

# Is oil price still driving inflation?

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## Executive summary

In this paper, we empirically investigate the effects of oil price changes on inflation over the period 1991-2016 for eight industrial countries: the United States, Canada, Japan, Australia, Germany, France, Italy, and the UK. This issue remains particularly important for the implementation of monetary policy. To ensure price stability, the responsible for monetary policy must assess the impact of oil price changes on inflation and utilize the appropriate tools to control inflation. Understanding inflation dynamics is especially important today due to the very low inflation levels prevailing in many countries. When inflation is far below target, central banks' tolerance for further negative inflation impulses can be low. Furthermore, there may be a high risk that inflation expectations will fall as a result of the drop in oil prices. In a context of falling oil prices with a weak global growth environment and with nominal interest rates constrained by the zero lower bound in the advanced economies, monetary policy should react forcefully to stimulate economic activity, maintain the anchoring of inflation expectations, and prevent deflation risks.

Our analysis is based on a new methodology using an unobserved components model in a state space framework. This allows a time-varying pass-through and avoids some difficulties in the specification of the Phillips curve, which involves a regression on unobserved variables, namely the output gap and inflation expectations. The data set extends to 2016 and includes

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both the financial crisis and the falling oil prices initiated in June 2014, events that are not covered by previous studies. We employ a common methodology across countries and hold the sample period fixed, our results are directly comparable across countries, so we can assess both how the oil price pass-through evolves over time and what are the common features between the countries under study.

Our results have important implications for the implementation of monetary policy. First, they give a clear indication that the Philips curve coefficients have changed over time, suggesting that central banks ought not rely on a stable Phillips curve for setting monetary policy. Secondly, although low, core inflation remains positive even at the end of the period, except in Italy in the first half of 2016, suggesting that the credibility of monetary policy and the anchoring of inflation expectations at low levels have so far avoided the risk of deflation. The use of unconventional monetary policies has prevented unanchored inflation expectations. However, inflation expectations are found to be more firmly anchored in the US, Canada and Australia. Thirdly, inflation reacts strongly in response to demand pressure in the United States and Australia. For other countries, the relationship between inflation and the output gap is much more tenuous, implying that an accommodative monetary policy is less likely to trigger the upward drive in prices necessary to compensate for falling inflation expectations, even in situations where monetary policy has been successful in stimulating economic activity. Fourthly, the oil pass-through into inflation is highly significant for all the countries over the period 1991-2016. This is evidence that even over a low and stable inflation period, oil prices continuing to play a significant role in the dynamics of inflation. Fifthly, despite some differences between countries, the oil pass-through has shown an upward trend over the period in almost all countries. We observe an increasing effect of oil prices on inflation since the early 2000s until the global financial crisis in all the countries except Germany; then it stabilizes and even starts to decline in the United States, Italy, Australia, and Japan. This break may result

from the accommodative monetary policies put in place during the global financial crisis. Our results show that the pass-through is particularly high in North American countries, it has nearly doubled in the United States over the last fifteen years. Our results suggest that central banks must continue to monitor oil prices fluctuations closely, especially when they are prolonged over time.

*Keywords:* Energy and the economy, oil price, inflation, Phillips curve, unobserved components models

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