daewoo Securities Research)

Our estimates are a bit lower than the BoK’s but follow a similar path

Source: BoK

Source: BoK, KDB Daewoo Securities Research
IV. Outlook for Korea’s bond market

1) Domestic demand is unlikely to contract further

- Contraction of domestic demand appears structural
- Contributions of private consumption and investment to GDP growth fell to 1% and 0.1%, respectively, from pre-crisis averages (2005~2007) of mid-2% and 0.9%
- Domestic shipments, which are strongly correlated with monetary policy, showed negative YoY growth in 2012

Domestic shipment growth to normalize from 1Q13

Domestic shipments are unlikely to fall further next year
- Domestic demand is anticipated to improve on increases in capex and final consumption (private + government) from 2Q
- But capex levels will be affected by possible corporate tax hikes and external economic factors

Demand may recover on rising investment and consumption

Source: Statistics Korea, BoK

Source: BoK, KDB Daewoo Securities Research
IV. Outlook for Korea’s bond market

2) Fiscal policy: New government likely to expand fiscal spending

- Government spending contributed 0.5%p to 3Q growth (1.6%) and is likely to play a critical role in driving recovery in 2013
- New administration will likely be strongly committed to reviving growth; front-loading of 2013 budget is likely
- Given the two rate cuts in 2012 and the more direct impact of fiscal policy, Korea is likely to rely more on fiscal stimuli than monetary easing to boost the economy

**Government spending’s contribution GDP growth to rise**

The government can afford to mobilize an additional W3.5tr in stimulus funds by transferring public loans into interest gap subsidies
- This would raise actual government spending growth in 2013 to 7.3% from the originally planned 5.3%
- Construction investment is likely to be depressed, with the only bright spot being SOC investment

**Planned increase in gov’t spending & SOC investment in 2013**

Spending in 1H11 57.2%  
Spending in 1H12 60.1%  
Front-loading in 1H13 to exceed 60%

**Source:** National Assembly Budget Office
IV. Outlook for Korea’s bond market

3) Exports should turn around in 2013

- Exports to bottom out in 2013 from projected negative growth in 2012
- Recovery in G2 economies bodes well for Korea’s exports → Chinese export growth and US import growth have turned positive in 4Q12
- IMF expects global shipments to grow in 2013, which is positive for Korea’s exports

Recovery in G2 economies augurs well for Korea’s exports

- Fast growing ASEAN markets also should be good news for Korea’s exports
- Global shipments, which lead Korean exports by one quarter, are bottoming out; global PMI and US ISM manufacturing index have already been rebounding
- Export conditions should improve more meaningfully from 2Q13

Projected growth in global shipments is positive to exports

Source: Korea Customs Service, Thomson Reuters
Source: Korea Customs Service, CPB
IV. Outlook for Korea’s bond market

4) Inflation is likely to rise only modestly

- Korea’s CPI is estimated to grow 2.3% in 2012
- Inflationary pressures eased sharply in 2012 due to high base effects and slower-than-expected growth
- Deflationary factors also include readjustment of CPI basket, government policies (free school lunches & childcare support), and weaker global commodity prices

- Korea’s CPI is forecast to rise 2.8% in 2013 on stronger growth, utility price hikes, and dissipation of policy effects
- Global inflationary pressures remain largely subdued and an investment slowdown in emerging economies will likely keep demand for commodities low
- BoK has revised its 2013 inflation target range to 2.5-3.5% from 2.0-4.0% to reflect reduced price volatility

CPI forecast and contribution by item

Inflationary pressures from the supply side are limited

Demand for industrial metals depends more on economic conditions than on liquidity conditions

Source: Statistics Korea, KDB Daewoo Securities Research

Source: World Bureau of Metal Statistics, Bloomberg
IV. Outlook for Korea’s bond market

5) Monetary policy: The base rate should remain unchanged

- In 2013, the BoK is likely to keep the base rate unchanged
- The output gap should remain negative; the market is currently pricing in a single rate cut before 2Q13
- We see a 30% probability of a single rate cut by end-1Q13.
- A rate cut should be predicated on the worsening of external conditions and/or the domestic economy

- If there is no rate cut before 2Q13, the BoK is unlikely to ease in 2Q or beyond given an expected pickup in the business cycle
- BoK governor says both nominal GDP and inflation targets are main considerations in monetary policy
- Since 2000, the BoK has refrained from cutting the base rate when nominal growth is bottoming out; nominal growth is expected to pick up from 4Q12

Source: BoK, Bloomberg

Global easing cycle to continue: Korea unlikely to diverge

When nominal growth bottoms out, a rate cut is unlikely

Source: BoK
IV. Outlook for Korea’s bond market

6) Supply and demand conditions should be little affected by rising yields

- Supply and demand conditions were favorable in 2012: Rate cuts also helped lower bond yields
- Buying of long-term bonds was underpinned by ample liquidity at home and abroad and the depressed real estate market
- Supply/demand balance may be broken when bond yields start to rise in 2013, but pent-up demand is expected to limit yields’ upside

Supply plans are not burdensome: 2013 KTB issues are estimated at W79.4tr, roughly in line with the 2010~12 average
- Liquidity should remain ample: supply (Lf) is anticipated to exceed demand (lending and bond issues)
- Capital inflows to institutions are growing steadily, and banks are forecast to expand bond investments due to tighter lending regulations and the scheduled implementation of Basel III

Sufficient liquidity supply to ease burden on the demand side
IV. Outlook for Korea’s bond market

Bond investments by Japanese insurers, pension funds, and banks

Insurance and annuity reserves trends in Japan

Financial asset growth at Korean long-term investment institutions

Lending and bond investments at Japanese banks

Deposit growth and bond investments at Korean banks

Once the aging population proportion exceeded 18%, pensions and insurers' asset growth ceased.

As the pace of population aging has accelerated, long-term investors’ AUM has to rise accordingly.

Since the financial crisis, banks' bond holdings have been more sensitive to deposit growth.
IV. Outlook for Korea’s bond market

Foreign buying helps to keep yields from rising

- Foreigners are buying more than they are selling
- Thai arbitrage funds ebbed out, but the void was quickly filled in by sovereign funds from Switzerland, Norway, China, and Chile
- Global credit rating agencies upgraded Korea, which should increase foreign buying of KTBs

Foreign capital inflow forecast

- Foreign ownership of government bonds is lower than in developed markets (excl. Japan) and major emerging markets
- The percentage is likely to rise to the EM average of 24% thanks to 1) lowered F/X rate volatility, 2) high fiscal soundness, and 3) steady flows of current account surpluses
- Foreign demand for KTBs should continue to rise in 2013

Comparison of sovereign bond holdings by foreign investors

Source: Credit agencies, Yonhap Infomax

Source: IMF
IV. Outlook for Korea’s bond market: Scenario 1 (rate freeze: 70% possible)

<table>
<thead>
<tr>
<th>2013</th>
<th>Bond yield direction and levels</th>
<th>Curve and investment ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Q</td>
<td>Yields to remain flat; Easing of external uncertainties after mid-1Q might increase upward pressure</td>
<td>Yields to remain range-bound; Prepare for the steepening of the yield curve</td>
</tr>
<tr>
<td>2Q</td>
<td>Upward pressure to increase on economic rebound; 3-year KTB yield to rise to 3.1%</td>
<td>Underweight bonds: Seek hedging instruments (e.g., IRS, futures, loan transactions); Bear steepening to strengthen</td>
</tr>
<tr>
<td>3Q</td>
<td>The spread between the base rate and the 3-year KTB yield to remain at 40bps</td>
<td>Yield volatility to decrease; Increase bond (long-term, in particular) holdings; the steepening of the yield curve to ease</td>
</tr>
<tr>
<td>4Q</td>
<td>Volatility to decrease as the market begins to reflect 2014 economic outlook</td>
<td>Monetary policy to have a limited impact; Buy bonds; yield curve to flatten</td>
</tr>
</tbody>
</table>

**Conclusion**
Yields to rise during mid-1Q~3Q and to remain flat in 4Q:
3-year KTB: 2.75~3.25%, 10-yr KTB: 2.90~3.50%

**Reduce weight of bonds after mid-1Q, yield uptrend during 2Q~3Q to offer buying opportunity → Take advantage of curve steepening and widening of 3-/10-year spread to over 30bps**

### 3-year KTB yield trend and forecast

<table>
<thead>
<tr>
<th>(%)</th>
<th>3Y KTB yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.70</td>
<td>50.0%</td>
</tr>
<tr>
<td>2.83</td>
<td>38.2%</td>
</tr>
<tr>
<td>3.00</td>
<td>23.6%</td>
</tr>
<tr>
<td>3.15</td>
<td>0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(%)</th>
<th>10Y KTB yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.90</td>
<td>50.0%</td>
</tr>
<tr>
<td>3.05</td>
<td>38.2%</td>
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<tr>
<td>3.10</td>
<td>23.6%</td>
</tr>
<tr>
<td>3.15</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Note:** Based on the Fibonacci sequence  
**Source:** KOFIA, KDB Daewoo Securities Research
## IV. Korean bond market outlook: Scenario 2 (rate cut: 30% possible)

### 2013 Bond market outlook 32

<table>
<thead>
<tr>
<th>2013</th>
<th>Bond yield direction and levels</th>
<th>Curve and investment ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Q</td>
<td>Concerns about economic recovery and external uncertainties to bring down 3-year KTB yield to 2.6%</td>
<td>Yields to fall below a boxed range; Short-term bond yields to fall faster than long-term yields: the yield curve to steepen</td>
</tr>
<tr>
<td>2Q</td>
<td>3-year KTB yield to rebound to 2.8% on economic recovery and profit-taking</td>
<td>Yields (short-term and mid-term bonds) to rebound: a bear flattening of the yield curve</td>
</tr>
<tr>
<td>3Q</td>
<td>Yields to plateau as the economic recovery theme is fully priced in</td>
<td>Market volatility and upward pressure on yields to decrease: the curve to be little changed</td>
</tr>
<tr>
<td>4Q</td>
<td>3-year KTB yield to remain at around 3% as the market begin to reflect 2014 economic outlook</td>
<td>A rate cut in 1Q to keep monetary normalization pressure low: the curve to flatten</td>
</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td>Yields to decline in 1Q, correct in 2Q, and move sideways during 3Q~4Q: 3-year KTB: 2.60%~3.05%, 10-year KTB: 2.85%~3.22%</td>
<td>Overweight bonds until a rate cut in 1Q; Profit-taking in 2Q; Buying in 3Q and 4Q: Market volatility to be lower than under Scenario 1; Take caution in 2Q</td>
</tr>
</tbody>
</table>

### 3-year KTB yield trend and forecast

<table>
<thead>
<tr>
<th>(%)</th>
<th>3Y KTB yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>50.0%</td>
</tr>
<tr>
<td>3.00%</td>
<td>38.2%</td>
</tr>
<tr>
<td>3.07%</td>
<td>23.6%</td>
</tr>
<tr>
<td>3.10%</td>
<td>0%</td>
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</tbody>
</table>

### 10-year KTB yield trend and forecast

<table>
<thead>
<tr>
<th>(%)</th>
<th>10Y KTB yield</th>
</tr>
</thead>
<tbody>
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<td>50.0%</td>
</tr>
<tr>
<td>3.13%</td>
<td>38.2%</td>
</tr>
<tr>
<td>3.19%</td>
<td>23.6%</td>
</tr>
<tr>
<td>3.30%</td>
<td>0%</td>
</tr>
</tbody>
</table>

---

Note: Based on the Fibonacci sequence  
Source: KOFIA, KDB Daewoo Securities Research  
KDB Daewoo Securities
V. Investment strategy amid a rise in yields

Global economy to recover from 1Q13

- Surprise indices emerge as reliable indicators of global economic momentum: A surprise index helps you judge whether the economy is performing better or worse than expected
- If economic momentum picks up, sentiment will shift to equities from bonds
- We expect the Citi G10 Economic Surprise Index to exhibit a cyclical rebound in late 1Q13~early 2Q13
- Hold onto bonds until mid-1Q13, then underweight bonds from late 1Q13, when surprise indices begin to rebound

Citi G10 Economic Surprise Index to rebound in late 1Q13~early 2Q13

Note: The difference between quarterly equity and fixed income returns are based on S&P 500 and Thomson T-10Y Index
Source: CITI, Thomson Reuters
V. Investment strategy amid a rise in yields

Returns on bonds to fall during a rise in yields

- Rising yields mean a fall in bond prices
- When yields start to trend down, bonds typically generate higher returns than equities
- In the event of a rebound in yields, equity returns are generally higher than bond returns

- Investors should be cautious from mid-1Q13 when yields begin to rise → 5-year KTB yield to rise by 30~50bp in 2013
- Since 2005, quarterly returns on 5-year KTBs have been negative when yield rose by more than 35bp QoQ → the 5-year yield to rise 40bp QoQ in 2Q13, as in 4Q10

---

Quarterly equity returns vs. bond returns (annualized)

<table>
<thead>
<tr>
<th>(%)</th>
<th>Quarterly return on equity (L)</th>
<th>Quarterly return on 5Y KTB (annualized, L)</th>
<th>5Y KTB yield (quarter-end value, R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Q05</td>
<td>1Q06</td>
<td>1Q07</td>
<td>1Q08</td>
</tr>
<tr>
<td>Quarterly return on equity</td>
<td>0</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Quarterly return on 5Y KTB</td>
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<td>-20</td>
<td>-10</td>
</tr>
<tr>
<td>5Y KTB yield</td>
<td>-30</td>
<td>-20</td>
<td>-10</td>
</tr>
</tbody>
</table>

Note: Equity return is based on the KOSPI index; Return on bond investments is based on KIS 5Y KTB Index / Source: KOFIA, KIS Pricing

Quarterly returns on 5-yr KTBs negative when yields up over 35bp QoQ

<table>
<thead>
<tr>
<th>(%)</th>
<th>Quarterly return on KTB (L)</th>
<th>5Y KTB yield quarterly change (inverted, R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Q05</td>
<td>1Q06</td>
<td>1Q07</td>
</tr>
<tr>
<td>Quarterly return on KTB</td>
<td>-4.0</td>
<td>-3.5</td>
</tr>
<tr>
<td>5Y KTB yield quarterly change</td>
<td>4.0</td>
<td>3.5</td>
</tr>
</tbody>
</table>

In 4Q10, 5Y KTB rose 37bps, and quarterly return on KTB was -0.23%

Given bearish KTB outlook in 2013, 2Q13 return may turn negative

Source: KOFIA, KIS Pricing
V. Investment strategy amid a rise in yields

Strategic choices available when yields are on the rise

- In the event of a rise in yields, investors can first consider selling bonds.
- If unloading is difficult, investors can still weather a rise in yields by: 1) going short in the futures market, 2) reducing duration (replacing long-term bonds with short-term ones), 3) using short-selling, 4) taking short positions in IRS, 5) purchasing floating rate notes, and 6) turning to spread trading.

- Assuming yields will rise only briefly in 2013, we recommend going short of KTB futures, utilizing short-selling, deploying IRS hedges, cutting duration, and increasing short-term bonds.
- Minimal undervaluation of KTB futures creates an environment favorable for going short in the KTB futures market.
- Taking IRS pay positions appears favorable as IRS rates are more sensitive than spot rates.

Strategies when yields rise: Sale of KTB futures or short-selling

Taking IRS pay positions when yields are on the rise

Due to hedging, the IRS rate rose when bond yields were trending up.

IRS spread already stopped narrowing down.

Short KTB futures as they now face less undervaluation.

Short-selling balance has increased.

Source: KOFIA
V. Investment strategy amid a rise in yields

The yield curve to steepen (bear steepening)

- The steepening of the yield curve is routinely seen in the early stage of rising yields
- We expect the 3-year and 10-year KTB yields to climb by 30~50bps and 40~60bps, respectively, in 1Q13~2Q13
- Long-term yields will likely rise faster, prompting the yield curve to steepen (bear steepening)
- When the yield curve steepens, short-term bonds are better than long-term ones
- The yield spread between long- and short-term bonds is expected to widen when the expectation of a rate cut dissipates: The yield spread between 3-year and 10-year KTBs should widen to around 30bps

Yield curve to steepen in late 1Q~2Q

The yield spread to widen to around 30bps

Source: KOFIA, KDB Daewoo Securities Research

Source: KOFIA, BoK

Under normal circumstances, the 3Y/10Y spread begins to widen with rate cuts, and continues to widen even after rate cut expectations dissipate.

Despite rate cuts in 2012, the term-spread narrowed due to weak momentum; Spread to widen in 2013.
V. Investment strategy amid a rise in yields

Outlook for long-term bonds: Caution required in 2Q

- Long-term bonds will likely be the softest spot when the bond market corrects in 2013
- Demand for long-term bonds is on the rise as the economy shows structural slow growth: Long-term bonds (10-year or longer) look overvalued
- Korea’s yield curve is flatter than other countries’: Long-term bonds will likely rise most sharply when the bond market corrects

Korea’s yield curve is flattest

<table>
<thead>
<tr>
<th>(%)</th>
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<tbody>
<tr>
<td>0.0</td>
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<table>
<thead>
<tr>
<th>Country</th>
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<th>60 mo</th>
<th>120 mo</th>
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<th>240 mo</th>
<th>300 mo</th>
<th>360 mo</th>
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<tbody>
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<td>-1.0</td>
<td>-0.5</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
<td>2.0</td>
</tr>
<tr>
<td>US</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
<td>2.0</td>
<td>2.5</td>
<td>3.0</td>
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<tr>
<td>Germany</td>
<td>-0.5</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
<td>2.0</td>
<td>2.5</td>
</tr>
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<td>UK</td>
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<td>-0.5</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Australia</td>
<td>-1.0</td>
<td>-0.5</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
<td>2.0</td>
</tr>
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</table>

Given the controversies over overvalued longer-tenure bonds, the KTB yield curve is flatter than those of other major econ

Spreads between long-term bonds are to widen only modestly

<table>
<thead>
<tr>
<th>(%)</th>
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<tbody>
<tr>
<td>0.0</td>
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<table>
<thead>
<tr>
<th>Spread</th>
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<th>7/11</th>
<th>1/12</th>
<th>7/12</th>
<th>1/13</th>
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</thead>
<tbody>
<tr>
<td>KTB 10Y/20Y yield spread (L)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KTB 20Y/30Y yield spread (L)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>20Y KTB yield (R)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30Y KTB yield (R)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Rebound of KTB yield to be smaller than before; Widening in term-spread to be limited as well

Source: KOFIA, Bloomberg

Source: KOFIA
V. Investment strategy amid a rise in yields

**KTBi is set to outperform the KTB**

- KTBi yield continued its decline this year along with market rates
- KTBi yield should rise when market rates increase in 2013, but the rise should be tempered relative to the rise in market rates; in 2012, the fall in KTBi yield was limited

- Break-even inflation (BEI) stands at 240bps, lower than the average since 2010 (270bps)
- Our 2013 forecasts:
  - CPI to increase 2.8%
  - KTBi yield to rise by 20bps: BEI to rise to 270bps

**KTBi yield should rise along with market rates**

- Compared to other long-term bonds, KTBi to have smaller rebound in yields with further widening in BEI

**BEI to rise to 270bps**

- Korea’s average BEI since 2007: 247bps
- Korea’s average BEI since 2H10: 277bps

Note: Break-even inflation is the difference between the nominal yield on the 10-year and the KTBi yield. Source: Yonhap Infomax, KOFIA, KDB Daewoo Securities Research

Source: Yonhap Infomax, KOFIA, KDB Daewoo Securities Research
V. Investment strategy amid a rise in yields

In search of attractive overseas bonds (1)

- Low yields in Korea make overseas bonds look more attractive
- Factors to consider in overseas bond investments: 1) returns, 2) safety, 3) regulations
- Fundamentals to consider: interest rates, F/X rates, current account balance, fiscal stability, and yields

Recommendation: High risk, high return vs. low risk, low return

<table>
<thead>
<tr>
<th>10-year sovereign bond yields and F/X rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current yield</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Korea</td>
</tr>
<tr>
<td>Brazil</td>
</tr>
<tr>
<td>Turkey</td>
</tr>
<tr>
<td>Mexico</td>
</tr>
<tr>
<td>Indonesia</td>
</tr>
<tr>
<td>Philippines</td>
</tr>
<tr>
<td>Poland</td>
</tr>
<tr>
<td>China</td>
</tr>
<tr>
<td>Malaysia</td>
</tr>
<tr>
<td>Thailand</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current FX rate</th>
<th>FX rate on 1/1/2012</th>
<th>YTD change</th>
<th>Average since 2009</th>
<th>Deviation from mean</th>
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<tr>
<td>Korea</td>
<td>1086.98</td>
<td>1152.45</td>
<td>6.02</td>
<td>1169.38</td>
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<td>Brazil</td>
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<td>1.84</td>
</tr>
<tr>
<td>Turkey</td>
<td>1.80</td>
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<td>13.94</td>
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<td>3.23</td>
</tr>
<tr>
<td>Thailand</td>
<td>30.72</td>
<td>31.55</td>
<td>2.70</td>
<td>31.93</td>
</tr>
</tbody>
</table>

Note: % of changes against the average since 2009
Source: Bloomberg
V. Investment strategy amid a rise in yields

In search of attractive overseas bonds (2)

- Countries where bond yields are higher than in Korea
- Undervalued currency (F/X rate volatility tends to be higher though) → Turkey, Indonesia, Brazil, and Mexico
- Countries with low bond yields → Emerging Asian countries such as China (strong currencies)

- In terms of stability (fiscal status, current account balance), it is hard to find a better option than Korea
- Countries closer to the center of the figure below are relatively more stable
- Search for attractive overseas bonds (based on BlackRock’s GSR and The Banker’s GAMS should continue

Investment recommendation based on yields and currency value

Investment recommendation based on economic stability

Source: Bloomberg

Source: IMF
V. Investment strategy amid a rise in yields

Overseas bonds appear more attractive than KTBs

Investment attractiveness based on Global Sovereign Risk Index

The Banker’s choice of investments in 2012

2012 promising investments based on The Banker’s GAMS

Change in GAMS investment recommendations in 2012

Source: BlackRock

Note: GAMS is a survey of fund managers at 30 major global banks
Source: The Banker’s 2012 Global Asset Management Survey

Categories chosen by global asset managers

Note: GAMS is a survey of fund managers at 30 major global banks
Source: The Banker’s 2012 Global Asset Management Survey

Note: GAMS is a survey of fund managers at 30 major global banks
Source: The Banker’s 2012 Global Asset Management Survey

Voting growth from previous survey

Note: GAMS is a survey of fund managers at 30 major global banks
Source: The Banker’s 2012 Global Asset Management Survey
V. Investment strategy amid a rise in yields

**Investment strategy**

- **Long-term bonds**: Buy when long-term bond yields (10-year or longer) rebound to the potential growth rate after 2Q13

- **KTBI**: Buy in early 2Q (BEI to reach 270bps)

- **Overseas bonds**: Emerging Asia and BRICS (yield, F/X rate, and economic stability)
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