

Ideation Phase

Define the Problem Statements

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| <i>Date</i> | 25.10.2022 |
| <i>Team ID</i> | PNT2022TMID12428 |
| <i>Project Name</i> | Project – Crude oil price prediction |
| <i>Maximum Marks</i> | 2 Marks |

Problem Statement about Crude Oil Price Prediction

Supply and demand as the fundamental factor, supply and demand have been the main factors affecting oil prices. Supply and demand changes have always been the fundamental factors affecting the long-term trend of oil prices. (Hamilton, 2009b) analysed the drivers of oil prices and argued that the main reason for the rise in oil prices in 2007–2008 was the global demand for production. (Kilian, 2009) developed a structural VAR model to explain the global crude oil price fluctuation and understand the reaction of the US economy associated with oil price volatility. The crude oil price was decomposed into three components: crude oil supply shock, the shocks to the global demand for all industrial commodities, and the demand shock to the global crude oil market. However, in recent years, with the development of alternative energy sources, the worldwide supply and demand structure of crude oil has changed. (Kilian, 2017) reported the increased U.S. tight oil production not only reduced demand for oil in the rest of the world and lowering the Brent oil price but also caused other countries to cut back on their oil imports, lowering global oil demand.

Global economic development is a manifestation of supply and demand (Doroodian & Boyd, 2003; Sadorsky, 1999; Barsky & Kilian, 2001). (Kilian & Hicks, 2013) measured the global demand shock directly by correcting the real gross domestic product (GDP) growth forecast. The results showed that the forecast was associated with unexpected growth in emerging economies during the 2003 to 2008 period. These surprises were associated with a hump-shaped response of the real price of oil that reaches its peak after 12–16 months. The global real economic activity has always been considered to impact the changes in oil price significantly. (Özbek & Özlale, 2010) researched the relationship between global economic and oil prices with trend and cycle decomposition. They found that economic shock has a lasting effect on oil prices, which were considered mainly to be supplyside driven.

Financial factor

In addition to commodity attributes, crude oil also has financial attributes. The long-term trend of crude oil price is determined by the commodity attributes, which are affected by the supply and demand factors generated by the real economy; the short-term fluctuations of crude oil price are determined by the financial attributes, which are influenced by market expectations and speculative transactions. The financial factor mainly includes speculation factor, exchange rate and some other financial index, which connect the stock market and monetary market with the crude oil price.

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| <i>I am</i> | <i>It studies the impact of some typical emergencies on crude oil prices during the reported time window.</i> |
| <i>I'm trying to</i> | demand forecasts are usually made from GDP, exchange rates and domestic prices, and supply is predicted from past production data and reserve data. |
| <i>but</i> | Oil price increases are generally thought to increase inflation and reduce economic growth |
| <i>because</i> | <i>In terms of inflation, oil prices directly affect the prices of goods made with petroleum products.</i> |
| <i>Which makes me feel</i> | <i>The recovery in prices has been largely due to continued production restraint by OPEC+. While the group has increased production since the start of 2021, this has been more than offset by Saudi Arabia voluntarily cutting an extra 1 million barrels per day from February 2021</i> |