

# Oil Price Declines Could Hurt U.S. Financial Markets: The Role of Oil Price Level

*Ha Nguyen,<sup>a</sup> Huong Nguyen,<sup>b</sup> and Anh Pham<sup>c</sup>*

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In 2014, oil prices dropped sharply to the lowest level since the Great Recession. Stock prices also declined in this period. This positive correlation between stock prices and oil prices contradicts the conventional expectation that cheaper oil prices benefit oil-importing economies like the United States. Because of this abnormal correlation, many economists believe that declines in both oil prices and the stock market are driven by weak aggregate demand.

This paper asks a complementary question: “How do changes in oil prices *causally* affect financial markets, controlling for shocks to aggregate demand?” To establish a causal effect of a change in oil prices on stock prices, we instrument for changes in oil prices with plausibly exogenous news that might exclusively affect current or future oil supplies. We use daily data of oil, stock, and bond indices from January 2011 to October 2016. Motivated by the debate around how the sharp drop in oil price in 2014 affected the economy, we study the period before and after the drop separately. A structural break test suggests that oil price switched between a high regime and a low regime around November 13, 2014. Therefore, we split the sample on November 13, 2014.

We find that from November 13, 2014, a decline in oil price hurt risky assets (equities and high-yield bonds) and lifted safe assets (investment-grade bonds and long-term treasury bonds). This suggests that oil price declines may hurt the operation of the economy (reflected by stock prices) and credit-worthiness of riskier borrowers (reflected by high-yield bond prices). However, from January 1, 2011 to November 13, 2014, our IV estimates on the effects of oil prices on stock prices are negative and statistically insignificant.

What makes post- November 2014 different? We explore a possible explanation that at low and high oil price levels, the effects of oil price fluctuation on financial markets are different, possibly due to concerns about the energy sector and its spillover to the rest of the economy. In fact, the average daily oil price from 2014 to 2016 was \$63/barrel, around the break-even price for shale oil extraction. We interact the change in log of oil prices with oil price level and find that this interaction term is negative and significant from November 2014, implying that the adverse effect of oil price declines on financial markets were stronger when oil prices were lower. For the period from 2011 to November 2014, the interaction term is not statistically significant. This suggests that the level of oil prices might not matter much for the relationship between oil prices and stock prices in this period when the average daily oil prices were high, around \$95/barrel. Although the interaction result is only suggestive (as oil prices could be correlated with other factors), it is consistent with the explanation that at very low level of oil prices, the concern about oil companies going out of business is magnified, which could have spillover effects to other sectors.

The findings highlight important negative spillover of oil price declines to the entire financial markets especially when oil price is low. This suggests a need for close monitoring from policy-makers, so they stand ready to support financial markets if warranted. Future research with firm-level data is important to understand the exact mechanisms through which oil price declines could affect firms’ valuations and operations.

a The World Bank, Washington, DC. Email: hanguyen@worldbank.org

b International Monetary Fund, Washington, DC. Email: knguyen3@imf.org

c Schar School of Policy and Government, George Mason University. Email: apham16@gmu.edu