

IFG Progress Digest

Navigating Turbulent Waters: The Shipping Industry and Global Economic Uncertainty

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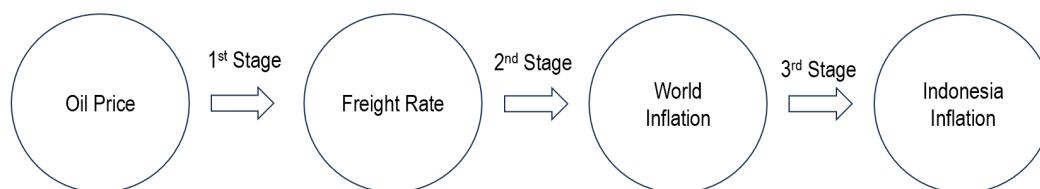
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- The escalation between Iran and Israel will likely cause an increase in oil price, considering Iran strategic location in the Persian Gulf. This will have adverse impact on the worldwide shipping rates. Increases in global shipping rates could put an upward pressure on both global and Indonesia inflation.

The conflict in the Middle East has flared up once more. On April 14th 2024, Iran launched an attack on Israel as retaliation for Israel's attack on their embassy earlier in April. The escalation intensified geopolitical tensions in the region following the Red Sea crisis caused by Houthi rebels earlier this year. The escalating tensions pose a significant risk of further disrupting trade and logistics activities in the region and beyond, especially considering that 80% of global trade is conducted via sea transportation. Iran is also located strategically on the northern shore of the Persian Gulf, where a significant part of the global crude oil reserves are located. The intensification of the conflict could have an influence on the global oil production in the region, which could then impact oil prices. In this IFG Progress Digest, we will try to analyze the potential impact of the escalation on the oil price and the subsequent impacts on container freight rates and inflation, both globally and domestically.

Exhibit 1. The Channel of the Impact of Oil Price



Sources: IFGP Research

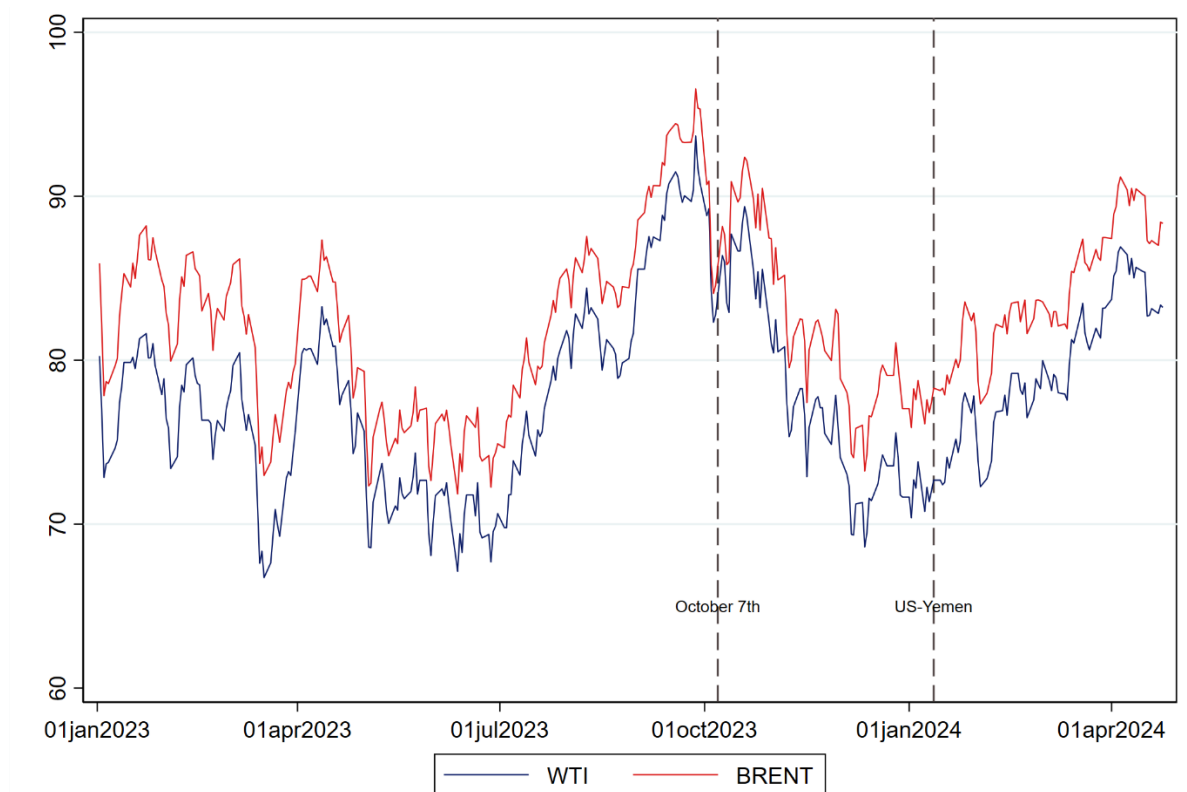
The Effect of Conflict on World Oil Price

The global oil price is heavily influenced by global tensions, especially regional conflict in the Middle East. Exhibit 2 graphs the historical price of both the West Texas Intermediate (WTI) and BRENT oil prices. Following a downward trend in September 2023, oil prices rose as a response to the October 7th attack and its following clashes. Since then, the prices have been gradually going down, until the Red Sea crisis earlier this year.

The crisis has impacted trade activities in the area, and a study from the German economic institute IfW Kiel found that the quantity of containers passing through the Red Sea region

has dropped by a significant 60% as a result of the crisis in early 2024. This combined with the OPEC announcement of production cuts in March 2024 have driven the oil price higher.

Exhibit 2. WTI and Brent Crude Oil Price (January 2023 – now)



Sources: Bloomberg, IFGP Research

The recent escalation between Iran and Israel could further bolster the price hike, taking into consideration Iran's strategic location in the Persian Gulf. Compared to the Red Sea, an interruption to oil shipments via the Strait of Hormuz would be substantially different. If Iran threatens to block the Straits of Hormuz, which they have done multiple times in the past, global oil prices might be likely to shoot up even higher, as this would potentially have harmful consequences on the worldwide shipping rate.

We implement three stages of analysis to have better picture on the impact of the geopolitical tensions on logistic costs and further cascading impacts on inflation.

1st Stage : The Impact of Oil Price on Shipping Rate

Exhibit 2 displays our regression estimate of the impact of a worldwide increase in oil prices on freight rates. This effect is unidirectional, with oil prices influencing freight rates, driven by two key factors: (1) We measure container freight rates, which encompass approximately 80% of total sea transportation, and (2) [We argue that up to 75% of vessel operating costs arise from bunker \(oil\) prices](#). Thus, there is compelling evidence that rises in oil prices will directly impact freight rates. Contrary to container freight rates, the correlation between oil prices and tanker freight rates could be bi-directional. Tankers are primarily utilized for transporting oil across continents, meaning fluctuations in oil prices can impact both the demand for tanker services and the costs associated with operating tankers.

As seen from the first result, a 1% increase of oil price correlates with a 0.981% increase of freight rate. The correlation between the two variables can be considered as strong, and this is expected as freight rate are influenced heavily by the price of fuel. To further understand the magnitude, we try to analyze the relationship on several key trade routes.

Exhibit 3 illustrates the patterns of correlation between oil prices (represented by World Texas Intermediates/WTI) and several freight rates routes (represented by the World Container Index/WCI). We observe a close correlation depicted by similar patterns of ups and downs in both graphs. This correlation persists when decomposing the WCI into three main global routes: Shanghai-Rotterdam (SHAtoROT), Shanghai-New York (SHAtoNY), and Shanghai-Los Angeles (SHA to NY).

Exhibit 2. Regression Estimate of the Impact of Oil Price on Freight Rate

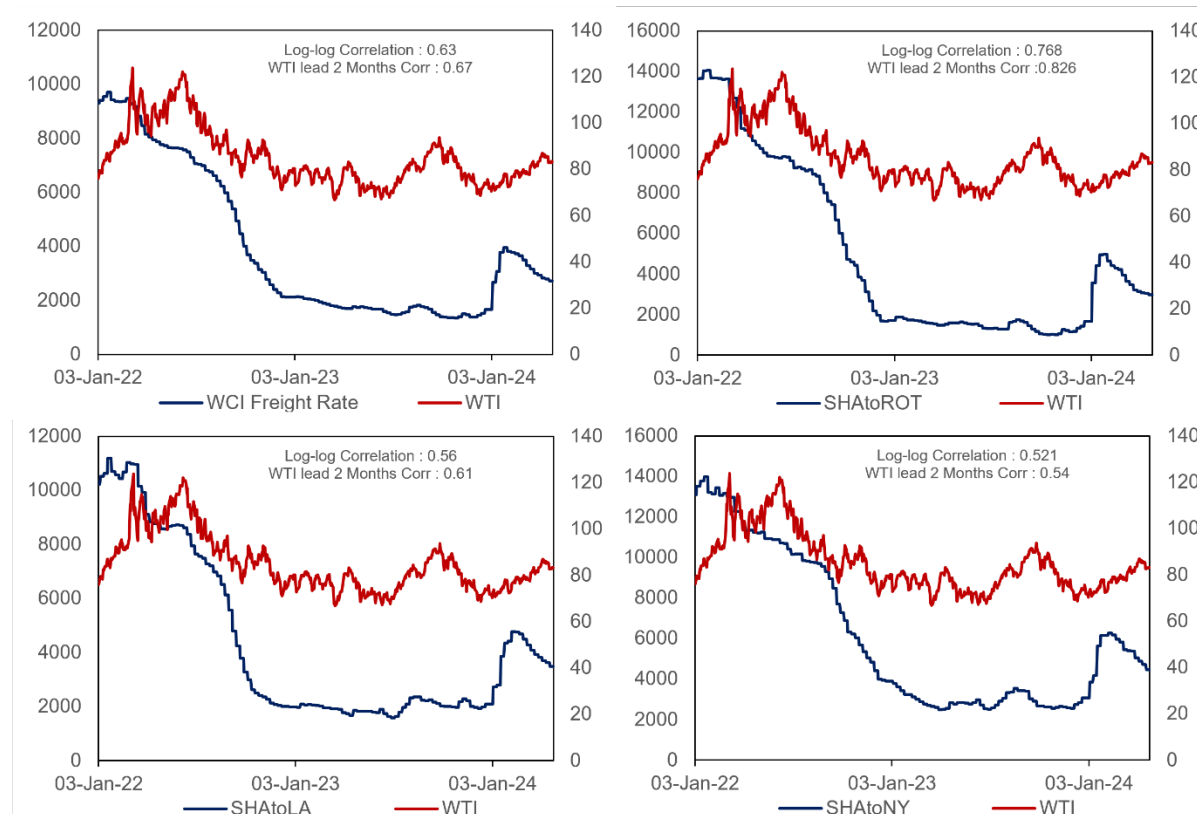
VARIABLES	(1)
	WCI Freight Rate
WTI	0.981*** (0.218)
Constant	3.722*** (0.903)
Observations	87
R-squared	0.193

Standard errors in parentheses. Variables in log form

*** p<0.01, ** p<0.05, * p<0.1

Sources: Bloomberg, IFGP Research

Exhibit 2. WCI Freight Rates and WTI Trends & Correlation (January 2022 – now)



Sources: Bloomberg, IFGP Research

Furthermore, regression analysis estimates that oil price has an impact on the freight rates with a coefficient of 0.5 – 0.7, which means that every 1% increase in oil price will increase the freight rates by 0.5–0.7%. The impact can also linger, particularly as several trading arrangements for sea transportation, especially for dry bulk products, may be tied to specific contract prices. This means that oil price fluctuations may not be immediately reflected in the ongoing freight rates prices on this types of cargo. Indeed, the impact of a rise would manifest later.

To verify this, we conducted a regression analysis of freight rates on oil prices leading by two months. The resulting coefficient surpassed the initial findings, affirming that changes in oil prices exert a delayed effect on freight rates. Specifically, we observed a 0.6-0.8% increase in freight rates for every 1% increase in oil price, as seen in exhibit 2 correlation coefficient of WTI lead by 2 months.

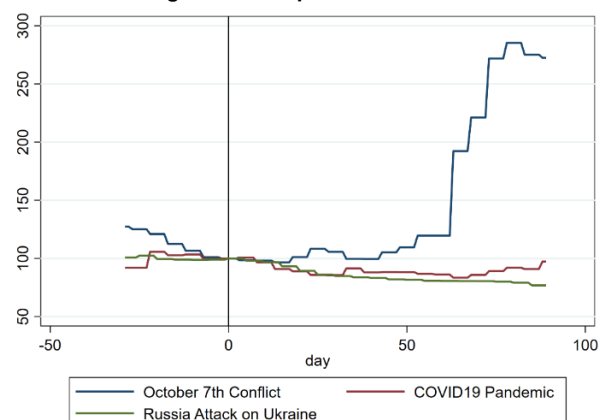
Combining our previous analysis, we now try to visualize how the WCI freight rate responds to several recent crises. As seen from Exhibit 4, freight rates didn't respond significantly to the start of the COVID-19 Pandemic and the Ukraine-Russia conflict. In particular, concerning the Covid-19 situation, the impact was felt about 2 months - a quarter after the outbreak, particularly when major liners like Maersk Line implemented blank sailing strategies as part of supply rationing-blank sailing is when a shipping line or carrier skips a particular port or an entire voyage of a scheduled sailing route, further driving up freight rates.

One distinct difference between the other conflicts is the region where it happened. The October 7th conflict happened in the Middle East region, and the spillover of the conflict to the Red Sea has caused the freight rates to increase. It must be noted that the conflict has been relatively contained in that region, and has yet to spread to the oil-rich Persian Gulf. Iran's involvement and escalation in the conflict could influence the price of oil and, as shown from our previous estimate, could potentially raise the freight rates even further.

2nd Stage : Higher Shipping Rate Effect on Global Inflation

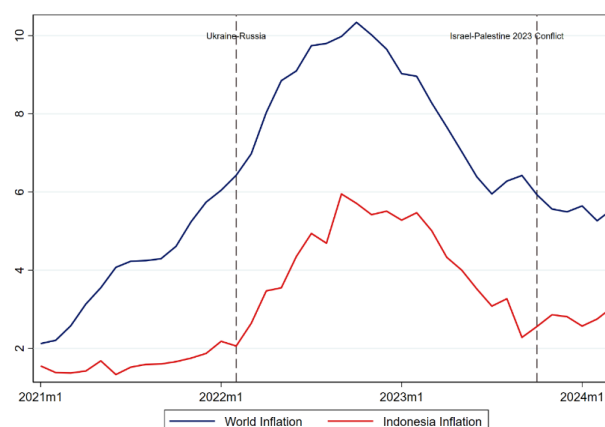
Looking at the trend (Exhibit 5), global inflation has been relatively low compared to the year before. The Ukraine conflict with the gas crisis in Europe has caused the annual inflation to surge, reaching a peak of 10.34% in October 2022. However, inflation has been slowly going down since then converging to around 5-6% recently. Graphically, the October 7th conflict doesn't have a noticeable impact on the global inflation rate compared to the Ukraine-Russia conflict. But, further escalation and spillover effect of the conflict could lead to different outcome.

Exhibit 4. WCI Freight Rate Response to Several Recent Crisis



Sources: Bloomberg, IFGP Research

Exhibit 5. World & Indonesia Inflation (January 2021 – now)



Sources: Bloomberg, IFGP Research

To gain a deeper comprehension of the extent shipping rate influence global inflation, we run a regression analysis on the effect of WCI Freight Rate and World Inflation (Exhibit 6). The results show that for each percent increase in freight rate, world inflation would increase by around 0.19%. Our previous estimate magnifies the relationship between oil prices and freight rates, which are positively correlated. Therefore, if there is eventually an oil price increase due to the intensification of Iran in the conflict, it could also have upward pressure on world inflation.

3rd Stage : Impact of Global Inflation increase on Indonesia Inflation

The potential rise of global inflation could have an impact domestically. Historically, Indonesia inflation has been relatively low compared to the global level, shown by exhibit 5. Indonesia's inflation level has usually been 1% – 2% lower compared to the world. While this can be attributed to many factors, one of the main factor is because Indonesia was relatively isolated and unimpacted to the energy crisis in Europe due to the Ukraine conflict.

But, even then, the pattern of Indonesia inflation still reflect those of the global level, showing significant correlation. To further understand the magnitude, we run a regression analysis between the two shown in Exhibit 7. Our regression estimate shows that each percent of the increase in world inflation will correlate to Indonesia's inflation by 0.33 %. Therefore, it is expected that any further escalation and spillover effect of the conflict could exacerbate this situation, leading to additional inflationary pressures within the country.

It is also worth mentioning that the effect of oil price increases does not only transmit through freight rates. The rising global oil price will widen Indonesia's budget deficit due to energy subsidies, and the government will have a difficult choice whether to decrease the subsidy quantity, consequently rising the gasoline price which will increase domestic inflation. All in all, we should expect a rise in both global and Indonesia's inflation if the conflict between Iran & Israel escalates further.

Exhibit 6. Regresstion Estimate of the Impact of Freight Rate on World Inflation

VARIABLES	(1)
	World Inflation
WCI Freight Rate	0.191*** (0.0496)
Constant	-0.0424 (0.380)
Observations	111
R-squared	0.120

Standard errors in parentheses. Variables in log form

*** p<0.01, ** p<0.05, * p<0.1

Sources: Bloomberg, IFGP Research

Exhibit 7. Regresstion Estimate of World Inflation on Indonesia Inflation

VARIABLES	(1)
	Indonesia Inflation
World Inflation	0.335*** (0.103)
Constant	0.682*** (0.151)
Observations	111
R-squared	0.089

Standard errors in parentheses. Variables in log form

*** p<0.01, ** p<0.05, * p<0.1

Sources: Bloomberg, IFGP Research

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