

Oil risk and financial contagion

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In this paper we test for the existence of equity market contagion, originating from oil price fluctuations, to regional and domestic stock markets. The data are collected over the period from April 1993 to April 2015. We apply an International Capital Asset Pricing Model (ICAPM) from a three-factor setting to capture the unexpected return and disentangle simple correlation due to fundamentals and contagion. We investigate four regions: the European Monetary Union (EMU), Asia-Pacific (AP), the Non-European Monetary Union (NEMU) and North America (NA). We define contagion as the excess correlation that is not explained by fundamental factors. Oil risk is shown to be a factor as important as contagion. In addition, oil price fluctuations amplify contagion in the context of regional markets strongly interlinked with the USA.

Keywords: Global financial crisis, financial contagion, Oil risk, ICAPM, GJR-DCC-GARCH.

JEL classification: F30, F36, F62, G12, G15 G20.

1. Introduction

The link between oil prices and the business cycle, including variables such as real GDP, industrial production, unemployment, inflation and market uncertainty, has often been debated in the macroeconomic literature. To quantify the impact of oil on the economy, one can distinguish different modeling approaches. First, oil can be represented as the pinnacle of cross-sectional financial asset prices. Second, price fluctuations due to seasonal variations, to dramatic market changes, political and regulatory decisions or technological shocks may adversely impact producers who use oil as input. This latter effect creates the so called “oil risk”, that is a specific kind of commodity risks.⁵ Additionally oil price fluctuations may spread off to other sectors in the economy, via contagion effects.

Whereas a large body of econometric models à la Fama-French typically accounts for the financial consequences of oil pricing, yet relatively few academic studies have focused on the concept of “oil risk” in a broad framework. This lack of a comprehensive setting might be due to the fact that the notion of oil risk is multidimensional: it includes the sensitivity of oil and gas companies stock market value to oil price fluctuations, the exposure of importing and exporting countries to changes in the trade balance and oil security of supply, as well as the correlation effects between oil and stock markets. The concept of oil risk has been firstly used by Sadorsky (2001) in its micro-economic component that is the negative impact of oil-gas price fluctuations on the stock value of Canadian firms. Since this seminal paper, few applications have been made, enlarging the sample or the time span (see for instance El-Sharif et al. 2005; Boyer and Filion, D, 2007; Park and Ratti, 2008), or more recently looking at asymmetric effect of stock markets to increasing or decreasing oil prices (Ramos and Veiga, 2011). In an aggregate perspective, countries exposure has been studied (Faff and Brailsford, 1999), distinguishing between oil importing countries (Gupta, 2008) or exporting ones (Demirer et al. 2015). With respect to these two strands of literature, this paper neglects the micro-economic aspect of companies’ exposure, but takes into account both importing and exporting countries, in a multifactor model. Our paper is close to Basher and Sadorsky (2006), who allow for both unconditional and conditional risk factors to investigate the relationship between oil price risk and emerging stock market returns, found to be significant and positive.

Biography:

Khaled Guesmi is a Professor of Finance at IPAG Business School, Paris –France and Research Fellow at the Economic Research Forum (ERF) in Cairo, Egypt. He received his M.Sc. in Finance from University of Paris Sorbonne, a Ph.D. in Economics from the Paris West University and H.D.R. (Habilitation for Supervising Doctoral Research) from the Paris XIII University Vincennes St Denis. Before joining academic, he worked as Financial Analyst for “Caisse de Dépôts et Consignation”, Research Manager at the UNESCO, Paris and Quality Controller at General Electric Money Bank, Paris. He published many papers in top-tier journals such as Journal of International Money & Finance, Economic Modeling, Applied Economics, International Economics, Journal of International Financial Markets, Institutions and Money, International Review of Financial Analysis, Computational Economics, European Journal of Comparative Economics, Energy Policy, and Energy Study Review. He is the co-founder (with Anna Creti and Duc Khuong Nguyen) of the International Symposium on Energy and Finance Issues (ISEFI).