



Market sentiment in commodity futures returns[☆]



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ABSTRACT

We identify a strong presence of sentiment exposure in commodity futures returns. Sentiment is able to provide additional explanatory power for comovement among commodity futures beyond the macro- and equity-related sources. Commodity futures with low open interest growth, high volatilities, low momentum, or low futures basis are more sensitive to change in sentiment. Similar to Baker and Wurgler (2006), we construct a market sentiment index by Partial Least Squares regressions (PLS) with non-return based stock market proxies, in particular higher moments of the option implied return distribution. Moreover, our sentiment index can be built on a daily basis.

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1. Introduction

Economists have traditionally regarded commodity futures prices as fully informative about future economic activity and asset prices. The theory of backwardation implies that the risk premium depends only on fundamentals such as the net supply–demand imbalance among hedgers in the futures market (Hicks, 1939; Keynes, 1923). However, fundamentals could not explain the puzzle demonstrated in Pindyck and Rotemberg (1990). The authors argue that the co-movement among futures returns of different commodity markets should only be driven by common macroeconomic information. After controlling for these factors, commodity returns still significantly correlate with one another. Pindyck and Rotemberg (1990) interpret this phenomenon as a potential herding effect without further empirical tests.

In this paper, we find that sentiment contains information about commodity futures returns and explains the co-movement among the returns of various commodity futures. Through a sentiment index which is available both at a monthly and a daily level, we identify a significant role of investor sentiment in commodity futures returns, especially in the recent period. Its explanatory power remains robust after controlling for stock market returns, macroeconomic variables, and commodity related factors. Therefore, sentiment represents a distinct source of premia. When sorting the commodity futures based on their conditional characteristics into portfolios, we find that commodity futures with high open interest growth, high volatilities, low momentum, or high futures basis are likely to earn higher returns during bullish sentiment periods, whereas portfolios with low open interest growth, high volatilities, low momentum, or low futures basis are more sensible to change in sentiment.

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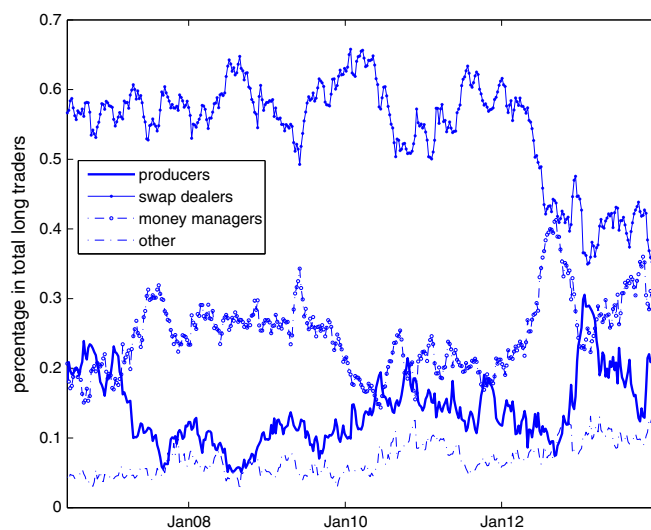


Fig. 1. Proportion of the different types of traders with long positions in the wheat futures market. This figure plots the proportion of the different types of traders on the long side to the total long side traders in the wheat futures market. The trader categories are producers, swap dealers, money managers, and others, as defined by the CFTC. The sample period is from June 2006 to December 2013.

As argued by Baker and Wurgler (2006), two conditions exist for sentiment to take effect in the price formation: the existence of speculative demand and arbitrage constraints in the market. The commodity futures market has features that suggests the existence of market sentiment. The share of financial investors in commodity futures has grown dramatically in the recent decade. As an illustration, Fig. 1 shows the proportion of the different types of traders with long positions in the wheat futures market to the total number of long traders. Financial investors, represented by swap dealers and money managers as defined by the Commodity Futures Trading Commission (CFTC), make up a total of around 80%. Similar situations prevail in other commodity futures markets. This development became known in the academic literature as the “financialization” of commodity markets.

It is particularly worth mentioning that in Fig. 1 swap dealers (index providers) account for around 60% of the total long traders in this market. Swap dealers are typically known as taking a long position in the futures market in order to hedge their index products, which are sold to their clients over the counter. As a result, the commodity futures markets do not just involve a large-scaled participation of financial investors, but the pressure, coming from the long side of the index providers, is rather persistent and substantial relative to the weights of the other types of traders.

A growing co-movement between commodities and stocks (Buyuksahin et al., 2010) and among different commodity groups (Tang and Xiong, 2012) has been observed since the beginning of the last decade.² Domanski and Heath (2007), Masters (2008), Buyuksahin et al. (2008), Mayer (2009), Buyuksahin and Robe (2011), and Tang and Xiong (2012) attribute the effect to the increasing share of financial investors in the market for commodity futures (financialization) and to the hedging activities of commodity index providers. Mou (2011) disclose that index provider’s rolling between contracts of different maturities has a significant effect on price levels. Buyuksahin and Robe (2012) argue that trading activities of hedge funds, particularly those that are active in both the commodity and the stock market, help explain the recent increase in correlation. Singleton (2011) conclude that the intermediate-term growth rates of index provider positions and hedge fund positions had the largest impact on futures prices during the 2006–2010 sample period. Consequently, financial investors’ behavior leads to changes in the risk premia of commodity futures (Hamilton and Wu, 2014). Henderson et al. (2015) provide evidence that investor flows into and out of commodity-linked notes have important impacts on commodity prices.

Financial traders help increase the liquidity of the market. However, due to the existence of short-sale constraints, prices could be extorted by the mood of those financial investors. Schenkman and Xiong (2003) suggest three reasons that prevent arbitrageurs from short selling. First, the price of borrowing a security can be expensive because the default risk of the potential price increase has been priced into the security. Second, arbitrageurs may be risk averse and are therefore deterred by the short-selling risk. Third, capital constraints of arbitrageurs in an extreme market situation may limit short selling. Their theory finds support in the commodity market evidence presented by Acharya et al. (2013), where increases in producers’ hedging demand or speculators’ capital constraints increase hedging costs via price-pressure on futures. Cheng et al. (2012) show that when the VIX index increases, the positions of commodity futures arbitrageurs will decrease. They argue that arbitrageurs’ capital is more constrained during these periods. In commodity markets, due to delivery risk, most asset managers of pension funds are limited to participating directly or going short in the market. Therefore, they can only invest through a commodity index. Hedge fund managers may go short, but obtaining commodities physically is relatively difficult. This also adds to the fact that even arbitrageurs such as hedge funds intend to exploit the difference between the traded price and the fundamental value, they are betting against a substantial number of investors who are

² This strong comovement is in sharp contrast with the period before around 2003. For the earlier period, commodity futures returns are found to be very little correlated with equities (see, e.g. Dusak (1973), Erb and Harvey (2006) or Gorton and Rouwenhorst (2006)).

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