**Executive Summary**

“*Informed trading in the WTI oil futures market*”

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Our research aims to detect potential informed trading in oil markets, specifically on the West Texas Intermediate (WTI) oil futures market, which is the leading market with respect to price discovery and the most-traded futures commodity contract worldwide. We look for anomalies in order flow and study price movements in the hours preceding the official announcement of the US crude oil inventory levels (non-strategic) by the US Department of Energy (DOE).

These announcements, revealed each week by the DOE, significantly influence the prices of WTI oil (American reference), Brent oil (European reference) and, consequently, the prices of other oil products. These weekly announcements also have repercussions beyond the energy markets as equity and foreign exchange prices are also affected. Thus, the weekly inventory news release by the DOE is the most anticipated piece of news in the oil market. Unlike previous works focusing on the price reaction after the announcements, we look at both the price and the trading pattern in the *pre-announcement period*. As an informed trader has an interest in exploiting his private information as soon as possible, it is common in the literature to measure informed trading by order imbalance (difference between orders initiated by buyers and those initiated by sellers). The originality of our research lies in the fact that we combine both the use of intraday data, the examination of trading activity during the two hours preceding the official DOE announcement and the investigation for a potential informed trading in the world's most liquid commodity futures market.

For our econometric analysis, we identify days with significant inventory surprises when the difference between the economists’ expectation (Bloomberg survey) and the realized value is sufficiently large. We highlight anomalies in order flow in the two hours preceding the official DOE announcement with buyers or sellers initiated transactions being in the direction of the news especially when the level of inventories is higher than expected. In this latter case, we also show **a significant drop in the average price of 0.25% before the official DOE news release**, which is consistent with the existence of private information.

Although we highlight the possibility of informed trading before the DOE announcements, we cannot formally conclude on the existence of information leakage from the DOE since we cannot dismiss the possibility that more skilled traders, or those with more advanced technologies to assess crude stocks levels, may be the source of our observations. In particular, the financial press reports that some firms use sophisticated and costly techniques to predict more accurately oil inventory levels (use of infrared cameras or truck traffic monitoring with satellite images on storage sites). Whilst, unfortunately, our data do not allow us to conclude between these two possibilities, they reveal an interest in setting up a very detailed monitoring of transactions around official announcements, which is made possible by the Dodd-Frank law.

Our research is thus in the wake of this US financial reform law following the 2008 crisis. Curiously, it is only very recently that the United States has prohibited informed trading in future commodity markets based on non-public information from government sources. Although there have been no recent cases of scandal related to information leakage from DOE or USDA (US Department of Agriculture), the issue remains highly topical given that Fed members have recently been suspected of using private information. In addition, although our results are significant, we unfortunately cannot prove the existence of this type of informed trading on the oil markets because we cannot distinguish informed trading based on public information from that based on private information. Informed trading based on private sources is obviously still allowed because it’s in the inner nature of future markets. Indeed, hedging decisions are linked to commercial positions that can potentially affect commodity prices.

Our research highlights the confidentiality issue of data compiled by government agencies such as DOE and thus provides food for thought on the timing of the release of this type of information. Indeed, in order to limit the risks of informed trading, the announcement of crude oil stock levels in the United States could be scheduled when the potential for insider trading is less risky. Our results also provide empirical evidence of the need of detailed monitoring of transactions around official announcements. This is made possible by the Dodd-Frank Act which requires more visibility about the nature of the transactions and the identity of the traders. The availability of detailed data to identify traders would also be interesting from an academic point of view since it would highlight the positions taken by the various types of traders (speculators or commercial firms) around the announcements and thus improve understanding of oil price formation.