BROOKFIELD RENEWABLE POWER

ASSESSMENT OF CHINA’S FUTURE ECONOMIC GROWTH PATH AND THE IMPACT ON COMMODITIES PRICES

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**Trend analysis:** The team conducted a scenario analysis of China’s economic growth over the next decade and developed observations on commodities demand and pricing based on historical trends.

**Executive Summary: Project Overview**

- **China’s Economic Growth**
  - Identify historical economic trends
  - Observe consensus outlook on Chinese growth
  - Derive scenarios for economic growth to 2020

- **Common Inflection Points**
  - Select a number of past historical examples of fast economic growth
  - Find common growth inflection points based on similar growth patterns that may give clues to China’s future development path

- **Commodities Analysis**
  - Select commodities
  - Assess supply/demand and key consumption drivers
  - Assess China’s historical influence in commodity markets

- **China’s Influence on Commodities**
  - Assess magnitude of key economic trends per scenario
  - Link trends to drivers of commodity demand

- **Conclusions**
  - Assess the influence of China’s future consumption trends on prices of selected commodities
  - Provide insights for Brookfield’s business
## Executive Summary: Historical Lessons

### Historical clues to China’s future: Historical examples provide insights into development transitions from heavy industry to consumer-led industry growth that provide clues to China’s future growth.

<table>
<thead>
<tr>
<th>Country</th>
<th>Development Stage</th>
<th>GDP/Capita, PPP (Constant 2005$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>(1952-1973)</td>
<td>US$0-2,000</td>
</tr>
<tr>
<td>Brazil</td>
<td>(1968-1978, 1995-2010)</td>
<td>US$9,500-13,000</td>
</tr>
<tr>
<td>US</td>
<td>(1971-2009)</td>
<td><strong>US$13,000 &lt;</strong></td>
</tr>
</tbody>
</table>

**Source:** UBS

- **Japan (1952-1973)**: Serves as a model for China in moving up the value chain, and is also a warning on the impact of a housing bubble as well as an accumulation of government debt on growth.
- **South Korea (1962-1970, 1981-1996)**: Underscores the importance of stabilization policies to curb inflation and trade liberalization policies in promoting economic growth after a prolonged slowdown.
- **Brazil (1968-1978, 1995-2010)**: Provides a cautionary tale of inflation for China.
- **US (1971-2009)**: Highlights the geopolitical sensitivities that come with heavy energy import dependency, a path China may also follow.

**China:** US$6,840 (2005US$ at PPP)

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**Development Stage**

- **Stage 1: Agrarian**
- **Stage 2: Heavy Industry**
- **Stage 3: Consumer-led Industry**
- **Stage 4: Services/Environmental**
Executive Summary: Key Findings

High impact on global prices under baseline: Baseline growth will lead to high demand for oil, iron ore, and copper. Conversely, high inflation will limit global asset demand somewhat, while collapsing property prices will contract global commodity prices and international property sector growth.

Baseline Growth Findings

Growth Drivers: Domestic consumption and a move toward heavy industry spurred by infrastructure development

Key Commodities: Increased demand for oil, iron ore, copper, soybeans

Pricing Impact: High-import commodities to China such as oil, iron ore, copper, and soybeans will see upward pricing pressure as growth stimulates commodity demand

Impact on Global Assets: Swelling Chinese demand for commodities such as oil and iron ore may slow international property and infrastructure expansion as global prices soar

Foreign Direct Investment: Continued FDI as international investors see China as a safe investment

Low Growth Findings

Growth Inhibitors: Monetary tightening to curb inflation will contract economic growth and domestic demand

Key Commodities: Slight increase in demand for oil as a hedge against inflation, with a possible reduction in infrastructure commodities such as iron ore and copper

Pricing Impact: Moderate increase in global price for commodities, particularly oil, with use of commodities as a hedge against inflation

Impact on Global Assets: Slight deceleration in sector demand with moderate commodity price rises

Foreign Direct Investment: Contraction in both scenarios as investor confidence falls

Growth Inhibitors: Total wealth reduction with a price collapse contracts economic growth

Key Commodities: Reduced demand for iron ore, met coal, oil, and copper

Pricing Impact: Global price contraction for high-import property-related commodities such as iron ore and copper as Chinese infrastructure and property development falls

Impact on Global Assets: While contracting prices may prop up demand, China’s price collapse will depress international property prices, limiting sector growth
Executive Summary: Commodities

Import share impacts commodity pricing: China’s impact on commodity prices is driven by import dependency. Commodities with high import ratios such as iron ore and copper, have a greater impact on global pricing, while geopolitical issues will play a role in China’s impact on oil prices.

Baseline Growth Scenario

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Avg Demand Growth (2010-2020)</th>
<th>Demand Effect on Global Price</th>
<th>Chinese Import Share*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>8%</td>
<td>High</td>
<td>6%</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>6%</td>
<td>Low</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Iron Ore</td>
<td>5%</td>
<td>High</td>
<td>25%</td>
</tr>
<tr>
<td>Coal</td>
<td>3%</td>
<td>Moderate</td>
<td>2%</td>
</tr>
<tr>
<td>Copper</td>
<td>11%</td>
<td>High</td>
<td>31%</td>
</tr>
<tr>
<td>Soybeans</td>
<td>4%</td>
<td>High</td>
<td>22%</td>
</tr>
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Note: *current imports as a share of current global demand

Low Growth Scenario

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<tr>
<td>Oil</td>
<td>4%</td>
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</table>

Note: *current imports as a share of current global demand


Note: Size of each commodity’s indicator based on China’s import share of global demand for the commodity.