

# Natural Gas and Crude Oil in Europe: New evidences

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## Extended Abstract

The deregulation of energy commodity markets, which has been underway in Northern Europe since the mid-90's, has caused changes in the dynamics of the principal EU energy markets, and their representative benchmarks.

One major aim of deregulation is to allow markets to respond to supply and demand conditions, this has been particularly true in the electricity and natural gas markets ([9],[10]) where prices are determined by market participants more than by regulators. A more competitive market for electricity, for example, suggests that its spot prices will promptly respond to price changes in input fuels.

Many scholars, using different dataset and methodologies, have investigated whether natural gas and crude oil prices are related (i.e., see [1],[2] [4], [11],[8]). Market behavior in the 90's suggested that changes in the oil price drove changes in the natural gas price, and that the converse did not occur. In the past decade the relationship between oil and gas has been increasingly affected by the various deregulating policies and the introduction of new technologies.

For some scholars oil prices ([3],[7],[6]) are expected to remain the long run driver of energy price dynamics through inter-fuel competition and price indexation clauses, from a Dynamic Commodity Trading perspective there is no a priori expectation of a sustaining relationship between oil and natural gas.

Better understanding of the relationship between crude oil and the natural gas market in Europe is a crucial issue for risk management strategies and to appreciate the efficacy of government policies aimed to create true competitive markets.

The European Third Energy Package aspires to create a unique gas and electricity market for the entire zone. The anticipation, announcement and implementation of the Third Package has had different effects on each of the EU's major gas hubs during a time when Brent has changed its index structure and become "the major index" for crude oil benchmark in the world. In the last decade 7 European hubs have become increasingly active and give us a better data set to investigate possible relationships between oil and gas.

We study daily price levels and price changes, as well as forward curves for each of the seven European Hubs and for Brent. We try to identify the nature of the

relationship between natural gas and crude oil In Europe using a DCC approach. The Error Correction Model (ECM) framework is also used to measure the dynamics of this relationship. .

We try to address the recently debated role of speculation and financialization in the changing structure of price volatility which occurred in these markets. We further discuss the role of changing regulation to understand the recent price dynamics.

We believe our study has important ramifications for investment decisions of both private firms and utilities as well as the direction of future energy policy.

**JEL** Classification Numbers: C32 , Q40.

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