

Financial Stress and Basis in Energy Markets

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Increased financialization of commodity markets developed the association between financial and commodity markets. Therefore, besides the physical inventories, the changes in financial market conditions became an important influential factor on commodity futures prices. In this study, we suspect that the conventional inventory-based models, only measuring the relationship between the commodities basis and inventory under the theory of storage, are not sufficient to explain and predict the changes in the spread between spot and futures prices, the so-called basis. The goal of this study is to understand the relationship between physical inventory, the US financial stress and the basis in the crude oil, heating oil and natural gas markets before and after increasing commodity financialization.

We examine the role of stress in the US financial markets on the energy commodities interest-adjusted basis during the time span from 1994 to 2018. We find that, only after the 2008 financial crisis, there are evidences for a positive effect from the increasing level of financial stress on the energy market commodities interest-adjusted bases. The effect of inventory remains positive during the whole time period; however, this positive effect gradually declines over time. Hence, after the 2008 collapse, the conventional inventory based models do not fully explain the energy market commodities bases. These results can be due to higher participation of financial investors, specifically hedge funds in commodity futures markets. Moreover, the association between the energy commodities interest-adjusted bases with the changes in financial stress is nonlinear, as the bases reactions to the financial stress are higher in the high financial stress periods. This is more profound in crude oil market than heating oil and natural gas. Moreover, the reactions of the energy commodities interest-adjusted bases to the changes in the level of inventory is nonlinear, as the reactions is lower when the level of inventory is high confirming the theory of storage. Finally, there is an interaction effect between inventory and financial stress, which shows that the strength of the effect of inventory (financial stress) on the energy commodities adjusted-basis depends on the level of financial stress (inventory).

Therefore, after the 2008 crisis, inventories have not been the only driver behind the changes in energy commodities markets bases, as with the growing financial liberalization of commodities, financial market conditions have become an important factor in explaining the behavior of bases in energy markets. This is more evident during higher turbulence in the financial markets. Therefore, variations of the spread between spot and futures prices are not only a signal of scarcity or abundance of the commodities in question. These results are useful for all the energy markets participants, the financial market traders, refiners and other energy users who consider the energy bases variations when making their decisions. In addition, the results are important to policy makers for the part of financial market related shock effects on the real economy, i.e., the energy commodity markets in this case.

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