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研究报告

金砖四国的石油需求

近期油价的上涨使市场关注的焦点回到国家对石油的依赖程度。金砖四国在这个方面的情况各有不同。在金砖四国中，俄罗斯是主要的净石油出口国，巴西石油进出口基本平衡，而中国和印度的主要石油供给来自进口。因此油价持续的上行压力预计将对中国和印度产生负面影响，对俄罗斯将产生积极影响，而巴西受到的影响应为中性。

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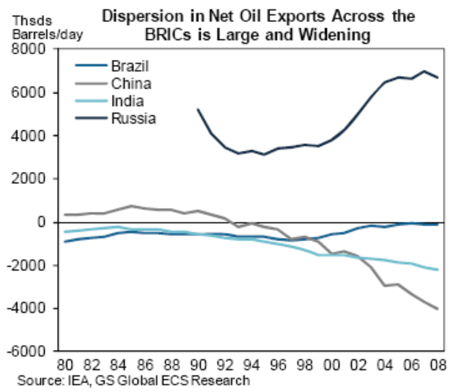
全球需求增长强劲和中东局势紧张推动近几个月油价大幅上涨。由于对石油进口的依赖程度不同，油价上涨对金砖四国的影响也各不相同。

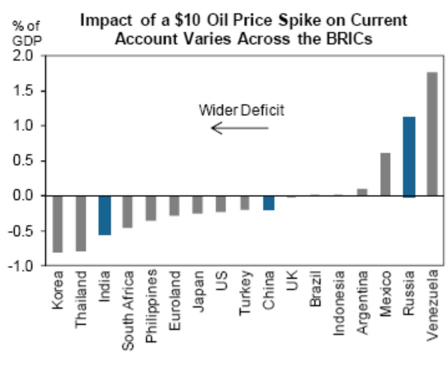
由于中国和印度的石油供给大部分来自进口，因此油价的温和上涨预计将对两国增长产生负面影响。俄罗斯因是主要的石油净出口国而受益。巴西的石油进出口基本平衡，燃料价格上涨几乎不会对其产生影响。但是如果油价大幅上涨，全球需求将下降，而且金砖四国的增长都面临下行风险。

金砖四国对石油依赖程度的不同反映了四国能源产量和消费结构差异较大。巴西在新能源方面一直走在世界前列，石油的消耗量也很大，但在这两种能源方面基本能够实现自给自足。中国对国内储量丰富的煤炭资源依赖很大，但近年来石油进口量逐步增大。由于国内资源匮乏，印度最为依赖外国资源，尤其是煤炭和石油。俄罗斯的天然气和石油消费主要依赖于国内。

过去二十年，金砖四国的总体能源强度一直处于下滑态势。中国和俄罗斯的改善最为显著，但以往的能源强度较高。巴西和印度的能源强度低得多，但也在持续下滑。



Source: IEA, GS Global ECS Research



Source: GS Global ECS Research

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Research Report

Oil in the BRICs

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The recent surge in oil prices has focused attention squarely back on country-level exposure to oil. The BRIC countries vary greatly in this regard. Among the BRICs, Russia is a major net oil exporter, Brazil has a roughly balanced oil trade balance, while China and India import the majority of their oil supplies. As a result, continued upward pressure on oil prices is expected to have a negative impact on China and India, and a positive impact on Russia, while in Brazil the effect should be negligible.

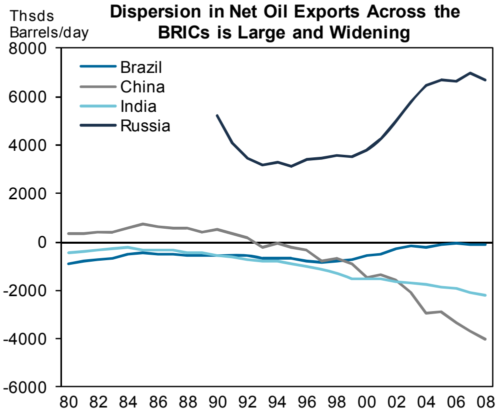
Oil prices have increased significantly in recent months due to strong global demand growth and tensions in the Middle East. This dynamic will impact the BRIC countries differently, depending on their exposure to oil.

The growth impact of moderately higher oil prices is expected to be negative in China and India, which both import most of their oil supplies. Russia is a major net oil exporter and thus stands to benefit. Brazil, which has a roughly balanced oil trade balance, should see little impact from higher fuel prices. However, a significant spike in oil prices could reduce global demand and introduce downside risks to growth across all of the BRICs.

The variance in the BRICs' oil exposure reflects their dramatically different energy production and consumption patterns. Brazil is a global frontrunner in renewable energy and also consumes large amounts of oil, but it is relatively self-sufficient in both areas. China relies heavily on coal, of which it has significant domestic reserves, but has turned increasingly to oil imports in recent years. India is the most reliant on external sources, particularly for coal and oil, due to insufficient domestic resources. Russia consumes mainly domestically-produced gas and oil.

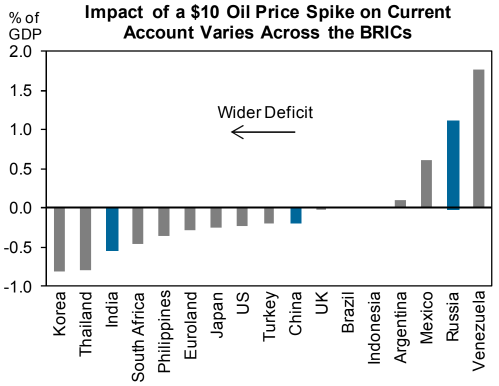
Over the past 20 years, overall energy intensity has been on the decline across the BRICs. China and Russia have experienced the most dramatic improvements, albeit from high levels. Intensity levels in Brazil and India are far lower but have continued to fall as well.

Dispersion in Net Oil Exports Across the BRICs is Large and Widening



Source: IEA, GS Global ECS Research

Impact of a $10 Oil Price Spike on Current Account Varies Across the BRICs



Source: GS Global ECS Research

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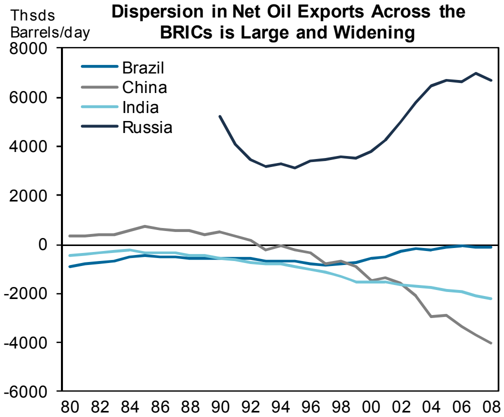
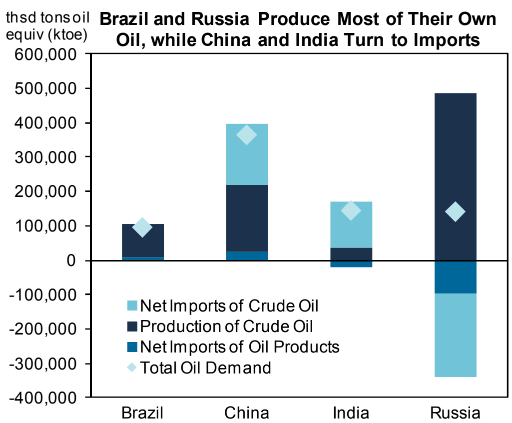


Source: IEA, GS Global ECS Research

Brazil and Russia Produce Most of Their Own Oil, while China and India Turn to Imports



Source: IEA, GS Global ECS Research

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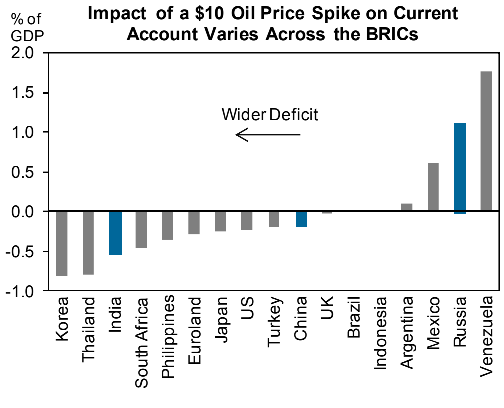
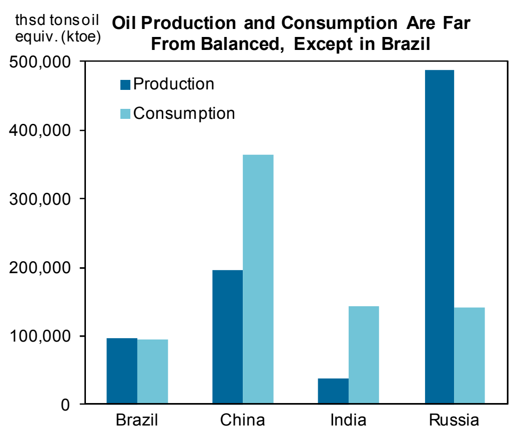


Source: GS Global ECS Research

Oil Production and Consumption Are Far From Balanced, Except in Brazil



Source: IEA, GS Global ECS Research

Impact of Higher Oil Prices on Growth in the BRICs

- The likely growth impact of higher fuel prices varies across the BRICs according to two main factors: first, the direction and size of their oil trade balance and, second, the extent to which world prices feed through to domestic prices. The growth impact of moderately higher oil prices is negative in China and India, neutral in Brazil and positive in Russia. However, a significant spike in oil prices could reduce global demand and introduce downside risks to growth across all of the BRICs.

- **China** and **India** are net oil importers, so a rise in oil prices has a direct negative impact on growth via the negative terms of trade shock and subsequent worsening in the current account (CA) balance. Our FX team has estimated that a $10/bbl oil price increase would cause a CA decline of 0.5% and 0.2% of GDP in India and China, respectively.[1] If domestic prices rise along with world prices, household consumption will fall on the back of lower real income and will create a further drag on growth. However, both countries have been reluctant to allow oil prices to rise in conjunction with surging food prices, despite ostensibly loosening price controls after the 2008 oil shock. If governments continue to shield consumers, the impact will show up instead in government budget balances and corporate profits in the energy sector—but this is sustainable only for so long. On the back of high net imports, combined with low price pass-through, our Asian economics team has estimated that a 10ppt rise in oil prices will have a relatively subdued impact on annual growth of 10bp in China and 20bp in India.[2]

- **Brazil** recently became a net crude oil exporter, but its overall oil trade balance is roughly in balance due to limited refining capacity at home (which forces it to import fuel and other products). Higher oil prices thus have little impact on Brazil's terms of trade, CA, or currency. Furthermore, its national oil company Petrobras sets domestic pump prices according to its assessment for medium-term prices and historically has been loathe to change them.

- **Russia** is a major net oil exporter, and thus stands to benefit from an increase in fuel prices. The positive terms of trade shock improves the CA balance (by an estimated 1.1% of GDP per $10 increase in oil prices) and produces higher government receipts (from oil taxation revenues) and higher profits in the oil industry. Both of these channels are mitigated somewhat by currency appreciation (which the Russian government has seemed more willing to allow now than has historically been the case). The growth impact then depends on the extent to which this money is recycled back into the domestic economy through government spending, tax cuts, or higher investment.

Energy Balance in the BRICs

- The BRIC countries' overall energy production and consumption patterns differ dramatically, reflecting different resource endowments, sector sizes and policy choices.

- **Brazil**'s energy profile is unique along several dimensions. It relies heavily on oil and renewable energy sources for its fuel needs, but is relatively self-sufficient in both areas. Brazil has nearly doubled its crude oil supply since the late 1990s, largely

1. *Global Viewpoint* 11/05, "FX Winners and Losers from Higher Energy Prices".
2. *Asia Economics Analyst* 11/05, "Asia: An oil and food blend doesn't taste quite as bad as it sounds."

through Petrobras, and became a net crude oil exporter in 2006. Recent discoveries of offshore oil deposits could propel Brazil to among the largest oil producers globally. It is also regarded as the world leader in renewable energy production and usage, particularly ethanol and other biofuels. It utilizes hydropower—another form of 'clean' energy—to generate a significant share (nearly 84%) of its electricity. As a result of its policies towards expanding oil and renewables production, total energy consumption as a proportion of production has declined significantly over the past three decades.

- **China** has the least diversified energy profile among the BRICs. Both production and consumption are heavily skewed towards coal, of which it has significant reserves and is the world's largest produce and consumer. However, China's rapid pace of industrialization and acceleration in energy demand have forced it to look elsewhere. It has increasingly turned to oil for consumption, but has been unable to expand production at a similar rate, and recently became the world's second-largest net oil importer behind the US. Although China has made efforts to diversify beyond coal and oil, other sources continue to play only a minor role.

- **India** is the most reliant on external sources for energy due to insufficient domestic resources. It imports over 30% of its energy supply, compared with 24% in Brazil, 12% in China, and just 4% in Russia. Coal and combustibles/renewables account for most of India's energy consumption and production. But as natural gas and oil consumption have accelerated over the past decade, India has begun to actively pursue production opportunities in these realms. Nevertheless, total energy consumption relative to production has increased steadily since 1980 and has been the highest among the BRICs since 2002.

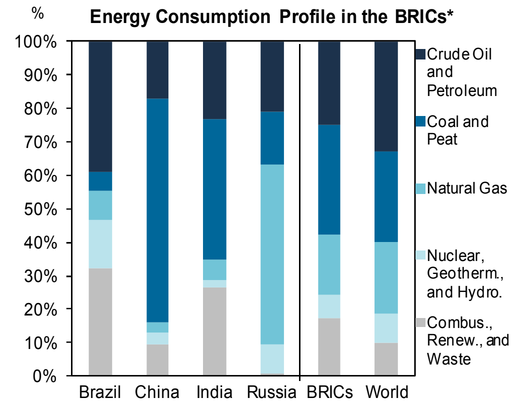
- **Russia** is a major player in world energy markets due to its rich resource endowments. It is home to the world's largest natural gas reserves, the second-largest coal reserves, and the eighth-largest oil reserves. In 2010, it was the largest producer of crude oil, ahead of Saudi Arabia, and the second-largest net exporter of total oil (crude and petroleum products). It also was the second-largest producer and the largest net exporter of natural gas. Turning to its consumption mix, Russia relies on natural gas for over half of its domestic energy needs. Oil and coal also figure prominently. Due to its plentiful natural energy resources, Russia has made little attempt to diversify into either the production or utilization of other energy sources.

Energy Intensity in the BRICs

- Energy intensity (the amount of energy required to produce a unit of GDP) is on the decline across most of the BRICs. China and Russia have experienced the most dramatic improvements, albeit from high levels. While the average intensity in other developing countries have fallen by around 15% since 1992, China and Russia have seen declines of 40% and 34% respectively. However, their intensity levels remain well above those of most other countries. Some reasons contributing to this include the low use of renewable energy, the large manufacturing and mining focus of the economies and fewer environmental laws.

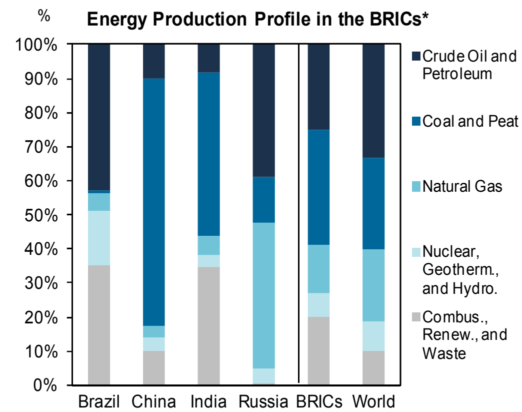
- In India and Brazil, the energy intensity picture is quite different. India has seen a steady decline over the past two decades and has remained below global averages since 1995. Brazil's high use of renewable sources has translated into a consistently low level of energy intensity.

Energy Consumption Profile in the BRICs*



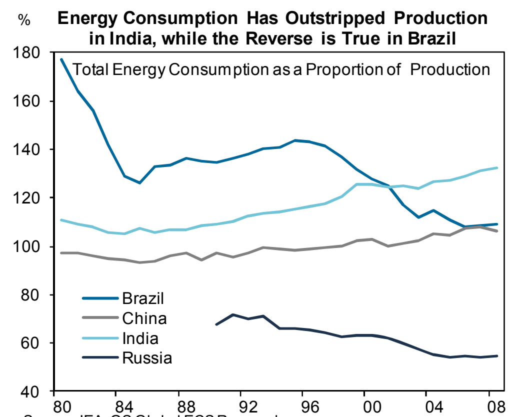
*defined as total primary energy consumption
Source: IEA, GS Global ECS Research

Energy Production Profile in the BRICs*



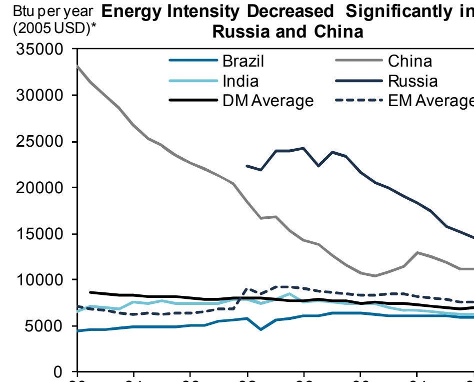
*defined as total primary energy production
Source: IEA, GS Global ECS Research

Energy Consumption Has Outstripped Production in India, while the Reverse is True in Brazil



Source: IEA, GS Global ECS Research

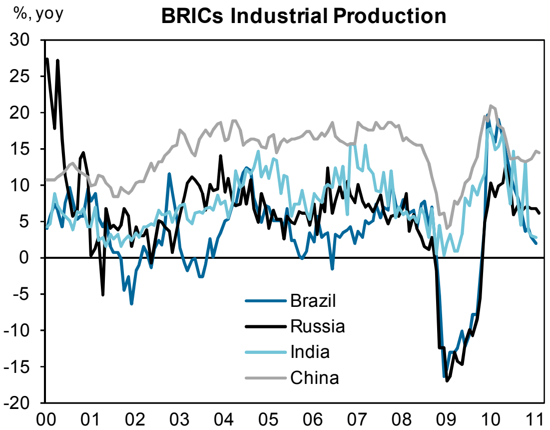
Energy Intensity Decreased Significantly in Russia and China



*Btu (British thermal units) is a traditional unit of energy often used to describe the heat value (energy content) of fuels; Source: IEA

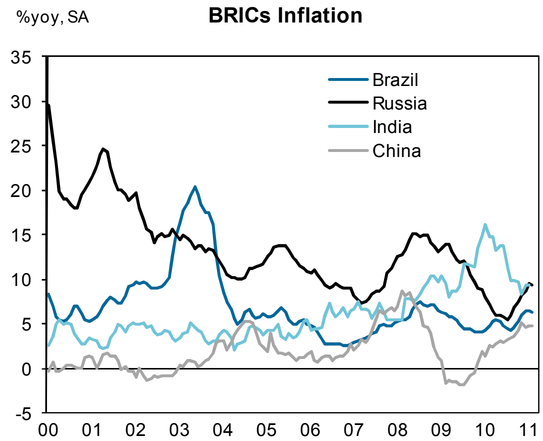
Economic Activity in the BRICs

Sequential industrial production slowed across the BRICs in the latest release.



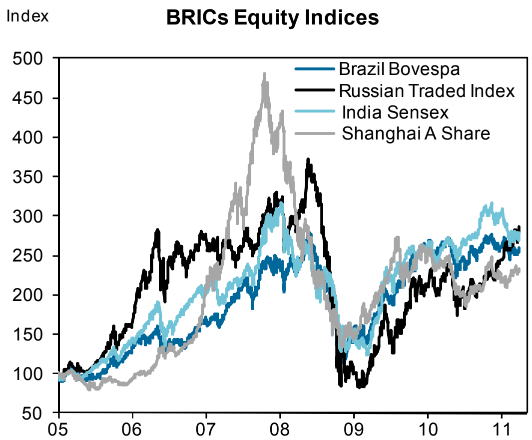
Source: National sources, GS Global ECS Research

Inflation has slowed in Brazil, Russia and India, but is still at high levels in China.



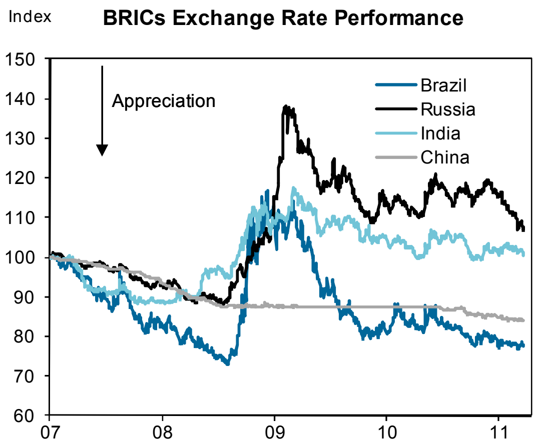
Source: National sources, GS Global ECS Research

In February, equities rose 6.3% in Russia, 4.2% in China and 1.2% in Brazil, whereas India's Sensex fell by 2.8% .



Source: National sources, GS Global ECS Research

All BRICs currencies appreciated against the Dollar in February.



Source: National sources, GS Global ECS Research

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