

Analysis of the Knock-on Effects of Individual Factors Driving Change in Oil Prices and Re-building the BOK's Model of the Global Economy (BOKGM)

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Global oil prices, which had shown reiterated modest fluctuations during the latter half of 2011, rose sharply on the resurgence of geopolitical risks in the Middle East in line with the Iranian question from February this year. As global oil prices rose at a time when the world economy was sluggish largely because of the euro problem, there are mounting concerns about their negative impact on the Korean economy. Global oil prices are known to be influenced by various factors including global demand, the supply capacity of oil producing countries, geopolitical and natural disaster risks, speculative funds and changes in the exchange value of the US dollar. This paper carries out an analysis as to which factors mainly influenced past changes in oil prices and examines whether the impact of oil prices on the macro-economy differs by these factors.

The results of the empirical analysis show that the oil price increase during 2002 and 2008 was mainly attributable to demand factors, while the recent oil price increase since 2009 stemmed from a combination of demand, supply, geopolitical and financial factors. The influence of global oil price changes on domestic growth and prices differs according to the factors driving the changes in oil prices. An oil price increase arising from supply and geopolitical factors brings rising prices and a recession. Meanwhile, when oil prices rise due to demand factors, rather than supply factors, GDP growth rate increases, even though headline inflation (CPI) accelerates irrespective of the oil price factors.

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These results mean that existing assertions such as “If global oil prices go up by 10%, domestic CPI rises by a certain percentage and GDP falls by a certain percentage.” may be inappropriate. In addition, the findings also imply that the policy authorities need to work to come up with policy responses considering the factors generating the changes when an oil price shock occurs.

Meanwhile, we reconstructed the Bank of Korea Global Model (BOKGM) to incorporate the analysis presented in this paper and the findings of recent studies related to oil price models. The BOKGM’s contribution to improving the accuracy of economic forecasting and the sophistication of policy simulation analyses are expected to be enlarged by virtue of the substantial strengthening of the crude oil block.

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II . Analysis of Factors Causing Changes in Global Oil Prices and Effects by Factors

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