Formation of Market Beliefs in the Oil Market*

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Abstract

We characterize formation of market beliefs in the oil market by providing a complete characterization of the market reaction to oil inventory surprises. We utilize the unique sequential nature of inventory announcements to identify inventory shocks. We estimate an AR-ARCH-MEM model of the joint dynamics of returns, return volatilities and trading volumes around the announcements using high frequency data on oil futures contracts. Our model (i) handles illiquidity of long maturity contracts by accounting for trading inactivity, (ii) captures time varying trading intensity, and (iii) allows for structural changes in the dynamics and responses to news over time. We show (i) uniform formation of expectations across oil futures contracts with different maturities, (ii) a strong negative relation between inventories surprises and re-turns, (iii) no effect on the term premium, which suggests that inventory shocks are always considered to be permanent, and (iv) di_erentiation in the reaction of volume by maturity. We demonstrate how our results can be used to test theories of oil price determination and contribute to the debate on the recent oil glut.

Keywords: oil market, ultra high frequency data, trading intensity, futures returns, return volatility, inventory surprises, expectation formation

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