CRUDE OIL PRICE PREDICTION
LITERATURE SURVEY

SUBMITTED BY:

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1. Forecasting the WTI crude oil price by a hybrid-refined method.

Author: Chai J, Xing LM, Zhou XY, Zhang ZG, Li JX

Published Year: 2018

In view of the importance and complexity of international crude oil price, this paper proposes a novel combination forecast approach that captures a variety of fluctuation features in crude oil data series, including change points, regime-switching, time-varying determinants, trend decomposition of high-frequency sequences, and the possible nonlinearity of model setting. First, product partition model-K-means (PPM-KM) model is used to detect change points in the oil price sequence. Next, we apply a time-varying transition probability Markov regime switching (TVTP-MRS) model to identify the regime-switching characteristic. Then, we use Bayesian model averaging (BMA) to filtrate main determinants at each regime. Finally, the time-varying parameter structure time series model (TVP-STSM) is used to decompose the oil sequence, capture the time-variation of coefficients in "volatile upward" regime, and forecast the crude oil price. Compared with some other competing models and benchmark model of ARIMA, the newly proposed method shows superior forecasting ability in four statistical tests. Besides, we make scenario prediction on WTI crude oil price to examine the implementation effect of OPEC cut-off agreement at the end of 2016. OPEC production and U.S. shale oil production are used as two scenario variables, and the WTI price is forecasted fluctuating around 50 dollar/barrel based on three scenario prediction. We conclude that WTI crude oil price would take a shock upstream tendency in the short-term but the rising scope would not be large.

2. Forecasting spot oil price in a dynamic model averaging framework-have the determinants changed over time?

Author: Drachal K

Published Year: 2016

This paper is aimed on the analysis of monthly spot oil prices (WTI) between 1986 and 2015. The methodology is based on Dynamic Model Averaging (DMA) and Dynamic Model Selection (DMS) framework. The important feature of DMA method is an allowance for both time-varying coefficients and large state space model (i.e., the set of oil price determinants can change in time). Within this framework it was explicitly shown how the significance of oil price determinants vary in time. These determinants itself were chosen with respect to some previous studies. Contrary to the currently reported DMA applications in some other fields, no significant evidence was found that DMA is superior over, for example, ARIMA model. However, DMA could also not been rejected as a significantly worse model due to certain statistical tests. The performed DMA analysis was checked for robustness on various model parameters and for certain computational issues.

It was found, for example, that in the context of the 2008 oil price peak exchange rates and stock markets were important oil price drivers, whereas oil production or oil import were just minor determinants. Some role of the change in inventories was found, but not greater than the one in 1991. The role of China's economy as an oil price driver in 2008 was found to be relatively smaller than in other time periods. Also, the robustness of these findings was discussed.

3. Crude Oil Price Prediction Using Deep Learning
Authors: Y. Jeevan Nagendra Kumar,,Partapu Preetham,P. Kiran Varma,P. Rohith;,P. Dilip Kumar

Published Year: 2020

The crude oil price has a huge impact on the world's economy. From the past few years, crude oil price fluctuates more than any other commodities prices. As the crude oil price depends on several external factors and there is high volatility predicting crude oil prices is very challenging. Long Short-Term Memory (LSTM) based on a recurrent neural network has shown better results in

predicting prices that have high volatility. By utilizing this model, the significant crude oil price is evaluated and modelled. The exhibition of the proposed model is assessed by utilizing the valuable information in the WTI unrefined petroleum markets. The exploratory results show that the proposed model achieves increments in the expected precision of results. The data required is collected from the official website of FEDERAL-RESERVE -BANK -OF -ST. LOUIS.