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A STUDY ON IMPACT OF RUSSIA UKRAINE WAR ON CRUDE OIL PRICES IN INDIA

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Abstract: The war between Russia and Ukraine has grievously impacted the global economy. It has measuredly affected the foreign trade and has created uncertainty in the same. According to PPAC, India imports 85 percent of crude oil. (Economic Times) The war between these two countries have striven the prices of the crude oil at a higher peak. A country like India which is scanty in crude oil and natural gas and which is an over populated country where crude oil consumption is more, is finding difficult to cope up with rising prices of crude oil. This paper aims to find out the overall impact of the Russia Ukraine war on India's foreign trade specifically on crude oil prices. Secondary data is collected from various sources and the data is analysed using SPSS analysis. For the study we have considered the price levels of three benchmark indexes of crude oil, which are Brent, WTI and OPEC basket. Eight months oil prices in which four months before the war and four months during the war was considered for analysis, Mann Whitney U Test was applied to compare the oil prices before and during the war. Through the analysis it is proved that war has an impact on crude oil prices in India and this article ends with a conclusion that the crude oil prices have shown significant spike since the inception of Russia - Ukraine War.

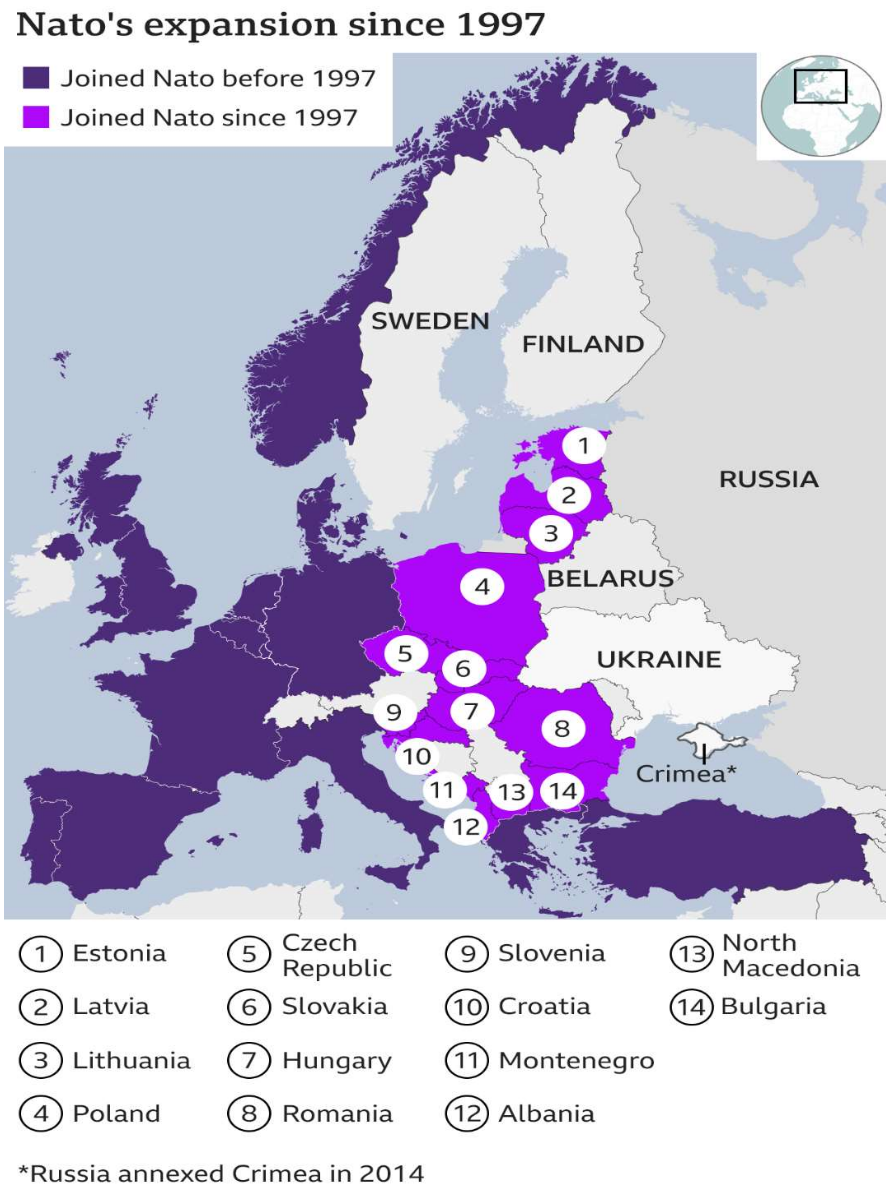
Keywords: Crude Oil, Russia Ukraine War, Global Economy, Mann Whitney U test, Foreign Trade.

Introduction:

On 24 February 2022, Russia invaded Ukraine in a major escalation of the Russo-Ukrainian War that began in 2014. The invasion caused Europe's largest refugee crisis since World War II, with more than 8 million Ukrainians fleeing the country and a third of the population displaced. Russian President Vladimir Putin was apprehended to take this action as a reaction to inclusion of Ukraine in the NATO alliance.

For Russia's leader the West's 30-member defensive military alliance NATO has one aim - to split society in Russia and ultimately destroy it. In a Victory Day speech on 9 May he accused NATO of launching an active military build-up on territories adjacent to Russia.

Ahead of the war, he demanded that NATO turn the clock back to 1997 and reverse its eastward expansion, removing its forces and military infrastructure from member states that joined the alliance from 1997 and not deploying "strike weapons near Russia's borders". That means Central Europe, Eastern Europe and the Baltics.

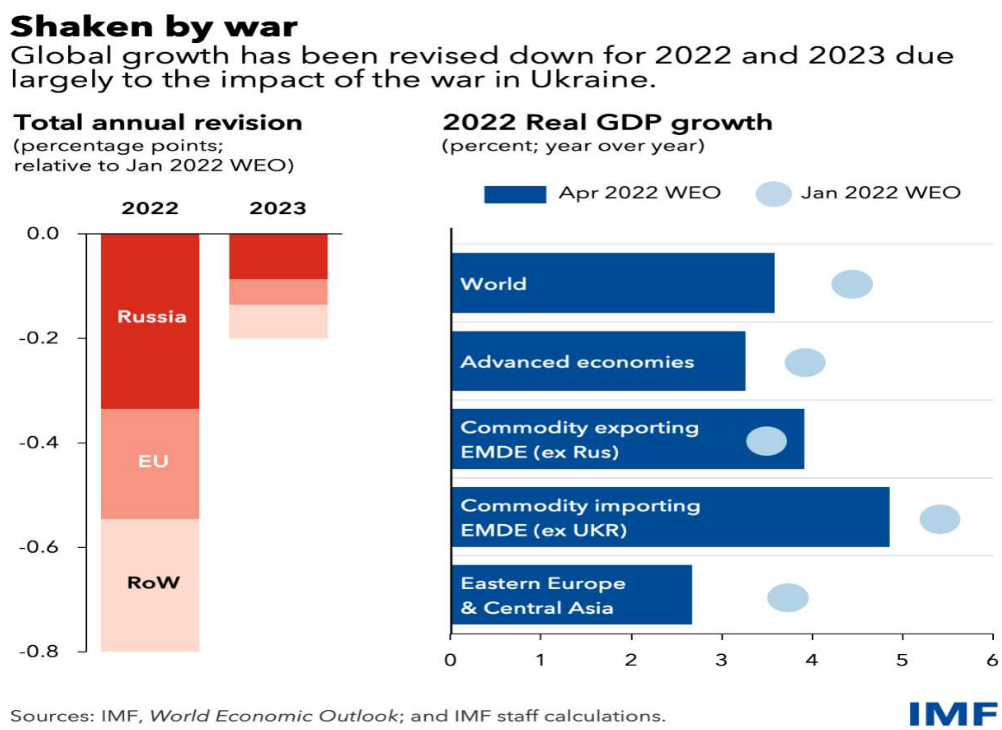


In President Putin's eyes, the West promised back in 1990 that NATO would expand "not an inch to the east", but did so anyway.

That was before the collapse of the Soviet Union, however, so the promise made to then Soviet President Mikhail Gorbachev only referred to East Germany in the context of a reunified Germany. Mr Gorbachev said later that "the topic of NATO expansion was never discussed" at the time.

And the context in the 1990s was very different, says Barbara Zanchetta: "It was not done as a provocation, there was a partnership for peace."

NATO maintains it never intended to deploy combat troops on its eastern flank, until Russia annexed Crimea illegally in 2014.



Global Impact of the War

Global economic prospects have been severely set back, largely because of Russia's invasion of Ukraine.

This crisis unfolds even as the global economy has not yet fully recovered from the pandemic. Even before the war, inflation in many countries had been rising due to supply-demand imbalances and policy support during the pandemic, prompting a tightening of monetary policy. The latest lockdowns in China could cause new bottlenecks in global supply chains.

In this context, beyond its immediate and tragic humanitarian impact, the war will slow economic growth and increase inflation. Overall economic risks have risen sharply, and policy trade-offs have become even more challenging.

The war adds to the series of supply shocks that have struck the global economy in recent years. Like seismic waves, its effects will propagate far and wide—through commodity markets, trade, and financial linkages. Russia is a major supplier of oil, gas, and metals, and, together with Ukraine, of wheat and corn. Reduced supplies of these commodities have driven their prices up sharply. Commodity importers in Europe, the Caucasus and Central Asia, the Middle East and North Africa, and sub-Saharan Africa are most affected. But the surge in food and fuel prices will hurt lower-income households globally, including in the Americas and the rest of Asia.

Eastern Europe and Central Asia have large direct trade and remittance links with Russia and are expected to suffer. The displacement of about 5 million Ukrainian people to neighbouring countries, especially Poland, Romania, Moldova and Hungary, adds to economic pressures in the region.

Brent Crude - Brent Crude may refer to any or all of the components of the Brent Complex, a physically and financially traded oil market based around the North Sea of Northwest Europe; colloquially, Brent Crude usually refers to the price of the ICE Brent Crude Oil futures contract or the contract itself. The original Brent Crude referred to a trading classification of sweet light crude oil first extracted from the Brent oilfield in the North Sea in 1976. As production from the Brent oilfield declined to zero in 2021, crude oil blends from other oil fields have been added to the trade classification. The current Brent blend consists of crude oil produced from the Forties (added 2002), Oseberg (added 2002), Ekofisk (added 2007), and Troll (added 2018) oil fields (also known as the BFOET Quotation).

The Brent Crude oil marker is also known as Brent Blend, London Brent and Brent petroleum. This grade is described as light because of its relatively low density, and sweet because of its low sulphur content.

Brent is the leading global price benchmark for Atlantic basin crude oils. It is used to set the price of two-thirds of the world's internationally traded crude oil supplies

WTI - West Texas Intermediate (WTI) is a grade or mix of crude oil; the term is also used to refer to the spot price, the futures price, or assessed price for that oil. In colloquial usage, WTI usually refers to the WTI Crude Oil futures contract traded on the New York Mercantile Exchange (NYMEX). The WTI oil grade is also known as Texas light sweet, although oil produced from any location can be considered WTI if the oil meets required qualifications. Spot and futures prices of WTI are used as a benchmark in oil pricing. This grade is described as light crude oil because of its somewhat low density, and sweet because of its low sulphur content.

OPEC - The OPEC Reference Basket (ORB), also referred to as the OPEC Basket, is a weighted average of prices for petroleum blends produced by OPEC members. It is used as an important benchmark for crude oil prices. OPEC has often attempted to keep the price of the OPEC Basket between upper and lower limits, by increasing and decreasing production. This makes the measure important for market analysts. The OPEC Basket, including a mix of light and heavy crude oil products, is heavier than both Brent crude oil, and West Texas Intermediate crude oil.

Literature Review

Imran Yousaf, Ritesh Patel, Larisa Yarovaya (April 2022), In his Research article titled The Reaction of G20+ Stock Markets to the Russia-Ukraine Conflict 'Black-Swan' Event: Evidence from Event Study Approach examine the impact of the breakout of the conflict between Russia and Ukraine on the G20 and other selected stock markets using the event study approach. The analysis of the abnormal returns (AR) before and after the launch of the 'special military operation' by Russian military forces on the 24th of February 2022 revealed a strong negative impact of this military action on a majority of the stock markets, especially on the Russian market. It concludes that the analysis of the abnormal returns (AR) before and after the launch of the 'special military operation' by Russian military forces on the 24th of February 2022 revealed a strong negative impact of this military action on a majority of the stock markets, especially on the Russian market.

Nagarjuna, B. (2022), In his research article titled RUSSIA'S INVASION OF UKRAINE: IMPACT ON INDIAN ECONOMY - STRATEGIES TO MITIGATE AND SUSTAIN aims to analyses the impact of war on the global and Indian economies. The study reveals that India imports very little oil and gas from Russia, the impact on the Indian economy would be minimal in the short term, as most of India's refining businesses are unable to handle Russia's heaviest crudes, and there are high transport expenses from Russia to India. The study suggests that a nation with a weak military will not be able to withstand a highly technologically advanced enemy, so it is important that the military gap is closed. Leadership should be professional and not politically motivated for the benefit of the individual. The integrity of defence services should be based on the constitution and not on the ruling party or political party.

Onour, I. A., & Abdo, M. M. (2022). In their research article titled "Sensitivity of Crude Oil Price Change to Major Global Factors and to Russian–Ukraine War Crisis " intends to measure the impact of Russia Ukraine war on crude oil prices. The findings indicate change in oil prices due to 1% change in any of the explanatory variables, as follows: the effect of the US dollar depreciation rate, raise crude oil price/barrel by 71 US cents; and increase in OPEC production, decrease crude oil price by 82 US cents; a decrease in non-OPEC production, raise oil price by 4.78 US$. However, if OPEC members increase their output level by 10 million barrels per day to compensate the Russian oil loss, then global crude oil price is expected to stay at 102 US$pb.

Indian Express Limited (2022), In their article titled "Ukraine invasion: How the jump in crude prices will impact Indian economy" stated that Oil prices have been rising over the last couple of months due to conflicts between Russia and Ukraine. Brent crude prices breached the $100 barrel today, as Russian President Vladimir Putin authorised a 'military operation' in the Donbass region. oil prices surged and the stock markets crashed globally. The spike has been driven primarily by fears of supply side disruptions. There is going to be an inflationary impact. India imports more than 80% of its oil requirement, but the share of oil imports in its total imports is around 25%. Rising oil prices will impact the current account deficit— the difference between the values of goods and services imported and exported. The rise in crude oil prices is also expected to increase the subsidy on LPG and kerosene, pushing up the subsidy bill.

Research Methodology

In order to understand the gap between the prices before and during the Russia Ukraine war, secondary data regarding the price levels is collected from multiple sources. Data for Brent was taken from Intercontinental Exchange (ICE), WTI prices were taken from BNN Bloomberg, and information on the OPEC basket was published by OPEC. All prices are for front-month future contracts. Whenever a public holiday fell on a Monday, Tuesday prices were considered for all benchmarks for consistency. The data is compared in simple table form. The variables are also analysed using statistical method of non-parametric test of Mann Whitney U test. SPSS software is used. The data is then used to give final conclusion.

Hypotheses of the study

H_0 : There is no impact of the Russia Ukraine war on the crude oil prices.

H_a : There is an impact of the Russia Ukraine war on the crude oil prices.

Data Analysis and Findings

The following table shows the data which is collected through various sources for three benchmark indexes that is Brent, OPEC Basket and WTI Futures.

Crude Oil Prices Data			
Date	Brent	OPEC Basket	WTI Futures
Nov-01	84.71	82.49	84.05
Nov-15	82.05	80.9	80.88
Dec-01	73.44	74.2	69.95
Dec-15	74.39	75.04	71.29
Jan-01	78.98	78	76.08
Jan-15	87.51	88.08	85.43
Feb-01	89.16	90.89	88.15
Feb-15	96.48	95.16	95.46
Mar-01	103.21	126.51	119.4
Mar-15	106.9	110.67	103.01
Apr-01	107.53	106.23	103.28
Apr-15	113.16	110.54	103.21
May-01	107.58	110.19	105.17
May-15	114.24	113.07	114.2
Jun-01	119.51	119.85	118.5
Jun-15	122.27	120.66	120.93

Table 1: Price Data for Brent, OPEC Basket and WTI Futures

In the SPSS Statistics output below, we show you the Mann-Whitney U test using mean ranks. To do this, SPSS Statistics produces three tables of output for the data: The **Descriptive Statistics** table looks as follows:

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Brent	16	97.5700	16.27919	73.44	122.27
OPECBasket	16	98.9050	17.76781	74.20	126.51
WTIFutures	16	96.1869	17.27282	69.95	120.93
Months	16	1.50	.516	1	2

Table 2 : Descriptive Statistics

Ranks Table

The **Ranks** table is the first table that provides information regarding the output of the actual Mann-Whitney U test. It shows mean rank and sum of ranks for the two groups tested (i.e., the price before the war started and during the war)

Ranks

	Months	N	Mean Rank	Sum of Ranks
Brent	Beforewar	8	4.50	36.00
	Duringwar	8	12.50	100.00
	Total	16		
OPECBasket	Beforewar	8	4.50	36.00
	Duringwar	8	12.50	100.00
	Total	16		
WTIFutures	Beforewar	8	4.50	36.00
	Duringwar	8	12.50	100.00
	Total	16		

Table 3: Mann Whitney Test Ranks Table.

The table above is very useful because it indicates which group can be considered as having the higher price spike, overall; namely, the group with the highest mean rank. In this case, the group 2, meaning the second group of "During war" shows higher mean rank value (12.50) than the mean rank value of group 1, which is prices "Before war" (4.50)

Test Statistics Table

This table shows us the actual significance value of the test. Specifically, the **Test Statistics** table provides the test statistic, *U* statistic, as well as the asymptotic significance (2-tailed) *p*-value.

Test Statistics[a]

	Brent	OPECBasket	WTIFutures
Mann-Whitney U	.000	.000	.000
Wilcoxon W	36.000	36.000	36.000
Z	-3.361	-3.361	-3.361
Asymp. Sig. (2-tailed)	.001	.001	.001
Exact Sig. [2*(1-tailed Sig.)]	.000[b]	.000[b]	.000[b]

a. Grouping Variable: Months

b. Not corrected for ties.

Table 4 : Test Statistics

In the above table,

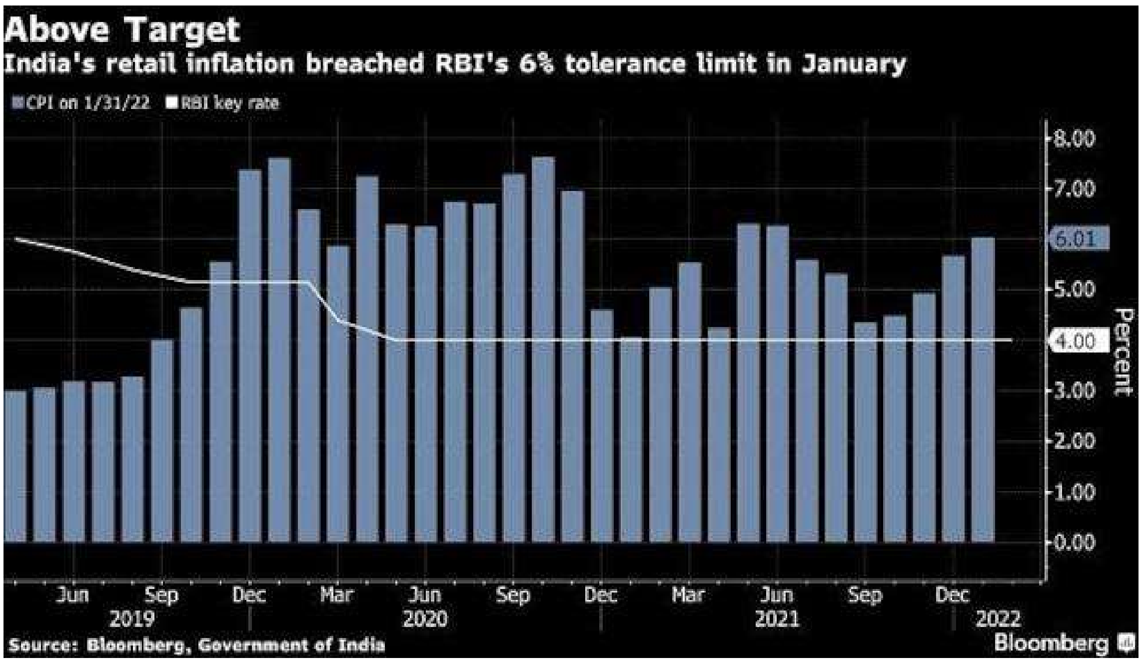
P=0.01 it means $P < 0.05$ therefore the **null hypothesis** (H_0 = There is no impact on crude oil prices) is rejected and **alternative hypothesis** (H_a = There is impact on crude oil prices) is accepted, Hence, it proves the basis of our study that Russia-Ukraine war has affected the crude oil prices in India.

The effect on India :

The impact of the war in Ukraine on global supply chains could force India's central bank to raise its inflation forecast, but may leave little scope for it to tighten monetary policy amid a deteriorating global growth outlook, according to economists.

The surge in edible and crude oil prices are bound to feed into headline inflation, which has already breached the upper tolerance limit of the Reserve Bank of India's 2%-6% target range. While the RBI has blamed supply side shocks for the spike, higher prices will nevertheless eat into disposable incomes of consumers, the backbone of the economy that has yet to fully start spending after the pandemic.

"This is the policy maker's nightmare -- risk of persistent inflation, alongside a very uneven and unsatisfactory growth," said Ananth Narayan, senior India analyst at Observatory Group, an economic and political advisory firm.



With crude prices over $100 a barrel and amid geopolitical uncertainty, Narayan sees it possible for retail inflation to average 6% next fiscal year beginning April -- instead of the 4.5% forecast by the RBI. India, which relies on imports to meet about 85% of its oil needs, is expected to let pump prices rise once key state elections wrap up this month.

"Inflation numbers purely based on oil prices could head higher if the government decides to pass on even half of the impact," said Soumya Kanti Ghosh, an economist at State Bank of India.

A 10% increase in retail prices of gasoline, diesel and liquefied petroleum gas could result in a 50 to 55 basis point rise in headline consumer prices over the course of a year, according to estimates by Saugata Bhattacharya, chief economist at Axis Bank Ltd.

Still, the central bank may stay away from raising interest rates as it reconciles its roles of fighting inflation, supporting growth and managing the government's debt issuance. Russia's invasion of Ukraine is a risk to India's budget math, as it could upset the government's plan to raise funds from assets sales while possibly forgoing some revenue to spare consumers the burden of costlier crude.

Any excise levy cut to cushion the impact on retail fuel prices could undermine the government's fiscal deficit goal, which was worked out based on oil in the range of $70-$75 a barrel. Those calculations are now out of the window with Brent touching $139 a barrel Monday. Prime Minister Narendra Modi's administration is also rethinking the timing of its proposed share sale in Life Insurance Corp., which could crimp revenue and enlarge the budget gap that's already one of the widest in the world. Although India has, for now, ruled out borrowing more this fiscal year to bridge the gap, its debt plan for the year beginning April 1 is at a record, making cheaper interest rate an imperative.

"Sharp rise in energy prices and pass-through impact of other commodity prices will create more challenges for growth-inflation dynamics," said Soumyajit Niyogi, associate director at India Ratings and Research. "Though the global central banks could still go for monetary tightening, domestically RBI is expected to continue with wait and watch policy."

More Risks

Costlier crude could also widen the deficit in the nation's current-account, the broadest measure of trade, and weigh on the local currency, which already declined to a record low on Monday.

"Any persistent rupee depreciation due to widening trade deficit and Fed tightening, could be another source of imported inflation," said Gaurav Kapur, chief economist at IndusInd Bank Ltd.

The crude oil price shock can shave off as much as 60 basis points of economic growth in India, according to Anubhuti Sahay, Mumbai-based South Asia chief economist at Standard Chartered Plc.

Price Projections
Most economists see inflation averaging at 5% or higher next year

RBI	4.5%
Standard Chartered	5.0
IndusInd Bank	5.0
DBS	5.0
Citibank	5.0
Barclays	5.1
Deutsche Bank	5.2
HDFC Bank	5.3
QuantEco	5.3
State Bank of India	5.5
Bloomberg Economics	5.9
Observatory Group	6.0

Source: Bloomberg, RBI, economists
Note: India's financial year will start April 1
Bloomberg

But crude isn't the only problem. Record cooking oil prices in global markets are complicating the job of policy makers. The sharp rise in prices of commodities has started seeping into domestic prices, with cooking oil prices, particularly sunflower oil, rising by as much as 25 rupees (33 cents) a litre. Ukraine and Russia account for about 80% of world sunflower oil cargoes.

Despite price pressures, the RBI has maintained an accommodative stance to support growth, drawing criticism from some quarters that it could fall behind the curve. Jayanth Rama Varma, the lone dissenter among India's monetary policy setters, has said the central bank's inflation-targeting credibility is at risk if it keeps policy loose for too long.

Governor Shaktikanta Das, however, said in a speech Friday that the RBI has acted in line with its domestic growth-inflation dynamics.

References :

1. Indian Express Limited (2022)
2. Nagarjuna, B. (2022). RUSSIA'S INVASION OF UKRAINE: IMPACT ON INDIAN ECONOMYSTRATEGIES TO MITIGATE AND SUSTAIN. EPRA International Journal of Multidisciplinary Research (IJMR), 8(3), 204-209.

3. Onour, I. A., & Abdo, M. M. (2022). Sensitivity of Crude Oil Price Change to Major Global Factors and to Russian–Ukraine War Crisis. Journal of Sustainable Business and Economics, 5(2), 4641.
4. Yousaf, I., Patel, R., & Yarovaya, L. (2022). The reaction of G20+ stock markets to the Russia-Ukraine conflict. Available at SSRN.
5. https://www.bbc.com/news/world-europe-56720589
6. https://blogs.imf.org/2022/04/19/war-dims-global-economic-outlook-as-inflation-accelerates/#post/0
7. https://www.business-standard.com/article/economy-policy/oil-shock-from-ukraine-war-risks-becoming-nightmare-for-india-s-rbi-122030700131_1.html