A Markov-Switching Model of Refining Margins and Inventories

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Abstract

We analyze the relationship between inventory and refining margins. We allow for inventories to affect the relationship between crude and gasoline prices by allowing them to affect the probability of regime change in a Markov switching-regime model of the refining margin. This allows us to identify the extent to which any asymmetries in the refining margin can be explained by “tightness” due to low inventories. This is the first paper to examine the effects of low inventory (stock-outs) on regimes in the context of Deaton and Laroque [1, 2] and, Scheinkman and Schechtman [3] theory of competitive production and storage. We allow changes in regime to be influenced by gasoline inventories. We find that low gasoline inventory (stock-out) could trigger a switch from the low margin regime to the high margin regime and also increases the likelihood of staying in the high margin regime. We show that this is consistent with the competitive production and storage theory in gasoline commodity market.

References

