

Market Arbitrage: European and North American Natural Gas Prices

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Abstract: For many years, contractual arrangements in Europe and fuel switching between natural gas and residual fuel in North America kept natural gas prices on both continents aligned with those for crude oil. More recently, however, the number of U.S. facilities able to switch between natural gas and residual fuel oil has declined, and over the past five years, North American natural gas prices have been on an upward trend with crude oil prices—but with considerable independent movement. Recent research finds that crude oil prices have a prominent role in the long-term movements of crude oil prices, but weather, seasonality, storage and production disruptions are short-run drivers of U.S. natural gas prices.

Previous research also has found that arbitrage between European and North American natural gas markets enables some co-movement in natural gas prices across the Atlantic but is insufficient to create cointegrated prices. Increased flows of LNG into the U.S. and the potential sensitivity of these shipments to price differentials between the two continents suggests the possibility of a strengthening relationship between European and North American natural gas prices. Using an error-correction model of North American natural gas pricing with weekly data through early 2008, we examine whether the limited co-movement between natural gas prices in Europe and North America is mediated through crude oil prices or is being shaped directly by gas-to-gas arbitrage.