

COVID-19 EFFECTS ON COMMODITY PRICING

by

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Abstract

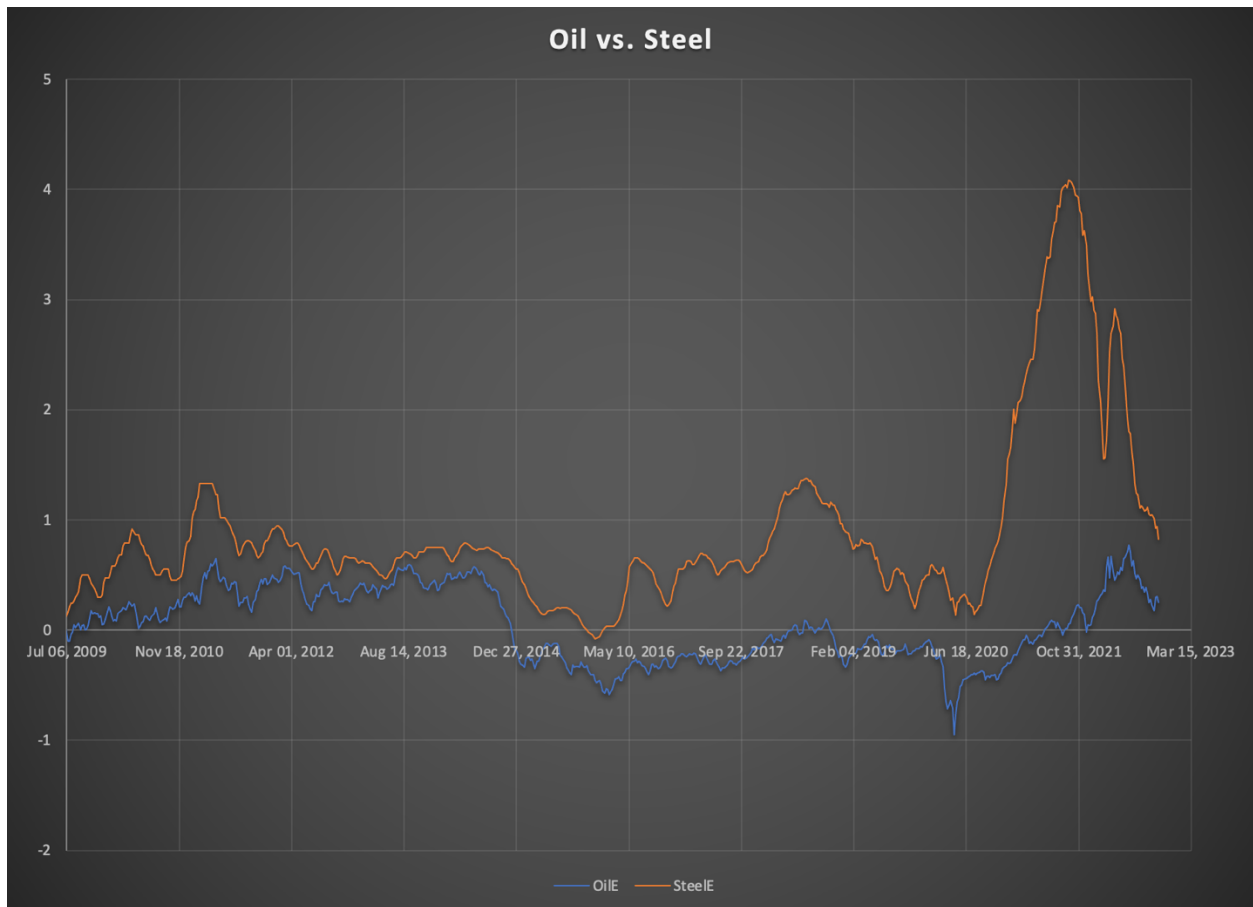
My work is based on how COVID-19 has affected commodity prices around the world. Commodities are something we use and depend on every day whether we realize it or not and I was curious to see how this is affected by major world events. I focused my research on four separate commodities, steel, crude oil, lumber, and wheat. I gathered the spot prices for each commodity dating back to 2009 and broke the data down weekly. After normalizing the data, I graphed the results to see if they were all affected the same way. What I found was that demand during 2020 was extremely high partial due to people stockpiling items in fear of having to quarantine. What I further found was that this was one of the many reasons demands rose and reflected onto spot prices. There was also extreme variation between all of the commodities I chose. This went against my initial idea that the commodities would track each other in some way. I also found that wheat is affected hugely by the recent war between Ukraine and Russia due to Ukraine producing 10% of the world trade for this commodity.

Introduction

I chose the four commodities steel, crude oil, lumber, and wheat because they are relevant to both myself as well as everyone in the world. Every single person depends on these commodities to survive and whether they know it or not use them every day. In the past year we consumed 783 metric tons of wheat worldwide, we used 1,864 million metric tons of steel in 2020, 51 million board feet of lumber was produced in 2020, and 6,606.5 million barrels of crude oil was also used in 2020 alone. These commodities are so widely used, and it would be a catastrophe if we tried to live without them. Between metals, agriculture, energy sources, and

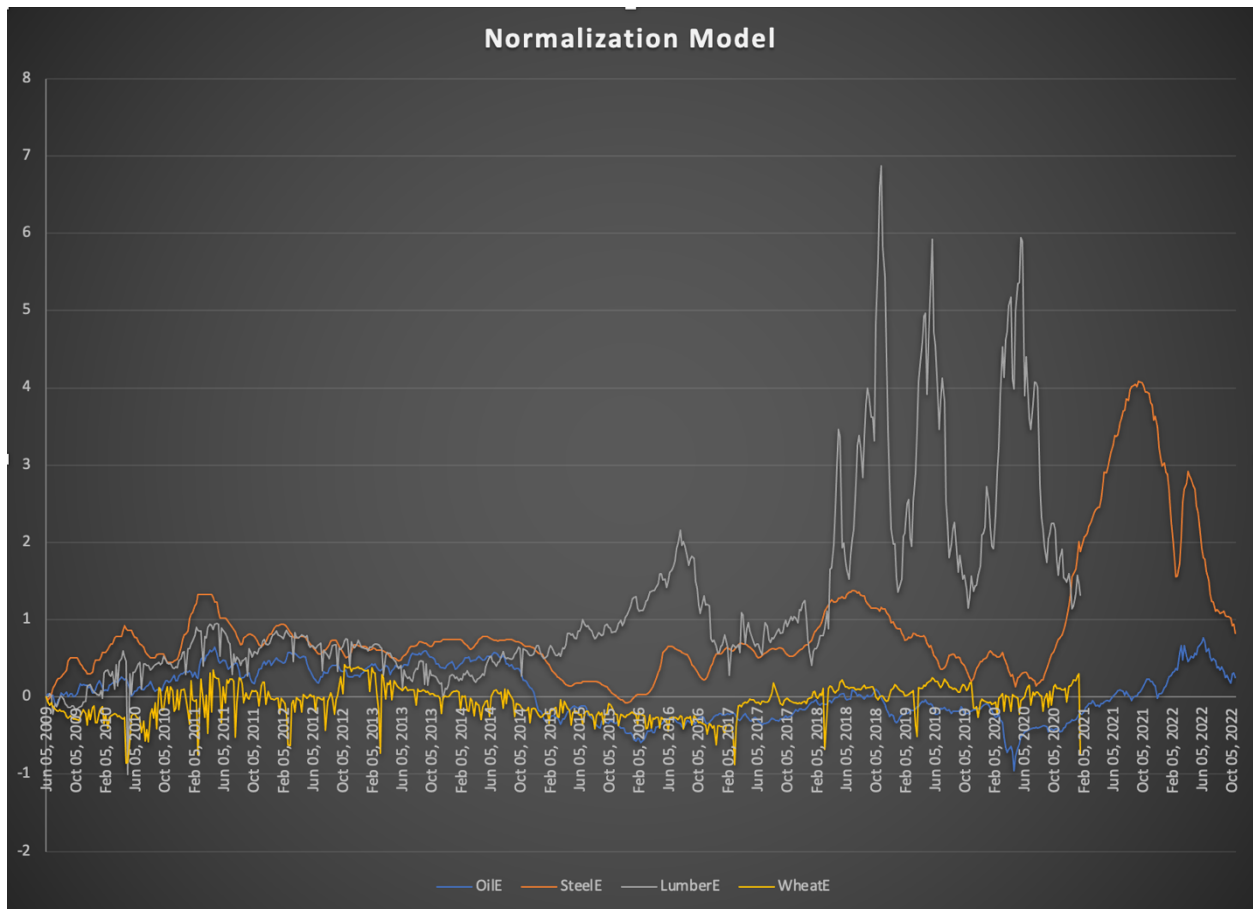
soft commodities, the four that I have picked are widely used and depended on. I was curious to research how Covid has affected each category at large scale. I also was curious on how the effects from Covid differed from each commodity and the cause and effect from what took place.

In my research I collected both the moving averages of each spot price as well as the normalization of the spot prices across commodities. With uncertainty comes volatility and reduces correlation between each commodity. The graph below demonstrates the comparison between oil and steel during the start of COVID-19, as you can see there was high uncertainty in steel which is why the spot price started to climb.



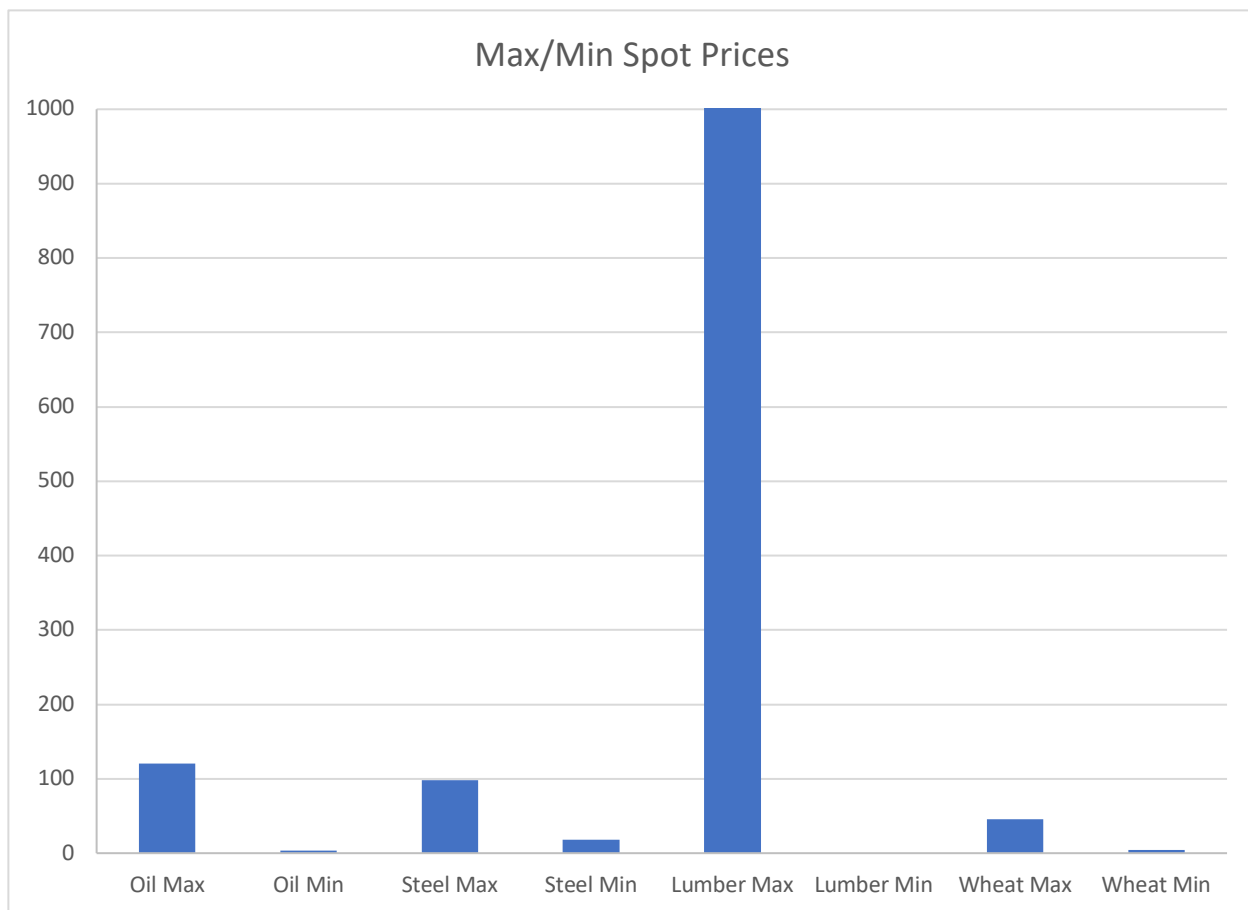
This normalization model compares all the commodities together since 2009. I chose this start

date because it includes the “great recession” in 2007 to compare those numbers related to my research. I calculated the model by gathering weekly spot price in June of 2009 and subtracting it by the current spot price for the specific time below. Secondly, I divided it by the original June 2009 price to find the difference for each commodity. Thirdly, I ran a correlation model in excel to see how they compared to each other.



Surprisingly, I did not find what I initially anticipated. I thought that each of the four commodities would track each other and rise around March of 2020. However, they tend to move independently. In this model lumber rose over seven times its base spot price, steel rose nearly four times its base price as well. It is no doubt caused by the effects COVID-19 has had on the commodity market on a global scale. Below you can see the max/min spot prices for

each commodity since 2009. With this data it should also be taken account for that every one of the spikes and maximums occurred either during or post covid.



Some key dates I looked at when performing my research were

March 15th, 2020: US shut down due to covid which is why you see the spike

Feb 28th, 2020: Stocks plunge due to fears

May 8th, 2020: 14.7 Unemployment rate

Wheat, the crop replanted every year globally and price usually depends on the weather of the current and past year. The extreme rise in this commodity price has much to do with the pandemic effecting the entire globe. It was not as much as the weather that changed the pricing of wheat, but the supply chain shortages such as labor shortages that increased this

price. In addition to the recent war between Russia and Ukraine have caused this commodity to skyrocket. Russia's invasion of Ukraine comes at a time when global food and energy prices are already elevated. Over the last 18 months, wheat prices have risen nearly 110 percent. These developments occurred as world economic growth rebounded from pandemic-curbing measures. Crude oil and natural gas prices began to surge, reflecting the economic recovery. wheat stocks among major global exporters have tightened in recent years as international trade has grown. Major exporters' stocks in 2021/22 are forecast to be at their lowest levels in 10 years, putting upward pressure on global prices[2].

So, what are producers changing post Covid? They have shifted their plan to a more "stockpiling" or inventory-based approach instead of just in time which was ordering and producing according to current demand.

Sources

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