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## Economic Modelling

journal homepage: [www.elsevier.com/locate/ecmod](http://www.elsevier.com/locate/ecmod)

## The dark side of the black gold shock onto Europe: One stock's joy is another stock's sorrow<sup>☆</sup>

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### ARTICLE INFO

#### Article history:

Received 27 May 2015

Received in revised form 21 March 2016

Accepted 3 April 2016

Available online xxx

#### JEL classification:

C32

E17

F44

Q43

#### Keywords:

Oil prices shock

European stock markets

Transmission effects

Impulse responses

Bayesian analysis

VAR model

### ABSTRACT

This paper examines the impact of the current oil prices fall on Europe. We estimate a Bayesian shrinkage VAR model and analyse the impulse response functions to investigate the reaction of European stock markets to the current oil prices collapse. Using data covering the March 2002 to May 2014 period, our main result is that European stock markets are negatively and significantly affected by the crude oil shock. We prove that this result is robust to reasonable changes in the Bayesian shrinkage VAR model of the variables order and inclusion of additional variables. The findings shed light that common features exist among the European stock markets. Furthermore, the results highlight that the most exposed stock market is the French one, and that the least affected market is the Austrian one.

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### 1. Introduction

Black gold, also known as the “blood of industry”, is one of the most important commodities in the modern economy. Hence, in the context of macroeconomic and geopolitical uncertainty, oil price fluctuations can have significant consequences, such as what occurred with the primary oil shocks of 1973. For more than 50 years, oil prices were favourable for producers, and have fluctuated widely from \$12/bbl in January 1999 to \$127/bbl in January 2014. Currently, the price of crude oil is simultaneously at its lowest level in the last 6 years (\$30/bbl). In an environment characterized by slow economic activity, the stock market is an economic barometer. The relationship between crude oil and stock market returns has been investigated by many researchers (Jones and Kaul, 1996; Sadorsky, 1999; El-Sharif et al., 2005; Park and Ratti, 2008; Ono, 2011; Aroui et al., 2011; Cunado and Perez de Gracia, 2014, among others). Given that the roots of the link between

oil and stock markets are of a different nature, it is interesting to explore whether the co-movements between oil and stock prices have emerged in the current timeframe.

The question we attempt to answer is whether the 2014 oil-price decrease has affected the European stock markets or to what extent some of them have been immune to such a shock.

In view of the governing role of an oil price collapse in stock markets in Europe, Figs. 1 and 2 display European oil demand and oil supply, respectively, from 1987 to 2015.

It is clear that although it has reduced its demand for oil, Europe (along with the USA) still accounts for almost half of global oil consumption. Thus, it would be informative to determine the European stock markets that were significantly impacted by the mid-2014 oil collapse.

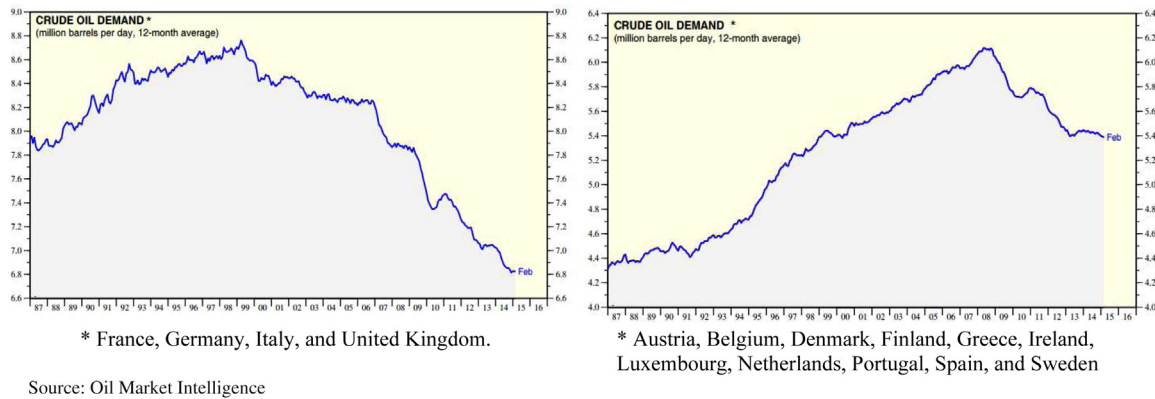
The answer is complex and depends on the macroeconomic weaknesses of the affected countries and the financial flexibility with which they are able to absorb this shock.

We are certainly not the first to emphasize the effects of oil-price shocks on European stock markets, but to our knowledge, this is the first paper to focus on the consequences of the mid-2014 fall in oil prices on Europe. Focusing on the effects of the oil collapse on the European stock markets is crucial given that since the beginning of the year –

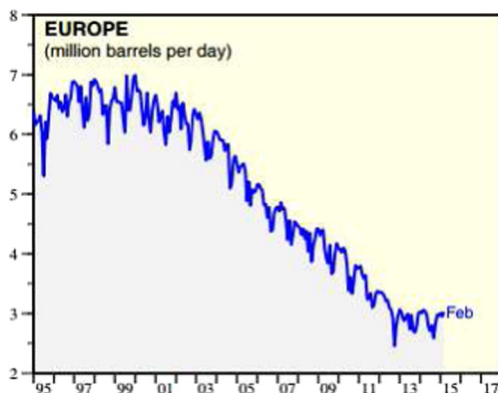
<sup>☆</sup> The authors would like to thank the editor and reviewers of Economic Modelling for their helpful comments on earlier versions of this paper. All remaining errors are our own.

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**Fig. 1.** European demand for oil.  
Source: Oil Market Intelligence



**Fig. 2.** European oil supply.  
Source: Oil Market Intelligence

between aversion and appetite for risk – the euro zone has been favoured by international investors.

Moreover, we employ a technique that has never been applied in this context. Thus, this is the first work addressing the impact of the 2014 fall in oil prices on the European stock markets that uses a Bayesian shrinkage VAR (BVAR) model.

To our knowledge, no analysis has been performed that studies the links between oil prices and stock markets, particularly in the current environment in which European shares have been at their highest levels since 2000, as the euro has slipped again. According to the literature, there is little evidence on the association between the last extended oil price drop and the European stock market fluctuations in the literature. The investigation of such a relationship is crucial, particularly in the current difficult economic and financial context.

Our methodology offers a number of advantages compared with a standard VAR model. Mainly, the BVAR circumvents the well-known problems associated with a small number of variables. The influence of oil prices on stock markets must be addressed country by country, which is possible using a BVAR. To this end, we analyse the impulse response for all large key variables functions to understand the reaction of European stock markets to the current oil prices collapse, and compare our results to previous findings.

Our analysis yields original findings on the significant impacts of a crude oil shock on European stock returns. The significant negative effects on the primary European stock markets are assessed based on a generalized vector autoregressive framework. These effects are greater in the intermediate region but may be contemporaneously or within one month.

Moreover, the results reveal that the most exposed European stock market is the French one, and that the least exposed market is the Austrian one.

The remainder of this paper is structured as follows: Section 2 presents an overview of the existing literature. Section 3 introduces the methodology of the study, presents the characteristics of the data employed, and discusses the empirical findings. Section 4 concludes and suggests directions for future research.

## 2. Literature review

A rich literature addresses the impact of external shocks on oil-importing and oil-exporting countries. The relationship between oil price and real economic activity is not a new topic. The relationship between oil fluctuations and the effects on macroeconomic variables is acknowledged by most researchers. It is well argued that macroeconomic variables are sensitive to oil price increases. This issue has been studied widely and has received a considerable amount of attention. A large range of papers claim that higher oil prices correlate negatively with economic growth. A number of pioneering studies on the recession of the 70s and the oil shock of 1973 focus on the link between oil price shocks and economic activity. A significant body of research has examined the effect of oil price shocks on GDP. Focusing on the American economy, Hamilton (1983) supports that an increase in oil price leads to economic recession. He finds that positive oil price shocks are a factor in American recessions. Rotemberg and Woodford (1996) use a VAR to study the effects of oil price increases and establish that an oil shock that lowers output by approximately 0.25% lowers real wages by 0.1%. They conclude that an increase in oil prices leads to a decrease in both output and real wages. Also, Awerbuch and Sauter (2006) document that oil price increases and volatility lead to rising inflation and unemployment, and therefore depress macroeconomic growth.

More recently, Eksi et al. (2012) claim that because oil constitutes a substantial input for many industries, an increase in the oil price leads to an economic crisis by creating significant cost-push inflation and higher unemployment. Also, Morana (2013) argues that although the negative impact on domestic demand may be mitigated by the increase in external demand, the overall implications of the oil price drag mechanism are not clear.

Investigating the macroeconomic consequences of oil price fluctuations across different countries over the 1979–2011 period, Cashin et al. (2013) estimate a global VAR model with a set of sign restrictions on the generalized impulse responses. They exhibit that supply- and demand-driven shocks have specific impacts on macroeconomic variables, and that oil importers and exporters react differently.

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