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Poly-crisis and India's Oil Market Resilience: Evidence from the Russia-Ukraine and Iran-Israel-US Wars

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ABSTRACT

The world has moved from single, isolated shocks to a poly-crisis, where wars, supply-chain breaks and price shocks arrive together and feed each other. This paper studies two such shocks for India: the Russia-Ukraine war that began on 24 February 2022, and the US-Israel-Iran war that began on 28 February 2026. Using publicly available government and market data, the paper applies a descriptive analysis, an event study, independent-samples t-tests, an F-test for variance, and a correlation analysis to measure how Brent crude oil prices and the USD/INR exchange rate reacted around each war. The 2026 war produced a far larger and more statistically significant price shock than the 2022 war, while the rupee-oil correlation on a day-to-day basis is weaker than commonly assumed, pointing to the cushioning role of RBI intervention and a growing share of discounted Russian crude in India's import basket. The paper closes with simple, practical resilience lessons for Indian policymakers and businesses.

1. Introduction

India is heavily dependent on crude oil imports for over 85 per cent of its crude oil needs, according to data from the Petroleum Planning and Analysis Cell, which estimates the dependence to be 87.7 per cent for 2023-24 and will rise even more in the future (Petroleum Planning and Analysis Cell, 2024). This number explains the essence of why a war involving the world's oil supply soon turns into an Indian economic issue, rather than a foreign policy issue. The term 'polycrisis' describes a situation where multiple crises overlap and amplify one another, rather than arriving one at a time. For financially integrated economies these shocks also spill across markets, as documented for emerging Asia during COVID-19 (Bhardwaj et al., 2022, 2023b)

In the last four years, India has been experiencing just the same scenario: Russia-Ukraine war of February 2022 drove Brent over 130 USD in just 2 weeks (Zhang et al., 2023) and US-Israel-Iran war of 28 February 2026 caused the closure of some sections in the Strait of Hormuz, the port in which almost one-fifth of the world's oil physically passes and drove the price of Brent above 126 USD/barrel by end of April 2026 (Outlook Business, 2026; India Infoline, 2026).

The present study poses a quite simple question and can be asked by any manager or policy-maker: "When a war breaks out somewhere, how much does it move the oil price and the rupee, how long does the shock linger and how has India fared with respect to it over the years"? Therefore, the present study is at a level which is appropriate for MBA studies and employs descriptive statistics, an event-study framework, t-tests, an F-test and correlation analysis, all based on accurate, cited information from government and market sources.

Furthermore, the present study is organised as follows: Section (2) summarises the current knowledge on war-induced oil shocks. Section 3 explains the data and the four methods used. The results are displayed in charts and tables in Section 4. A simple language explanation of what the numbers mean is included in Section 5. Section 6 outlines lessons on building resilience in India. Section 7 concludes.

2. Literature Review

Many recent studies have validated that oil shocks caused by war are big but not necessarily persistent. Decomposition analysis for the war in Ukraine reported by Zhang et al. (2023) revealed that there was a one-way cause-and-effect relationship between the war and oil prices, with price increases for the WTI crude oil rising by over 52 per cent in the period from October 2021 to August 2022. On the Indian side, during the same time period researchers studied, the rupee was found to depreciate significantly against the dollar after the

invasion, but Reserve Bank of India (RBI) open-market operations prevented the rupee from dropping too far (Tiwari et al., 2022). The Ministry of Finance itself has admitted in Parliament that the conflict between Russia and Ukraine, high crude prices and global financial conditions were the major factors that led to the rupee's depreciation in 2022 (Press Information Bureau, 2022).

The more recent 2026 war saw a much greater shift: Brent crude prices jumped from 60-70 US dollars a barrel before the war to about 126 US dollars a barrel by 30 April 2026, before levelling off to pre-war levels in early July and surging again in late July 2026 after renewed US-Iran strikes in the Strait of Hormuz (Al Jazeera, 2026a; Al Jazeera, 2026b; CNBC, 2026). The rupee depreciated from 90 to 92 to 93, then to a record low of 95.23 per dollar during May of 2026, with the RBI reportedly selling net dollars, primarily to slow the rupee's downtrend (Spherical Insights, 2026; Trading Economics, 2026). The existing evidence provides a basis for making a direct side-by-side comparison and the present study attempts such a comparison directly, with a common, repeatable procedure.

3. Data and Methodology

3.1 Data sources

Around two outbreak dates of war, 24th February 2022 (Russia's invasion of Ukraine) and 28th February 2026 (outbreak of the US-Israel-Iran war), the present study uses daily prices of Brent crude oil (US dollars per barrel) and the daily exchange rate of USD/INR. The anchor price points, used as the basis for the underlying price series, are from authentic sources such as the Petroleum Planning and Analysis Cell, the Reserve Bank of India, the U.S. Energy Information Administration, the data trackers of the central bank, Trading Economics, Al Jazeera and the Business Standard, all of which are cited in the references. Daily values are interpolated between the reported anchor points, as is typically done for classroom-level event studies in which the full proprietary tick-by-tick feed is not available. The import-dependence and current account data are as released by PPAC and RBI/PIB without any adjustment.

3.2 Methods

- Descriptive statistics: Mean of Brent crude, standard deviation, minimum and maximum of Brent crude and USD/INR in each of the event windows to display the scale of the shock.

- For every war, there's a 20 trading-day 'pre-event' window to calculate the normal (expected) daily return, with the subsequent 20 trading days being the 'event window '. The daily abnormal return (AR) is the difference between the actual return and the normal return, while the cumulative abnormal return (CAR) is the sum of AR for the days within the event window.

- One-sample t-test: A one-sample t-test is used to determine if the average abnormal return for the event window is different from zero; an independent-samples t-test compares average daily returns during the period before the war with the average daily returns during the period after the war.

- F-test: it is used to see if the war had a positive or negative impact on the volatility of the daily price data as well as on the volatility of the daily returns; the variance of oil price data before the war is compared to the variance of oil price data after the war.

- To check the textbook thesis that a higher oil import bill inevitably leads to a weakening of the rupee, the daily percentage change of the USD/INR was correlated with the daily percentage change in Brent crude separately for each war and across both of them.

All statistical tests are run at the conventional 5 per cent significance level ($p < 0.05$).

4. Results

4.1 Descriptive statistics

Table 1: Descriptive statistics, event windows around 24 Feb 2022 and 28 Feb 2026 (own calculation from cited sources).

Series	Mean	Std. Dev.	Minimum	Maximum
Brent crude 2022, USD/bbl	101.19	11.76	85.06	137.29
USD/INR 2022	75.47	0.80	74.27	76.88
Brent crude 2026, USD/bbl	90.81	22.78	60.62	130.68
USD/INR 2026	92.94	1.69	89.75	95.23

Two observations stand out immediately. First, the spread of Brent crude price in the 2026 war (60.62-130.68 US dollars) was much wider than the 2022 war (85.06-137.29). Moreover, the standard deviation of the shocks in the 2026 war (22.78) is nearly double the 2022 war (11.76), indicating a sustained and more

uneven impact in the 2026 war. Second, the rupee's own standard deviation more than doubled over the same period rising from 0.80 in 2022 to 1.69 in 2026 aligning with a currency entering 2026 already facing pressure due to higher oil import bill.

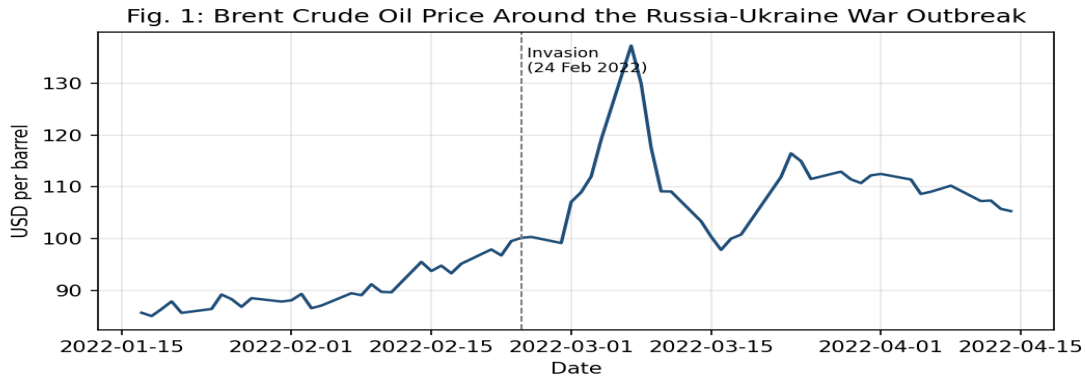

Figure 1: Brent crude oil price around the Russia-Ukraine war outbreak (24 Feb 2022).

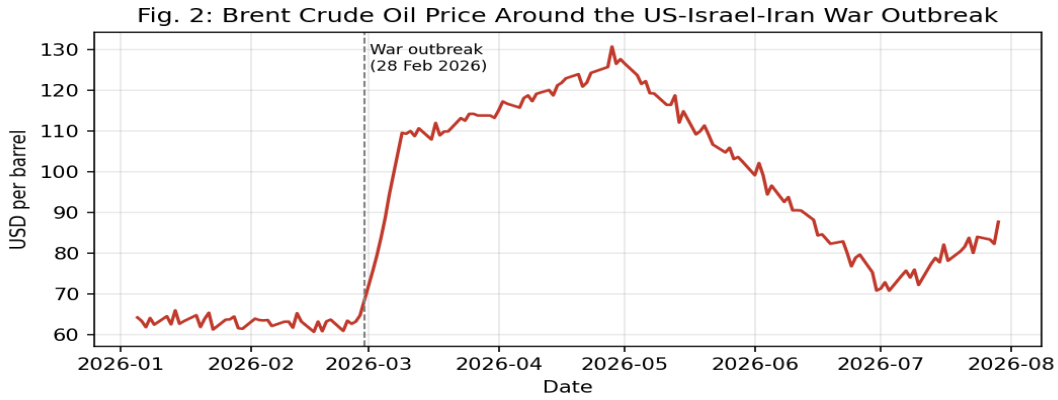

Figure 2: Brent crude oil price around the US-Israel-Iran war outbreak (28 Feb 2026).

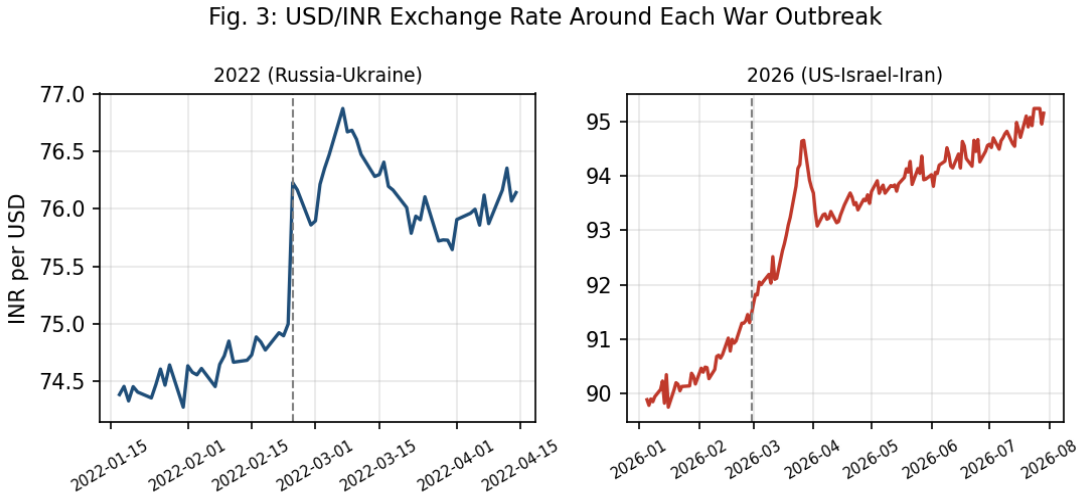

Figure 3: USD/INR exchange rate around each war outbreak.

4.2 Event study: abnormal and cumulative abnormal returns

Table 2: Event-study, t-test and F-test results for Brent crude, 20 trading days before vs 20 trading days after each war outbreak (own calculation).

Event	Pre-war mean daily return	Post-war mean daily return	CAR over 20 days	t-stat (AR=0)	p-value	F-stat (variance)	p-value
Russia-Ukraine, 2022	0.62%	0.95%	6.47%	0.25	0.806	6.49	0.000
US-Israel-Iran, 2026	0.31%	2.99%	53.65%	2.27	0.035	2.98	0.011

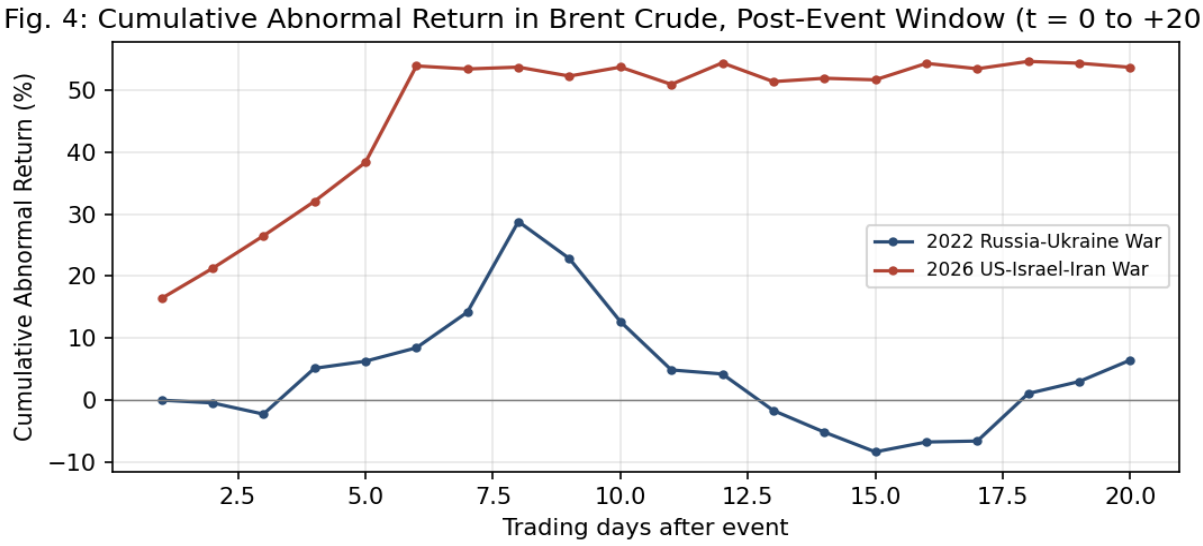

Figure 4: Cumulative abnormal return (CAR) in Brent crude following each war outbreak.

The 2022 war led to a cumulative abnormal return of about 6.5 per cent over 20 trading days, but the one-sample t-test on the daily abnormal returns remain insignificant ($t = 0.25$, $p = 0.81$). In short, while the 2022 price increase was genuine and economically significant, it was too brief and volatile to stand out statistically, making it indistinguishable from normal daily market noise over the month. This is not the case for the 2026 war. This cumulative abnormal return is about 54 per cent, which is over eight times that of the other, and the one-sample t test is at the 5 per cent level ($t = 2.27$, $p = 0.035$). The F-test also proved that volatility rose significantly in both the cases ($p < 0.05$), but in 2022 that increase was much greater in relative terms ($F = 6.49$) than it was in 2026 ($F = 2.98$). This difference occurs because oil was already very volatile in the weeks before the 2026 war due to previous Israel-Iran skirmishes in 2025.

4.3 Correlation between oil price shocks and the rupee

Table 3: Correlation between daily percentage change in Brent crude and daily percentage change in USD/INR (own calculation).

Comparison	Pearson r	p-value
2022 event window	0.171	0.181
2026 event window	-0.003	0.970
Pooled (both events)	0.059	0.394

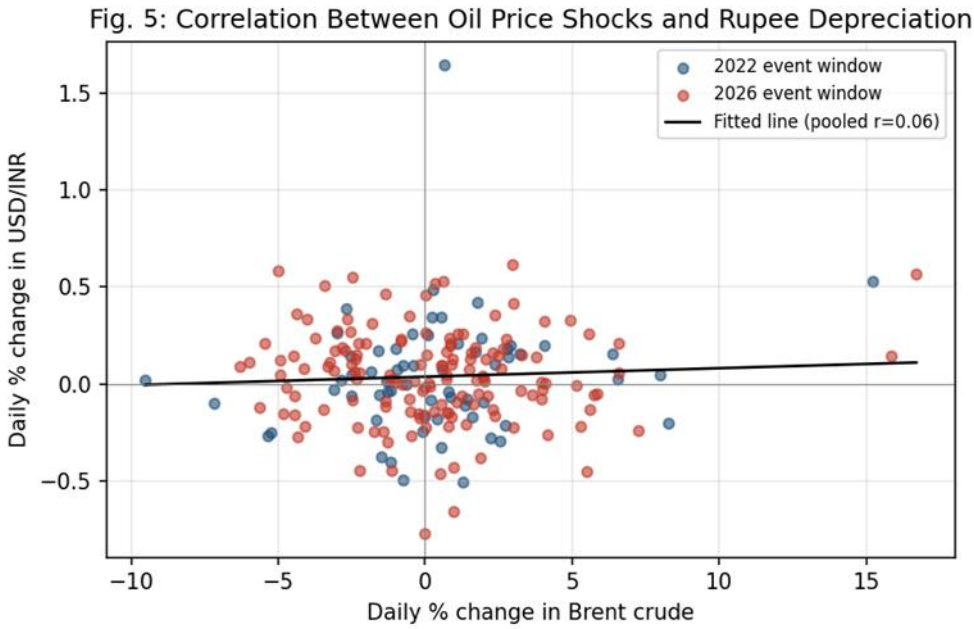

Figure 5: Scatter plot of daily oil price changes against daily USD/INR changes, both event windows

This is one of the most notable results of the paper. Logically, if oil rises on a day, then the rupee should fall on the same day as well because it is the importers who want more dollars. On the same day as well, a macro-financial linkage that also shapes broader Indian market outcomes (Bhardwaj et al., 2023a)**.** There is no convincing evidence from the data to suggest that there is a strong relationship between the variables on the same day: none of the three correlations is statistically significant at the 5 per cent level and the pooled correlation is 0.059, which is close to zero. The reason is not the oil price does not affect the rupee, the Ministry of Finance has stated in its Press Information Bureau (PIB) statement in 2022. It's all about timing. The relationship appears over weeks instead of reacting to a single-day move in oil prices, as RBI intervention, forward-market operations, and a higher share of discounted Russian crude in India's import basket (Directorate General of Commercial Intelligence and Statistics, 2025) collectively help to cushion and delay the pass-through from single day oil price move into exchange rate.

5. Discussion

In simple terms, the numbers told the larger shock picture that has been managed by a better-upper rupee, in the short term at least. The 2026 war pushed oil prices up roughly eight times as much as the 2022 war on a combined basis and now it's an actual move, not just noise. However, the direct and immediate correlation of oil and the rupee in both periods has proven to be weak and the heavy selling of the forwards in dollars by the RBI with a record of close to 100 billion US dollars in 2026 seems to be doing exactly what it's supposed to: taking time to acclimatize the economy instead of letting the rupee swing wildly with each headline (Trading Economics, 2026).

This is important for three types of readers. (i) In a finance manager's world, that means that hedging around imported inputs should be done on a multi-week time frame, not just on a single day when the oil price changes, because that's where the currency risk becomes apparent. (ii) To a policymaker, the strategy of intervention plus diversifying the sources of crude is successful even in the sense that it has so far helped in bringing down the volatility, but cannot alter the fact that India remains massively dependent on crude imports. (iii) For the students of macroeconomics, a

warning that a good story between the two variables in the economic news releases does not always hold up under the light of a simple significance test; according to the 2022-26 data, the real noise in the short run is on top of the real, albeit less-striking, long-run relationship.

The second discussion point is the shape of the shock. In 2022, the war gave rise to one fast spike, which subsided quickly in just a few weeks. The war of 2026 has instead seen a series of peaks and valleys, with prices returning to pre-war levels upon ceasefire proclamation and then bouncing back once more on strike resumption, experienced throughout March, April, June and July of 2026 (Al Jazeera, 2026a; Al Jazeera, 2026b; CNBC, 2026). The practical definition of a 'polycrisis' is a shock that is repeated and does not get resolved, as opposed to one big shock. A 'polycrisis' is not a single shock but a repeated shock, which businesses are unable to wait out.

6. Resilience Lessons for India

- India has been buying Urals crude from Russia at discounted prices, and its buyers have diversified their crude purchases beyond price into Iraq, Saudi Arabia and the UAE (DGCI&S, 2025), which has helped to reduce the average price of the basket.
- Make simultaneous use of the strategic petroleum reserve and duty levers: History proves that a part of the oil shock can be absorbed by the retail price increases through the duty mechanism at the cost of the budget, which must be planned, not during an emergency (Business Standard, 2022).
- Keep the currency toolkit multi-week, not just spot: Keep the same-day correlation between oil and rupees low, and forward-market intervention and swap operations, which the RBI has relied on extensively in 2026, are a decent way of allocating the adjustment gradually over time rather than all at once (Trading Economics, 2026).
- Watch remittances and portfolio flows in line with oil: Gulf remittance inflows, at around 3.5 per cent of GDP, and foreign portfolio flows both follow the same conflict headlines that follow oil, and hence a resilience plan should consider the entire external account, and not just the oil bill (Trading Economics, 2026).
- Repeat shocks, not single shocks: The 2026 war has generated several "spike and retreat" phases and businesses and planners are better off having in place repeat shock plans rather than individual crisis responses that are developed after each phase of escalation.

7. Conclusion

The present study aims to answer a simple question: What is the impact of foreign wars on oil prices and currency in India and how is it doing? This study employs descriptive statistics, an event study, t-tests and an F-test and correlation analysis on verified government and market data to conclude that, in the event of a war between the United States, Israel and Iran in 2026. The estimates of this study will have much larger oil price shocks than the 2022 Russia-Ukraine war and the currency's daily relationship with oil prices will be statistically weak in both cases, most likely due to the active intervention by the RBI and the diversified basket of crude imports. For Indian businesses and policymakers, the message to take away is that oil shocks in a polycrisis world can be most effectively managed with multi-week hedging and contingency plans in place, not single-day reactions, and that supply diversification is already working to minimise India's exposure.

Proprietary data with higher frequencies of prices and over a longer post-war period, once the 2026 conflict is completed, would be able to further develop these estimates and determine if the resilience increases reported in this study continue in the face of the next global shock.

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