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The impact of Israel-Hamas war on the various sectors of Indian stock market

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Abstract

This study investigates the impact of the Israel-Hamas conflict of October 2023 on the Indian stock indices and sector-based companies with a particular focus on the steel, oil and gas, defence, and pharmaceutical sectors. Employing an event study methodology, the research analyses the effects of the conflict on the respective Nifty indices and individual stocks within these critical sectors. The findings unveil a tapestry of sector-specific impacts, ranging from heightened volatility in the Nifty Oil and Gas Index due to surging crude prices to an uptick in the Nifty Defence Index, reflecting heightened security concerns. Abnormal return analyses capture the undulating market sentiments, while cumulative abnormal returns underscore the differential impact across sectors over time. The study offers invaluable insights for investors, policymakers, and stakeholders, highlighting the imperative for a nuanced, dynamic approach to investment decision-making amidst geopolitical disruptions

Keywords: Israel-Hamas war, Event Method, India, Indian stock market.

1. Introduction

In the world of finance, where every tick of the clock can alter fortunes and shape destinies, a seemingly distant and entrenched geopolitical conflict can send shockwaves that reverberate across the global financial landscape. The recent eruption of hostilities between Israel and Hamas, commencing on the ominous date of October 7, 2023, stands as a poignant testament to the escalating animosity in the enduring conflict between the two entities. Fuelled by an unprecedented and relentless onslaught launched by Hamas from the Gaza Strip, the conflict bore witness to an onslaught of over 5,000 rockets that rained down on Israel, coupled with the brazen breach of the

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Gaza-Israel barrier by an estimated 3,000 Palestinian militants. This has brought forth renewed scrutiny on the vulnerability of international markets to the reverberations of regional turmoil.

Over the course of history, the Israel-Palestine conflict has woven a narrative that is both intricate and enduring. Its origins can be traced back to the early 20th century when the seeds of the Zionist movement began to germinate, advocating for the establishment of a Jewish state in Palestine. As time progressed, the world bore witness to the partition of Palestine in 1948, an event that marked the commencement of a period of conflict and the birth of the State of Israel. This partition also set into motion a recurring pattern of wars and uprisings, with the most recent significant conflict being the 2014 Gaza War. Throughout the years, this relentless turmoil has left an indelible mark on the global economy.

The ongoing Israel-Hamas conflict possesses the potential to significantly disrupt and reshape key sectors of the Indian stock market, notably impacting industries critical to the nation's economic infrastructure. The intricate interplay of global events and market fluctuations renders the analysis of this war's impact on the Indian stock market imperative, particularly in comprehending its effects on the steel, oil, defence, and organic chemical sectors. India has significant trade relations with both Israel and Palestine. Over the years, Israel has become a significant trade partner for India. In 2022-23, India's exports of petroleum products to Israel jumped 3.5 times to $5.5 billion, against $1.6 billion in the previous year. This led to a 77% increase in exports compared to the previous year, and the total trade between the two countries by 37%. Many Indian companies such as Tata Consultancy Services, Infosys, Wipro, Adani Ports, Larsen & Toubro, State Bank of India, Bharat Forge and Sun Pharma have business operations in Israel. If the war escalates, it can create supply-side disruption leading to major repercussions on India's trade with Israel. Businesses heavily dependent on cross-border trade with Israel can be hugely impacted. The ongoing conflict between Hamas militants and Israel is likely to impact India's ambitions of playing a bigger role in global trade. The recently announced India-Middle East-Europe Economic Corridor (IMEEC) may be affected by the conflict, leading to concerns in the markets (Das, 2023).

Conclusively, analyzing the ramifications of the Israel-Hamas conflict on the Indian stock market, especially concerning crude oil, organic chemicals, defence stocks, and minerals, provides valuable insights for investors, policymakers, and market analysts. Given the interconnectedness of global trade and geopolitical tensions, comprehending these dynamics is essential for making informed decisions and devising strategies to mitigate potential risks and capitalize on emerging opportunities within the Indian market. Hence, investigating this subject in-depth through a dissertation would contribute significantly to the existing body of knowledge in international trade and market dynamics.

Objectives of the Study

i. To identify the impact of the Israel-Hamas war on the various sectors of the Indian Stock Market: Oil and Gas, Defence, Pharmaceuticals, and Steel.
ii. To identify the impact of the Israel-Hamas war on the various stocks of Oil and Gas, Defence, Pharmaceuticals, and Steel sectors.

Limitations of the Study

The existing research gap in this domain pertains to the scarcity of comprehensive investigations delving into the repercussions of significant geopolitical events, such as the Israel-Hamas conflict, on diverse sectors within the Indian stock market. While some discussions and isolated case studies exist, there remains a distinct paucity of research focused specifically on the Indian context, analysing the multifaceted impacts of geopolitical disturbances across various sectors. This gap assumes pivotal importance as discerning such impacts can furnish invaluable insights for investors, policymakers, and other stakeholders. Such understanding can facilitate informed decision-making processes and the formulation of effective strategies aimed at mitigating risks entwined with global geopolitical tumult.

2. Review of Literature

(Deepthy, 2023) concluded in their research that the Russian-Ukrainian war impacted Indian stock market sectors disparately. The auto sector experienced significant pessimism due to raw material shortages, resulting in a notable negative abnormal return. Nifty Bank faced considerable negative abnormal returns owing to Russian business bans and payment delays. (Emon Kalyan Chowdhury, 2021) highlighted in their study that COVID-19 had a significant impact on global stock markets, particularly in European countries. Mean returns decreased, while volatility increased in most countries, except the US and UK. Germany and Italy experienced the highest abnormal returns, while Singapore, France, and South Africa faced the highest abnormal losses following the first patient's detection.

(Rong Zhang, 2022) utilized the panel data fixed-effect model to examine the impact of COVID-19 on the stock returns of the cultural industry, aiming to control individual heterogeneity and identify the dynamic relationship between variables. The findings included the severity of COVID-19 negatively correlated with cultural industry stock market returns. Different cultural industry segments were impacted diversely, with the film industry notably affected negatively. Smaller and younger cultural companies experienced a more severe impact. (Rong Zhang, 2022) identified that the Oil price shocks impact stock return and volatility relationships, with global aggregate demand and oil-market-specific demand playing crucial roles. Spill-over effects between oil price shocks and the stock return-volatility covariance are significant, providing insights into risk-return dynamics.

(Imran Yousaf, 2022) 's study utilizes an event study approach to assess the influence of the Russia-Ukraine conflict, analyzing abnormal returns (AR) pre and post-conflict initiation. The result showed that the breakout of the Ukraine-Russia conflict had a significant negative impact on several stock markets, especially Russia's. European and Asian regions were notably and significantly affected during the conflict. Investing in North America, Latin American, and Middle Eastern & African regions might be relatively safer during the ongoing conflict.

(Rong Zhang, 2022) identified that both economies suffered significantly during the intifada. Israeli share prices declined more (0.43%) than the Palestinian market (insignificant). Both markets show mutual dependency and are influenced by the US market. The severity of terror attacks correlates with the extent of share price decline. (Rong Zhang, 2022) found that emerging and developed markets show distinct reactions to COVID-19 information and government measures. Cultural and governance factors significantly impact investor risk perception during crises. Similarly (Rong Zhang, 2022) concluded in their report that the war has minimal direct impact on Kenya's grain and fertilizer imports. Negative impact on grain, positive impact on fertilizer imports. Policy findings include diversifying imports, boosting agriculture, and investing in climate resilience. Dhananjay ashri, 2021; Dhananjay ashri, 2021; Kumar S, 2022) indicated in their research the pandemic had a notable negative impact on the automobile, FMCG, pharmaceuticals, and oil and gas sectors in the short term. In the long run, the automobile, oil and gas, metals, and banking sectors were significantly affected.

(Hao Lin, 2023) discovered in their research that non-war geopolitical controversies do not directly affect stock returns. Investors' reactions to risk can vary based on the nature of the specific geopolitical event. Insufficient scholarly attention to the effects of non-war geopolitical risks on stock, particularly with a focus on investor reactions to different types of geopolitical events.

(Verma R, 2022) suggested potential market overreaction. Heightened volatility in the Indian stock market during the study period. According to (Joshi and Nisarg, 2023) the war had a significantly negative impact on most stock indices, Certain countries showed resilience, experiencing less severe negative returns and Cross-sectional implications highlighted variations in market reactions.

3. Research Methodology/ Research Design

This study uses the event study methodology to examine how the Israel-Hamas Conflict-affected the Indian stock market across different sectors. The event study methodology is a widely used and appropriate technique to measure the impact of an event on the returns of securities over a specific period. This technique allows predicting the behaviour of securities and indices in response to an event announcement (Anwar et al., 2017). The event announcement can have a positive or negative effect on the stock prices. The event study methodology is commonly applied to investigate the relationship between the stock market performance and corporate events such as mergers and acquisitions, splits, stock dividends, bonus shares, amalgamation, etc. Many researchers also use the event study methodology to analyse the impact of a non-corporate event such as a war outbreak on stock markets (Chen et al., 2017, 2018; Liu et al., 2020; Pendell & Cho, 2013). Previous studies indicated that the event study methodology is the most effective tool to estimate ARs after the announcement of an event (Brown & Warner, 1985; MacKinlay, 1997). Following Bowman (1983), we estimate the ARs using an event study, which involves choosing the event of interest, the event window, the estimation window and the estimation model.

The study encompasses a carefully selected time period, spanning from June 13th, 2023, to February 2nd, 2024. This duration covers 160 days, divided equally into pre (80 days) and post (80 days) the war event. The extended timeline facilitates a comprehensive analysis of market dynamics leading up to the conflict, immediate consequences, and subsequent developments. The event study is carried out by taking the estimation period of 80 days from 13th June 2023 to 6th October 2023. The observation period is also of 8 days from 9th October 2023 to 2nd February 2024. The main event in this case is the Israel-Hamas war, which took place on October 7th, 2023. However, since the event day was a holiday, the next working day, October 9th, 2023, has been selected as the beginning point for post-event observations.

This study covers the daily closing prices of four of India's Sectoral Indices: Nifty Defence, Nifty Oil and Gas, Nifty Metal and Nifty Pharma and five securities under each of these sectors have been taken.

Table 1: List of nifty indexes and stocks taken

INDEX
Nifty Metal
Nifty Defence
Nifty Pharma
Nifty Oil and Gas
DEFENCE SECTOR
Cochin
Mazdock
Bharat Electronics
Hindus Aero
Bharat Forge
PHARMACEUTICAL STOCKS
Cipla
Dr. Reddy
Sun pharma
Lupin
Aurobindo
STEEL STOCKS
SAIL
Hindalco
Tata Steel
JSW
Jindal
OIL AND GAS STOCKS
Hindu Petroleum
Bharat Petroleum
Indian Oil Corporation
Mahanagar Gas Stock
ONGC

Source: Author compilation

Hypothesis of the study

These hypotheses form the basis for systematically testing and analysing the impact of the Israel-Hamas war on both specific sectors and individual stocks within the Indian Stock Market.

Hypothesis 1

Null Hypothesis (H0): There is no significant impact of the Israel-Hamas war on the stock prices of Nifty Oil and Gas, Nifty Defence, Nifty Pharmaceuticals, and Nifty Steel sectors in the Indian Stock Market.

Alternative Hypothesis (H1): The Israel-Hamas war has a significant impact on the stock prices of Nifty Oil and Gas, Nifty Defence, Nifty Pharmaceuticals, and Nifty Steel sectors in the Indian Stock Market.

Hypothesis 2

Null Hypothesis (H0): The Israel-Hamas war does not have a significant impact on individual stock prices within the Oil and Gas, Defence, Pharmaceuticals, and Steel sectors.

Alternative Hypothesis (H1): The Israel-Hamas war has a significant impact on individual stock prices within the Oil and Gas, Defence, Pharmaceuticals, and Steel sectors.

Sampling Size and Sampling Technique

The determination of an appropriate sampling size is crucial to ensure the reliability and generalizability of the findings. In this research, a purposive sampling method is employed to select the sectors and individual stocks for analysis based on their relevance to the objectives. The selected sectors include Oil and Gas, Defence, Pharmaceuticals, and Steel, representing key components of the Indian economy. The study's sample size spans from June 13th, 2023, to February 2nd, 2024 for all the analysis. This duration covers 160 days, divided equally into pre (80 days) and post (80 days) the war event.

Data and the sources of data collection

In this research, the data collection process is meticulously planned and executed to ensure accuracy and relevance to the study objectives.

Historical Stock Prices: The primary source of historical stock prices for the identified sectors and individual stocks is the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE). Both exchanges provide a comprehensive and reliable repository of past stock performance, allowing for a detailed analysis of the impact of the Israel-Hamas war on the Indian Stock Market.

Index Data: For the analysis of the Sensex and Nifty market indices, historical data is sourced from NSE and BSE. These indices serve as crucial benchmarks for understanding the overall market trends and fluctuations.

War Event Data: Details related to the Israel-Hamas war event, including its timeline, key developments, and relevant news articles, are sourced from reputable news agencies and scholarly publications. Ensuring a thorough understanding of the geopolitical context is essential for interpreting the financial impact on the Indian Stock Market.

Method used

- **Daily Returns**
  - t= (Pt-Pt-1)/Pt-1
  - Where, Pt = Closing Nifty value of the current day
  - Pt-1= Closing Nifty value of the previous day

- **Expected Returns**: The alpha and beta are calculated using the Ordinary Least-squares method by regressing sectoral returns over market returns over the estimation period. Then the expected return is calculated using the formula
  - Expected return= (α+β) * R

- **Average Abnormal Returns**
  - ARit = Rit – ERit
  - ARit represents abnormal return while Rit and ERit represents the actual logarithmic return and expected logarithmic return of a particular sector.

Cumulative Average Abnormal Returns: CAAR is the summation of all the AARs calculated to know the total abnormal returns made before and after the event. CAAR by giving a clear picture of the cumulative abnormal returns in case the influence is not completely reflected on the date of the event, acts as an effective tool of analysis in addition to the AAR.

$$CAR = \sum_{t=1}^{n} \text{ARit}$$

- **t-value Statistical significance**: of the test is empirically by applying t-test and the by calculating t-values.
  - t value (CAR) = CAR/Standard Deviation of CAAR

The resulting metrics facilitate data-driven insights that can guide stakeholders in navigating the complex interplay between geopolitical events and financial markets.

4. Data Analysis and Interpretation

In Table 2, the mean and SD of the returns of fo5.3ur sectoral indices are used to analyse the impact of the Israel-Hamas war on the Indian stock market. Part A shows the pre-event period mean and standard deviation of all the indices before the war. Part B shows the post-event period mean returns and SD of the indices after the war. The Nifty Oil and Gas index had the highest increase in both mean (0.39%) and SD (0.44%) after the war, as the demand for energy rose due to the conflict. The Nifty Defence index also had a significant increase in mean (0.20%) and a slight increase in SD (0.04%) after the war, as the security concerns increased. The Nifty Metal index had a moderate increase in mean (0.10%) and a notable increase in SD (0.20%) after the war, as the raw materials became more scarce and volatile. For example, the steel prices in India rose by 15% in the last three months, as the global supply of iron ore was disrupted by the war and the Chinese demand remained strong.

Table 2: Mean Return of Indexes

Part A: Pre-Event Period from 13-06-2023 to 06-10-23			
Indices	*No. of trading days*	*Mean (%)*	*Standard Deviation (%)*
Nifty Defence	*80*	*0.001672579*	*0.015112258*
Nifty Pharmaceuticals	*80*	*0.00201353*	*0.008367347*
Nifty Oil and Gas	*80*	*0.000559978*	*0.008042254*
Nifty Metal	*80*	*0.001364245*	*0.010980862*
Part B: Event day and Post-Event Period from 09-10-2023 to 02-02-2024			
Indices	*No. of trading days*	*Mean (%)*	*Standard Deviation (%)*
Nifty Defence	*80*	*0.003628379*	*0.015505606*
Nifty Pharmaceuticals	*80*	*0.001688146*	*0.008319485*
Nifty Oil and Gas	*80*	*0.004468924*	*0.012453455*
Nifty Metal	*80*	*0.002314249*	*0.012995422*

Source: Author compilation

The Nifty Pharmaceuticals index had a small decrease in mean (-0.03%) and a minor decrease in SD (-0.05%) after the war, as the supply chains, trade barriers, and health risks affected the sector. For example, the Indian pharmaceutical exports to Israel declined by 10% in the first half of 2023, as the war hampered the logistics and customs clearance of the shipments. (Tyagi, 2023)

Mean Returns for various sectors of Indian Stock Market

In Table 3, we analyse the performance of four major pharma companies in India: Aurobindo, Cipla, Lupin, and Dr Reddy's and found that the war has a negative impact on all four companies, as their mean returns decrease and their standard deviation increases. The worst hit is Aurobindo, which sees its mean return fall by -0.17%, followed by Dr Reddy's, which drops by -0.15%. The least affected is Cipla, which only declines by -0.0139%. The most volatile is Cipla, which sees its standard deviation rise by 0.19%, followed by Dr Reddy's, which increases by 0.18%. The least volatile is Lupin, which only grows by 0.03%. Likewise, another company that was equally affected was Sun Pharma, which has a subsidiary in Israel, faced disruptions in its business due to the war and reported a 23% decline in net profit for the quarter ending December 2023. We conclude that the Israel-Hamas war has a detrimental effect on the pharma sector in India, and the companies need to adopt strategies to mitigate the risks and uncertainties.

Mean Return for Indian Pharmaceuticals Stocks

Table 3: Mean return of Indian Pharmaceutical stocks

Part A: Pre-Event Period from 13-06-2023 to 06-10-23			
STOCKS	**No. of trading days**	**Mean**	**Standard Deviation**
CIPLA	80	0.002518638	0.015658841
DR REDDY	80	0.001931372	0.012078877
SUNPHARMA	80	0.00172995	0.009834758
LUPIN	80	0.004416888	0.014897671
AUROBINDO	80	0.003981428	0.017860296
Part B: Event day and Post-Event Period from 09-10-2023 to 02-02-2024			
STOCKS	**No. of trading days**	**Mean**	**Standard Deviation**
CIPLA	80	0.00238005	0.01754662
DR REDDY	80	0.001413438	0.0133324
SUNPHARMA	80	0.002889949	0.011545301
LUPIN	80	0.003366562	0.015170411
AUROBINDO	80	0.002267241	0.019010936

Source: Author compilation

Mean Return for Indian Oil and Gas Stocks

The recent Israel-Hamas war had a significant impact on the oil and gas sector. To measure this impact, we calculated the mean and standard deviation of the daily returns of five major oil and gas companies before and after the war. The results showed that the war had a positive effect on the performance of these stocks, as the mean returns increased and the volatility decreased for most of them. The highest change in mean was observed in Hindu Petrol, which rose by 0.895%, while its standard deviation also increased by 1.212%, indicating higher risk and reward. The second highest change in mean was seen in Indian Oil Corporation, which increased by 0.789% (The company was ramping up its production and supply of aviation turbine fuel (ATF) to meet the growing demand from the defence sector), followed by Bharat Petrol, which increased by 0.654%. The only exception was ONGC, which saw a slight decrease in mean by 0.021%, but also a decrease in standard deviation by 0.189%, implying lower risk and return as the faced some challenges due to the war, as it had to suspend its operations in some of its overseas assets in West Asia, due to security concerns. The company also faced higher transportation and insurance costs, as well as lower demand from some of its key customers in the region. The lowest change in mean was recorded in Mahangar Gas, which was the least affected by the war, with a negligible increase of 0.003% and a minimal change in standard deviation of 0.035%. These findings suggest that the Israel-Hamas war boosted the confidence of the investors in the Indian oil and gas sector, as they expected higher demand and profits from the defence industry.

Table 4: Mean return of Indian Oil and Gas stocks

Part A: Pre-Event Period from 13-06-2023 to 06-10-23			
STOCKS	**No. of trading days**	**Mean**	**Standard Deviation**
HINDU PETROL	80	-0.00058538	0.017592799
BHARAT PETROL	80	-0.0007578	0.013650191
INDIAN OIL CORP	80	-0.00020392	0.013125592
MAHANAGAR	80	0.001244377	0.017873381
ONGC	80	0.002039532	0.012114506
Part B: Event day and Post-Event Period from 09-10-2023 to 02-02-2024			
STOCKS	**No. of trading days**	**Mean**	**Standard Deviation**
HINDU PETROL	80	0.008361511	0.029708854
BHARAT PETROL	80	0.00607766	0.020065654
INDIAN OIL CORP	80	0.007636695	0.022611953
MAHANAGAR	80	0.003658332	0.018222593
ONGC	80	0.004495279	0.019031369

Source: Author compilation

Mean Return for Indian Defence Stocks

The Israel-Hamas war, which erupted in October 2023, had a significant effect on the Indian defence sector, as it increased the demand for military equipment and technology. One of the most notable changes was observed in the Hindu Aeronautics Limited (HAL), where the stock price increased by 1.064% in mean and decreased by -4.06% in standard deviation, indicating a higher and more stable return for the investors. Due to HAL's strong ties with Israel, as it supplies components and systems for Israeli defence products such as drones, missiles, and radars. Bharat Electronics Limited

(BEL), stock price increased by 0.155% in mean suggesting a modest but consistent growth. BEL also has a long-standing partnership with Israel, as it collaborates on projects such as missile defence systems, communication devices, and night vision equipment. However, not all defence companies benefited from the Israel-Hamas war. For instance, Cochin Shipyard Limited (CSL), saw its stock price decrease by -0.321% in mean and increase by 0.87% in standard deviation. CSL competes with Israel Shipyards, which is one of the leading in the naval market. BFL's main competitor in the defence market is Israel Aerospace Industries (IAI), which is a global leader in aerospace and defence products and services. Similarly, Mazdock Shipbuilders Limited (MDL), also witnessed a negative change in its stock price, as it decreased by -0.412% in mean and increased by 1.23% in standard deviation. It faces challenges from Israeli submarine makers such as Rafael Advanced Defence Systems, which offer advanced technologies and solutions for underwater warfare.

Table 5: Mean return of Indian Defence stocks

Part A: Pre-Event Period from 13-06-2023 to 06-10-23			
STOCKS	**No. of trading days**	**Mean**	**Standard Deviation**
BEL	80	0.002091959	0.01786433
HINDU AERO	80	-0.00530236	0.058719805
BHARAT FORGE	80	0.003628379	0.015505606
MAZDOCK	80	0.00975755	0.038158665
COCHIN	80	0.009038118	0.042438666
Part B: Event day and Post-Event Period from 09-10-2023 to 02-02-2024			
STOCKS	**No. of trading days**	**Mean**	**Standard Deviation**
BEL	80	0.003639865	0.016333611
HINDU AERO	80	0.005332932	0.018121855
BHARAT FORGE	80	0.001672579	0.015112258
MAZDOCK	80	0.000595959	0.024065048
COCHIN	80	-0.00036041	0.052393948

Source: Author compilation

Mean Return for Indian Steel Stocks

According to table 6, the Indian steel sector experienced a positive impact from the war, as most of the stocks showed an increase in their mean and standard deviation values. This indicates that the stocks became more profitable and more volatile during the war period. The highest increase in mean was seen by SAIL (Steel Authority of India Limited), which rose by 0.459% as it benefited from the increased demand for steel from the defence and construction sectors, as India ramped up its security and infrastructure projects in response to the war, followed by Hindalco and JSW, which increased by 0.102% and 0.06%, respectively.

Table 6: Mean return of Indian Steel stocks

Part A: Pre-Event Period from 13-06-2023 to 06-10-23			
STOCKS	**No. of trading days**	**Mean**	**Standard Deviation**
SAIL	80	0.000944648	0.018903587
HINDALCO	80	0.001699859	0.016167
TATA STEEL	80	0.00183144	0.013177571
JSW	80	0.00037771	0.012892536
JINDAL	80	0.003472826	0.019625964
Part B: Event day and Post-Event Period from 09-10-2023 to 02-02-2024			
STOCKS	**No. of trading days**	**Mean**	**Standard Deviation**
SAIL	80	0.005534071	0.025903713
HINDALCO	80	0.002724327	0.015501154
TATA STEEL	80	0.001298454	0.014373729
JSW	80	0.000992553	0.013101632
JINDAL	80	0.001767372	0.019947923

Source: Author compilation

The only exception was Jindal Steel, which showed a negative impact from the war, as its mean fell by -0.171% and its standard deviation increased by 0.3%. This suggests that the stock became less profitable and more volatile during the war period. As Jindal has operations in several countries, including Oman, Australia, and South Africa, may have suffered from the disruption of trade routes, supply chains, higher transportation and logistics costs, as well as lower demand from some of its overseas markets. The lowest shift was seen by Tata Steel, which fell by -0.53% in mean and 0.021% in standard deviation, indicating that the stock became slightly less profitable and less volatile during the war period as it has a global presence in Europe, Southeast Asia, and Africa, may have been less affected by the war, as it has a diversified portfolio of products and markets.

Abnormal Returns

Table 7: Abnormal returns for Nifty Indexes

ABNORMAL RETURN %		
INDICES	t_0	t_1
Nifty Defence	-0.0025	0.0108
Nifty Pharmaceuticals	-0.0151	-0.0061
Nifty Metal	-0.0065	0.0092
Nifty Oil and Gas	-0.0035	-0.0017

Source: Author compilation

Notes: t_0= Abnormal return on event day; t_1= abnormal return on the day after event day.

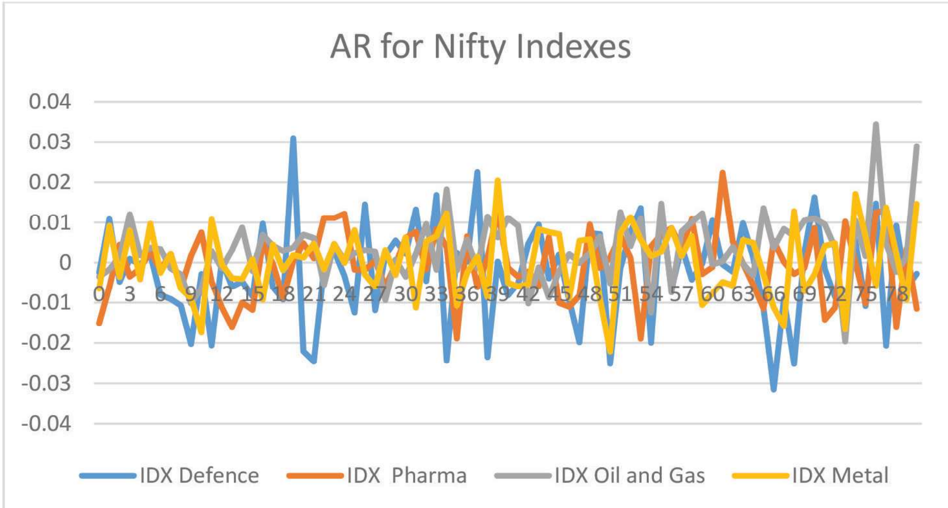

Figure 1 *:* AR for nifty returns for (0-80 days) Source: Compiled using nifty

The AR was negative for all the indices on the event day. On the next day, t1, the AR for nifty defence and nifty metal turned positive and increased by 1.33% and 1.66% respectively from the event day, possibly because of the investors' expectation of higher demand and prices for defence and metal products from Israel and its regional allies, as well as from India, which has a strategic relationship with Israel. On the other hand, the AR for nifty pharmaceuticals and nifty oil and gas dropped by 0.9% and 0.2% respectively from the event day, possibly because of the investors' concern over lower exports and revenues for Indian pharma companies, which have a significant market share in the Middle East and North Africa, and over the impact of higher oil prices and lower supply on the Indian oil and gas companies' profitability and margins. The Indian media's coverage of the war news did not affect the investors' confidence in the defence and metal indices on the event day t1. On the event day, the most reactive index was nifty pharma with a negative AR of -0.0151, followed by nifty metal with -0.0065, then nifty oil and gas with -0.0035%, and the least reactive index was nifty defence. Figure 1 reflects a long term impact of (0-80) days post event on the Nifty indexes. We observe high volatility in the defence sector, followed by Pharma, Oil and Gas. The nifty metal and nifty oil and gas remained volatile with only limited bandwidth compared to the other sectors. Between the 18th to 21st day, nifty defence showed highest abnormal return of 0.03% and fell drastically -0.03% approximately by the 21st day. Similar sharp growth was seen in nifty oil and gas index where by the 75th day the abnormal return spiked to 0.04%.

Abnormal Returns For Various Sector-Based Securities

Table 8: Abnormal returns for defence stocks

ABNORMAL RETURN %		
DEFENCE STOCKS	t_0	t_1
Cochin	-0.0332	-0.0072
Mazdock	-0.0353	0.0246
Bharat Electronics	-0.0146	0.0173
Hindus Aero	0.0131	-0.0021
Bharat Forge	-0.0025	0.0108

Source: Author compilation

Notes: t_0= Abnormal return on event day; t_1= abnormal return on the day after event day.

The Table 8 shows the AR of Indian defence stocks on the event day and the next day of the Israel-Hamas war. On the event day, most stocks had negative AR, as the market saw the war as a negative shock. For example, Mazdock, which runs the Haifa port in Israel, had the lowest AR of -0.0353%1. On the next day, Mazdock, BEL, and Bharat Forge had positive ARs, as they announced their business continuity plans and had diversified portfolios. This suggests that the market adjusted its expectations and sentiments after the initial shock and reacted differently to the news depending on the nature and extent of exposure of each company. Figure 2 shows the impact for 80 days from the day of the event announcement where the chart reflects low to moderate levels of fluctuations only for all the defence stock where the steadiest stock are Bharat forge and Bharat electronics. However, on the 68th day, Cochin stock dropped massively by -0.4% and depicted bearish trend and increased back to moderate level.

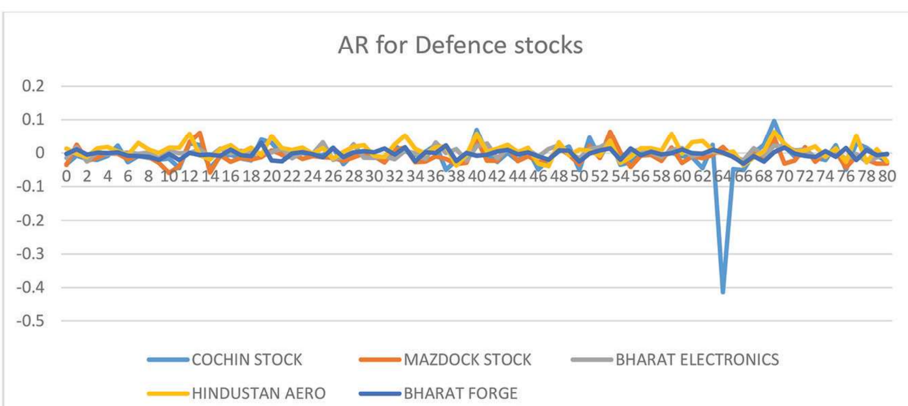

Figure 2 : AR for Defence Companies returns for (0-80 days)

Source: Author compilation

Table 9: Abnormal returns for Oil and Gas stocks

ABNORMAL RETURN %		
OIL & GAS STOCKS	t_0	t_1
Hindu Petrol	-0.0136	-0.0091
Bharat Petrol	-0.0121	-0.0064
Indian Oil Corp	-0.0195	0.0042
Mahanagar Gas	-0.0004	-0.0066
ONGC	0.0054	0.0014

Source: Author compilation

Notes: t_0= Abnormal return on event day; t_1= abnormal return on the day after event day.

The table 9 shows that on the event day, all the oil and gas stocks had negative abnormal returns except for ONGC, which had a slightly positive abnormal return. This means that these stocks performed worse than expected on the event day, possibly due to the negative impact of the war on the oil and gas sector. ONGC, however, may have benefited from its diversified portfolio and its exposure to the defence sector. On the next day, the abnormal returns of all the stocks were negative except for Indian Oil Corporation and ONGC, which had positive abnormal returns. This means that these two stocks performed better than expected on the next day, due to their resilience and their ability to adapt to the changing market conditions. In figure 3, we observe high fluctuation in all of the oil and gas stock companies over the period of 80 days' post event. On day 8, the market trust on the mahanagar stock fell radically by -0.08%.

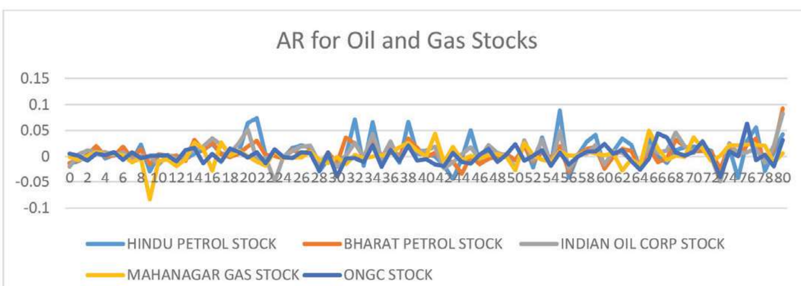

Figure 3 : AR oil and Gas companies returns for (0-80 days)
Source: Author compilation

The table 10 shows that On the event day, Cipla, Sun Pharma, and Lupin reacted negatively because they have significant exposure to the Middle East and North Africa (MENA) region, which accounts for about 10% of their total revenues (Sharma, 2023). Moreover, the war could also affect the demand for their products in the region, as some countries may face economic and political instability. On the other hand, Dr Reddy and Aurobindo showed positive AR on the event day because they have less dependence on the MENA region, and more focus on the US and European markets (Healthcare, 2023).

Table 10: Abnormal returns for Pharmaceutical stocks

ABNORMAL RETURN %		
PHARMA STOCKS	t_0	t_1
Cipla	-0.0023	-0.0098
Dr Reddy	0.0179	-0.0122
Sun pharma	-0.0003	-0.0042
Lupin	-0.0048	-0.0039
Aurobindo	0.0117	-0.0197

Source: Author compilation

Notes: t_0*= Abnormal return on event day;* t_1*= abnormal return on the day after event day.*

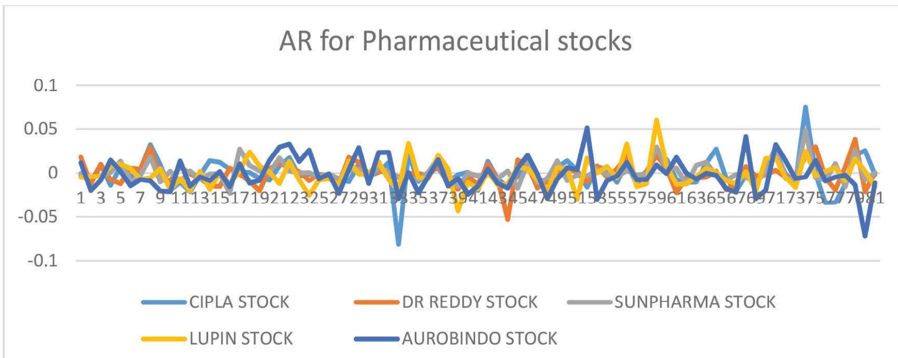

Figure 4 : AR for pharmaceutical companies returns for (0-80 days)

Source: Author compilation

On t1, the next day after the event day, the AR for all these stocks were negative because the market sentiment was bearish due to the escalation of the conflict and the uncertainty over its duration and outcome. In Figure 4, the pharmaceutical companies demonstrate moderate levels of volatility except for aurobindo and Cipla stock. On day 31, CIPLA reacted negatively with an AR of -0.08% and acutely regained a positive AR after four days. Likewise, Aurobindo has shown maximum variation over the 80-day period where the most exceptional shift was accounted on day 79 when the AR fell negatively by -0.07%.

Table 11: Abnormal returns for Steel stocks

ABNORMAL RETURN %		
STEEL STOCKS	t_0	t_1
SAIL	-0.0180	0.0157
Hindalco	0.0046	0.0084
Tata steel	-0.0195	0.0042
JSW	-0.0077	-0.0012
Jindal	-0.0037	0.0106

Source: The author

Notes: t_0= Abnormal return on event day; t_1= abnormal return on the day after event day.

As per Table 11, the highest negative AR was realized by Tata Steel, which lost 1.95% of its value. On t1, the next day after the event day, the AR for all these stocks were positive except for JSW Steel, which continued to decline by 0.76%. The highest positive AR was recorded by SAIL, which gained 0.0157% of its value. In figure 5, we observe high levels of variations between each steel stocks with the highest volatility depicted in SAIL and Jindal stock with the least volatile and steady stock illustrated by JSW stock over the period of 80 days. On day 14, Jindal stock dropped exceptionally low at an AR of -0.07% and recorded the highest spike again on day 42 at 0.04% of AR. Similarly, on SAIL stock represents high volatility on day 42 when it inflated to 0.07% and depleted to -0.09% radically and showed volatility with increase of 0.065% on day 48.

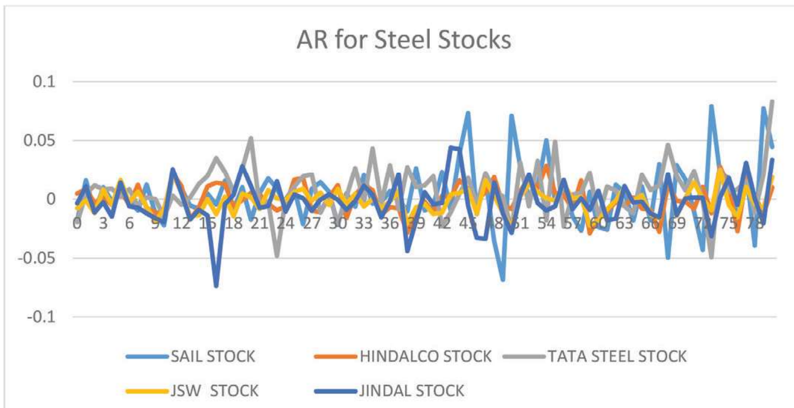

Figure 5 : AR for steel companies returns for (0-80 days)

Source: Author compilation

Cumulative Abnormal Return in the Event Window

In the first 9 days of the full event window, all the given nifty indexes recorded negative CAR except for nifty oil and gas because of the breaking news of the outbreak of the war in the media. During this event window, the nifty defence fell by the highest percent of -0.0420 in comparison to the other nifty index. Here, all the T-statistics value falls below the T-value of 1.96 which suggests that there is no significant impact of the war. The defence sector companies recorded negative CAR with the most dip seen in Cochin stock -0.1347, followed by Mazdock at -0.1144 while the Hindus Aeronautics remained positive at 0.0723. The Pharmaceutical companies saw a positive CAR on the first 9 days for all the stocks except for Lupin that fell to -0.0157 and Aurobindo which has the most negative CAR -0.0715. As for the Steel sector the top performing stocks experienced varying effects where hindalco and JSW steel reacted positively while the SAIL, Tata steel and Jindal reacted to the market noise negatively. The oil and gas sector stocks had an optimistic outlook on the event with only mahanagar gas stock growing sensitivity with -0.0829 and being the most reactive stock to the event announcement.

The (10-19) days window period shows that the major stock market improved while some absorbed the market noise. The indexes showed similar position to its initial perception where all the nifty sectors given remain negative while the nifty oil and gas seems to be positive at 0.0110. The Nifty pharma showed the maximum change from (0-9) day CAR which fell by -0.027%. On observing the defence securities, from (0-9) day window a defence stock that had a hike in the CAR of 0.07%. The BEL stock improved by 0.0614% and took a positive position at 0.0238 from its previous negative stance. On the other hand, the pharma stocks degraded to all negative figures of CAR by the second window with the highest dip seen in Dr. Reddy of -0.0683% followed by Aurobindo with the least impact on Lupin. Furthermore, the steel stocks fell negatively from the previous window period with highest drop seen in Jindal of -0.0262%, then increase in the Hindalco CAR value by 0.0250% then JSW investors became pessimistic and CAR fell by -0.0240%.

Table 12: CAR for the next (0-29) days of all the indexes and securities taken

CAR						
INDEX	**CAR (0-9)**	**t-Stats**	**CAR (10-19)**	**t-Stats**	**CAR (20-29)**	**t-Stats**
Nifty Metal	-0.0030	-0.0107	-0.0188	-0.0675	0.0083	0.0298
Nifty Defence	-0.0420	-0.1297	-0.0167	-0.0516	-0.0509	-0.1572
Nifty Pharma	-0.0230	-0.0916	-0.0500	-0.1992	0.0309	0.1230
Nifty Oil and Gas	0.0027	0.0110	0.0228	0.0920	0.0124	0.0501
DEFENCE SECTOR	**CAR (0-9)**	**t-Statistics**	**CAR (10-19)**	**t-Stats**	**CAR (20-29)**	**t-Stats**
Cochin	-0.1347	-0.2574	-0.0647	-0.1236	-0.0192	-0.0366
Mazdock	-0.1144	-0.2297	-0.1395	-0.2803	-0.0872	-0.1752
Bharat Electronics	-0.0376	-0.1093	0.0238	0.0692	0.0139	0.0404
Hindus Aero	0.0723	0.1180	0.1099	0.1795	0.1336	0.2182
Bharat Forge	-0.0420	-0.1297	-0.0167	-0.0516	-0.0509	-0.1572
PHARMA STOCKS	**CAR (0-9)**	**t-Stats**	**CAR (10-19)**	**t-Stats**	**CAR (20-29)**	**t-Stats**
Cipla	0.0125	0.0385	-0.0157	-0.0483	0.0071	0.0220
Dr. Reddy	0.0187	0.0645	-0.0496	-0.1712	0.0232	0.0802
Sun pharma	0.0045	0.0167	-0.0006	-0.0021	0.0104	0.0392
Lupin	-0.0157	-0.0491	-0.0191	-0.0598	-0.0484	-0.1518
Aurobindo	-0.0715	-0.2072	-0.0232	-0.0673	0.0916	0.2654
STEEL STOCKS	**CAR (0-9)**	**t-Stats**	**CAR (10-19)**	**t-Stats**	**CAR (20-29)**	**t-Stats**
SAIL	-0.0128	-0.0363	0.0104	0.0293	0.0234	0.0662
Hindalco	0.0011	0.0035	0.0261	0.0794	0.0036	0.0110
Tata Steel	-0.0236	-0.0785	-0.0303	-0.1010	0.0128	0.0426
JSW	0.0204	0.0686	-0.0036	-0.0120	-0.0040	-0.0134
Jindal	-0.0494	-0.1372	-0.0756	-0.2101	-0.0003	-0.0008
OIL AND GAS STOCKS	**CAR (0-9)**	**t-Stats**	**CAR (10-19)**	**t-Stats**	**CAR (20-29)**	**t-Stats**

Hindu Petroleum	0.0025	0.0072	0.0589	0.1724	0.1618	0.4735
Bharat Petroleum	0.0187	0.0614	0.0778	0.2550	0.0691	0.2265
Indian Oil Corporation	0.0182	0.0606	0.1061	0.3540	0.0378	0.1260
Mahanagar Gas Stock	-0.0829	-0.2410	0.0163	0.0473	-0.0319	-0.0926
ONGC	0.0153	0.0526	0.0285	0.0982	-0.0020	-0.0069

Source: Author compilation

During the 30-39-day period, all Nifty indexes displayed positive Cumulative Abnormal Returns (CAR), except for the Nifty Metal index, which showed a minimal positive CAR of 0.0002. Notably, the Nifty Oil and Gas index exhibited the highest positive CAR at 0.450, indicating optimism in the oil and gas sector amidst market volatility. However, the Nifty Defence index recorded the lowest CAR, reflecting challenges within the defence sector. Comparing this period to the previous 20-29-day analysis, we observed varied growth patterns across sectors. In the Defence sector, there was a mix of positive and negative CAR growth, while the Pharmaceutical sector showed positive growth for most stocks, except for Aurobindo and Lupin. The Steel sector

During the 50-59-day period, the performance of Nifty indexes continued to exhibit a mixed trend, with two indexes showing positive CAR and two displaying negative CAR. Similar to previous periods, the Nifty Oil and Gas index demonstrated the highest positive CAR at 0.0432, while the Nifty Defence and Metal indexes showed the lowest CAR at -0.0556 and -0.0318, respectively. Comparing the CAR growth to the previous 40-49-day period, we observed varied changes across sectors. In the Defence sector, there was a further decline in CAR compared to the previous period, with companies like Cochin and Bharat Forge experiencing significant negative growth. However, Mazdock and Hindus Aero saw some improvement in CAR, albeit modestly. The Pharmaceutical sector continued to face challenges, with all companies showing negative growth in CAR compared to the previous period.

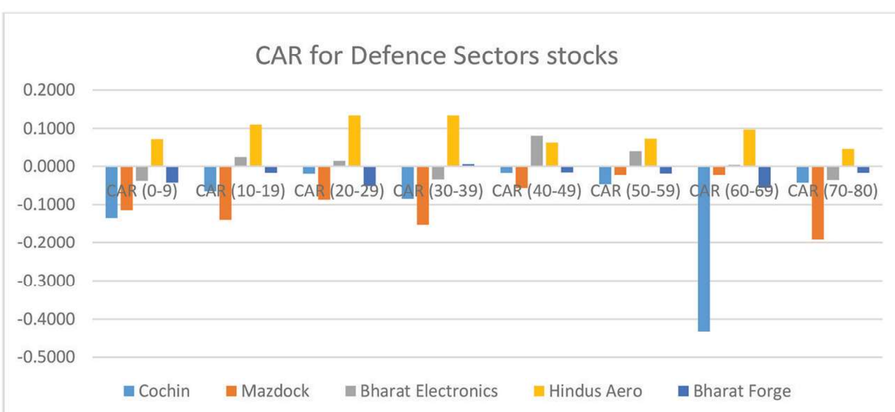

Figure 6 : CAR for Defence sector stocks (0-80) days

Source: Author compilation

Table 13: CAR for 60-80 day of all the indexes and securities taken

CAR				
INDEX	**CAR (60-69)**	**t-Stats**	**CAR (70-80)**	**t-Stats**
Nifty Metal	-0.0318	-0.1143	0.0287	0.0978
Nifty Defence	-0.0556	-0.1718	-0.0169	-0.0495
Nifty Pharma	0.0109	0.0436	-0.0152	-0.0573
Nifty Oil and Gas	0.0432	0.1748	0.0838	0.3214
DEFENCE SECTOR	**CAR (60-69)**	**t-Stats**	**CAR (70-80)**	**t-Stats**
Cochin	-0.4318	-0.8250	-0.0423	-0.0767
Mazdock	-0.0225	-0.0452	-0.1926	-0.3670
Bharat Electronics	0.0035	0.0103	-0.0354	-0.0976
Hindus Aero	0.0972	0.1586	0.0452	0.0700
Bharat Forge	-0.0556	-0.1718	-0.0169	-0.0495
PHARMA STOCKS	**CAR (60-69)**	**t-Stats**	**CAR (70-80)**	**t-Stats**
Cipla	-0.0274	-0.0845	0.0477	0.1396
Dr. Reddy	-0.0638	-0.2202	0.0426	0.1396
Sun pharma	-0.0139	-0.0521	0.0662	0.2355
Lupin	-0.0462	-0.1448	0.0202	0.0602
Aurobindo	-0.0376	-0.1089	-0.0635	-0.1746
STEEL STOCKS	**CAR (60-69)**	**t-Stats**	**CAR (70-80)**	**t-Stats**
SAIL	-0.0491	-0.1392	0.1692	0.4547
Hindalco	-0.0667	-0.2028	0.0152	0.0438
Tata Steel	-0.0394	-0.1312	0.0265	0.0836
JSW	-0.0277	-0.0931	0.0023	0.0075
Jindal	-0.0417	-0.1157	0.0298	0.0785
OIL AND GAS STOCKS	**CAR (60-69)**	**t-Stats**	**CAR (70-80)**	**t-Stats**
Hindu Petroleum	0.1213	0.3551	0.0918	0.2549
Bharat Petroleum	0.0353	0.1157	0.1784	0.5546
Indian Oil Corporation	0.0708	0.2362	0.1275	0.4035
Mahanagar Gas Stock	0.0182	0.0528	0.1492	0.4115
ONGC	0.0943	0.3250	0.0824	0.2694

Source: Author compilation

periods, the Nifty oil and gas index demonstrated the highest positive CAR at 0.0432, while the nifty defence and metal indexes showed the lowest

CAR at -0.0556 and -0.0318 respectively. Comparing the CAR growth to the previous 50-59-day period, we observed varied changes across sectors. In defence sector, there was a further decline in CAR compared to the previous period, with companies like cochin and bharat forge experiencing like significant negative growth. However, mazdock and Hindus aero saw some improvement in CAR, albeit modestly. The Pharmaceutical sector continued to face challenges with all the companies showing negative growth where Lupin experienced the most significant decline followed by Dr. Reddy and Aurobindo. In steel sector, there was a widespread decline in CAR across companies compared to the previous period with SAIL and Hindalco being the most affected. In oil and gas sector, most companies witnessed mixed growth in CAR compared to the previous period. ONGC showed significant growth in CAR, while Bharat petroleum experienced a slight decline. During the 70-80-day period, the performance of Nifty indexes continued to reflect a mixed trend, with two indexes displaying positive CAR and two exhibiting negative CAR. Similar to previous periods, the Nifty Oil and Gas index demonstrated the highest positive CAR at 0.0838, while the Nifty Defence index showed the lowest CAR at -0.0169. Since the t-statistic value for all these indexes fall below the desired 1.96 value we accept the null hypothesis that there is no significant impact of the Israel-Hamas war on the various nifty indexes such as the nifty defence, nifty pharmaceutical, nifty oil and gas and metal. Likewise, we accept the null hypothesis for the various sector based stocks of defence, oil and gas, pharmaceutical and metal sector as the t-statistic value for none of these 20 stocks exceed the standard 1.96 value.

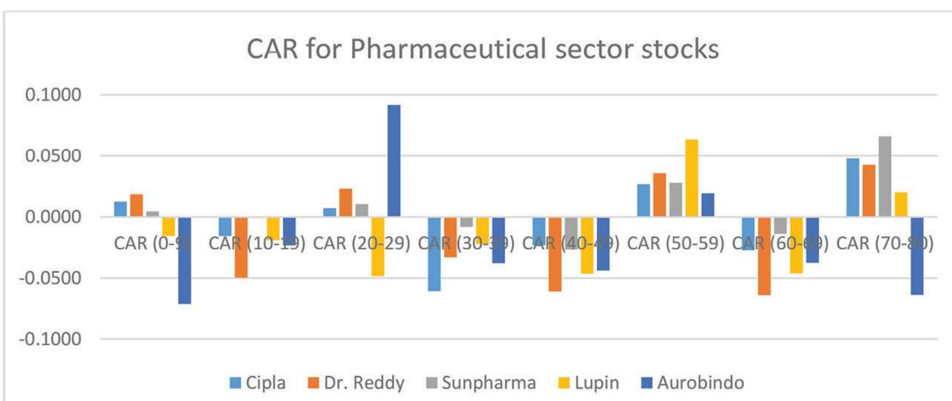

Figure 7: CAR for Pharmaceutical sector stocks (0-80) days

Source: Author compilation

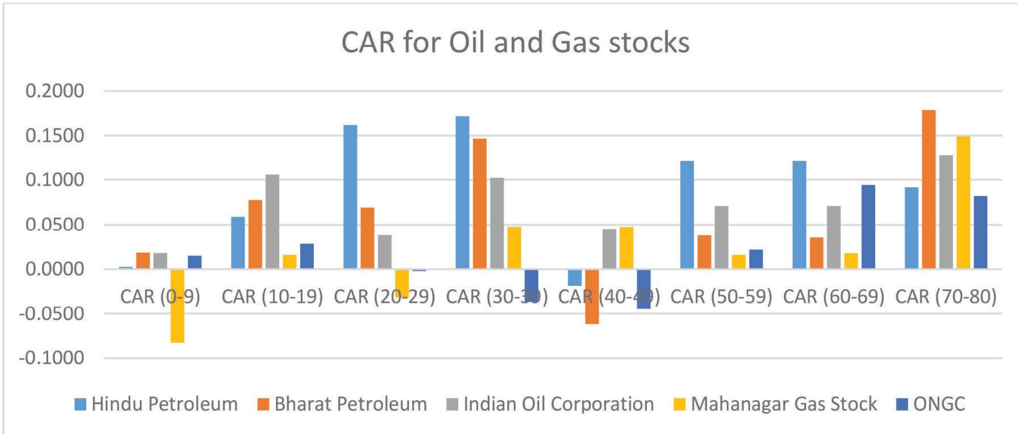

Figure 8: CAR for Oil and Gas sector stocks (0-80) days

Source: Author compilation

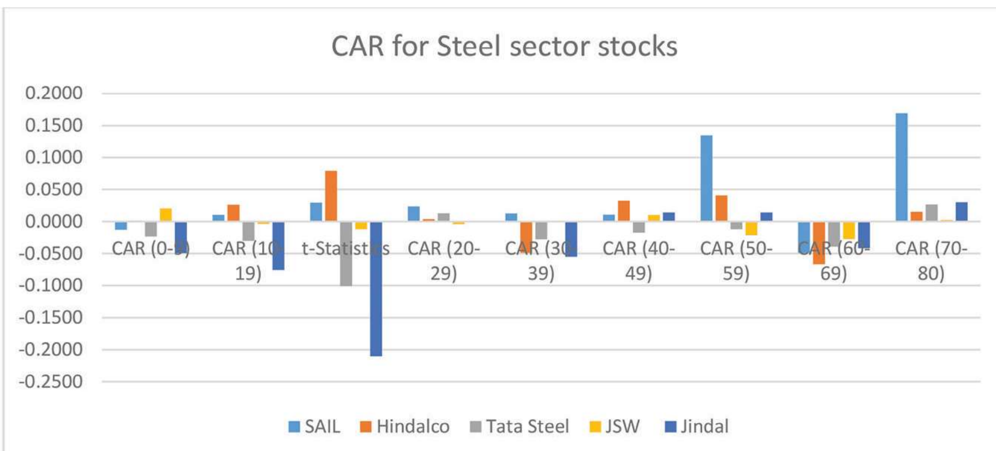

Figure 9: CAR for Steel sector stocks (0-80) days

Source: Author compilation

5. Conclusions

The study aimed to assess the impact of the Israel-Hamas war on various sectors of the Indian stock market, including oil and gas, defence, pharmaceuticals, and steel, as well as the individual stocks within these sectors. The analysis of event study methodology and computation of abnormal returns revealed several key conclusions.

Firstly, the outbreak of the Israel-Hamas conflict had a significant impact on the Indian stock market, with negative abnormal returns observed across all sectors on the event day, indicating that the market reacted swiftly to this unexpected geopolitical event. However, the subsequent days exhibited varying patterns of abnormal returns across sectors, reflecting the market's adjustment to changing conditions and expectations. Secondly, the findings support the Efficient Market Hypothesis (EMH) and the random walk theory, which suggest that market prices rapidly incorporate new information and follow a random pattern that cannot be easily predicted. The negative abnormal returns on the event day demonstrate the market's efficiency in responding to unexpected events, while the varying trends in subsequent days illustrate the unpredictability of market movements influenced by multiple internal and external factors. Thirdly, the study revealed sector-specific impacts, with the oil and gas and defence sectors experiencing positive abnormal returns, likely due to increased demand and favourable market conditions. In contrast, the pharmaceutical and steel sectors exhibited negative abnormal returns, potentially attributable to disruptions in supply chains and shifts in consumer preferences. Several recommendations can be made for investors, traders, portfolio managers, and policymakers: Investors should adopt a fundamental analysis approach, focusing on intrinsic company values and performance rather than relying solely on technical analysis and historical price patterns. Portfolio managers should consider sector-specific dynamics and diversification strategies to mitigate risks during geopolitical events. Policymakers should monitor macroeconomic and geopolitical factors, implement measures to enhance energy security, promote regional cooperation, and maintain market stability during crises. Regulators should ensure market integrity, prevent excessive speculation, and improve transparency through guidance, advisories, and coordination with domestic and international counterparts. This study contributes to the existing body of knowledge by providing empirical evidence on the impact of geopolitical events, specifically the Israel-Hamas war, on the Indian stock market. It offers insights into market efficiency, sector-specific reactions, and the interplay between geopolitical factors and stock market performance. The findings can inform investment strategies, risk management practices, and policy decisions, ultimately enhancing the resilience and stability of the Indian financial markets. Overall, the research highlights the dynamic nature of stock markets and the importance of considering geopolitical events, sector-specific factors, and market efficiency principles in investment decision-making and policy formulation.

The theoretical and practical implications of the research in the field of finance, the society, and the policy are mainly to provide insights and recommendations for the various stakeholders involved in the Indian economy. The findings support the efficient market hypothesis (EMH) which states that market prices reflect all available information and adjust quickly to new information. The negative AR across all sectors on the event day shows that the market reacted to the unexpected outbreak of violence in the Middle East, which affected the expected returns and risks of the stocks. The positive or negative AR in the subsequent days reflects the market's adjustment to the changing conditions and expectations in each sector. The findings also illustrate the random walk theory, which states that market prices follow a random pattern that cannot be predicted. The varying trends and patterns of CAR across different sectors and windows show that the market movements are influenced by many factors, both internal and external, and are not easily predictable. The random walk theory implies that technical analysis, which relies on historical price patterns, is not effective in forecasting future prices. The findings have implications for investors, traders, and portfolio managers who are interested in the Indian stock market. They suggest that investors should adopt a fundamental analysis approach, which focuses on the intrinsic value and performance of the companies, rather than a technical analysis approach, which relies on price trends and indicators.

References

[1]. Aggarwal, R., Inclan, C., & Leal, R. (1999). Volatility in Emerging Stock Markets. *The Journal of Financial and Quantitative Analysis*, *34*(1), 33. https://doi.org/10.2307/2676245

[2]. António Miguel Martins, Álvaro, P., & Cró, S. (2023). Stock market reaction to the military conflict between Russia and Ukraine: an event study for the European tourism and hospitality industry. *Journal of Applied Economics*, *26*(1). https://doi.org/10.1080/15140326.2023.2261756

[3]. Ashraf, S., & Baig, M. A. (2019). Is the Indian Stock Market Efficiently Inefficient? An Empirical Investigation. *Indian Journal of Finance*, *13*(7), 7. https://doi.org/10.17010/ijf/2019/v13i7/145532

[4]. Bakry, W., Kavalmthara, P. J., Saverimuttu, V., Liu, Y., & Cyril, S. (2021). Response of stock market volatility to COVID-19 announcements and stringency measures: A comparison of developed and emerging markets. *Finance Research Letters*, *46*, 102350. https://doi.org/10.1016/j.frl.2021.102350

[5]. Boubaker, S., Goodell, J. W., Pandey, D. K., & Kumari, V. (2022). Heterogeneous impacts of wars on global equity markets: Evidence from the invasion of Ukraine. *Finance Research Letters*, *48*(3), 102934. https://doi.org/10.1016/j.frl.2022.102934

[6]. Brounen, D., & Derwall, J. (2010). The Impact of Terrorist Attacks on International Stock Markets. *European Financial Management*, *16*(4), 585–598. https://doi.org/10.1111/j.1468-036x.2009.00502.x

[7]. Chen, M.-H., Jang, S. (Shawn), & Kim, W. G. (2007). The impact of the SARS outbreak on Taiwanese hotel stock performance: An event-study approach. *International Journal of Hospitality Management*, *26*(1), 200–212. https://doi.org/10.1016/j.ijhm.2005.11.004

[8]. Chowdhury, E. K., Khan, I. I., & Dhar, B. K. (2021). Catastrophic impact of Covid-19 on the global stock markets and economic activities. *Business and Society Review*, *127*(2). https://doi.org/10.1111/basr.12219

[9]. Gu, X., Zhang, W., & Cheng, S. (2021). How do investors in Chinese stock market react to external uncertainty? An event study to the Sino-US disputes. *Pacific-Basin Finance Journal*, *68*(3), 101614. https://doi.org/10.1016/j.pacfin.2021.101614

[10]. Hassan, M. K., Pandey, D. K., Boubaker, S., & Kumari, V. (2022). Indo-China border disputes and heterogeneous sectoral returns: An event study approach. *Finance Research Letters*, *4*(3), 103277. https://doi.org/10.1016/j.frl.2022.103277

[11]. JOSH, N. A., H. Kent BAKER, & AGGARWAL, A. (2023). The Russia-Ukraine War's Impact on Stock Markets in Asia-Pacific, the United States, and Europe. *Eurasian Journal of Business and Economics*, *16*(31), 39–53. https://doi.org/10.17015/ejbe.2023.031.03

[12]. Kollias, C., Kyrtsou, C., & Papadamou, S. (2013). The effects of terrorism and war on the oil price–stock index relationship. *Energy Economics*, *40*(1), 743–752. https://doi.org/10.1016/j.eneco.2013.09.006

[13]. Krishnan, D., & Dagar, V. (2022). Exchange Rate and Stock Markets During Trade Conflicts in the USA, China, and India. *Global Journal of Emerging Market Economies*, *14*(2), 097491012210827. https://doi.org/10.1177/09749101221082724

[14]. Muhammad Niaz Khan. (2024). Market volatility and crisis dynamics: a comprehensive analysis of U.S., China, India, and Pakistan stock markets with oil and gold interconnections during COVID-19 and Russia–Ukraine war periods. *Future Business Journal*, *10*(1). https://doi.org/10.1186/s43093-024-00314-8

[15]. P, G., Kumar K, S., & C. Bhat, D. (2022). IMPACT OF RUSSIA-UKRAINE WAR ON INDIAN STOCK MARKET - AN EVENT STUDY WITH REFERENCE TO NIFTY 50. *International Journal of Research -GRANTHAALAYAH*, *10*(4), 161–167. https://doi.org/10.29121/granthaalayah.v10.i4.2022.4566

[16]. Pal, S., & Garg, A. K. (2020). Macroeconomic surprises and stock market responses in view of global linkage – A study of Indian stock market. *Cogent Economics & Finance*, *8*(1), 1839171. https://doi.org/10.1080/23322039.2020.1839171

[17]. Papakyriakou, P., Sakkas, A., & Taoushianis, Z. (2019). The impact of terrorist attacks in G7 countries on international stock markets and the role of investor sentiment. *Journal of International Financial Markets, Institutions and Money*, *61*(3), 143–160. https://doi.org/10.1016/j.intfin.2019.03.001

[18]. Parab, N., Naik, R., & V. Reddy, Y. (2020). The Impact of Economic Events on Stock Market Returns: Evidence from India. *Asian Economic and Financial Review*, *10*(11), 1232–1247. https://doi.org/10.18488/journal.aefr.2020.1011.1232.1247

[19]. Safitri, H., & Hariyanto, D. (2023). Capital Market Reaction in Asean Member Countries Against Market Shock: Russia and Ukraine War. *Journal of Asian Multicultural Research for Economy and Management Study*, *3*(4), 30–37. https://doi.org/10.47616/jamrems.v3i4.353

[20]. Shapiro, D. M., Switzer, L. N., & Mastroianni, D. P. N. (2011). War And Peace: The Reaction Of Defense Stocks. *Journal of Applied Business Research (JABR)*, *15*(3), 21. https://doi.org/10.19030/jabr.v15i3.5668

[21]. Shi, Y., Wang, L., & Ke, J. (2021). Does the US-China trade war affect co-movements between US and Chinese stock markets? *Research in International Business and Finance*, *58*(3), 101477. https://doi.org/10.1016/j.ribaf.2021.101477

[22]. Soraya, N. (2023). AN EVENT STUDY: INDONESIAN CAPITAL MARKET REACTION TO THE RUSSIA-UKRAINE WAR ANNOUNCEMENT. *JRAK*, *15*(1), 114–120. https://doi.org/10.23969/jrak.v15i1.6676

[23]. Tavor, T. (2011). The Impact of Terrorist Attacks on the Capital Market in the Last Decade. *International Journal of Business and Social Science*, *2*(12). https://doi.org/10.30845/ijbss

[24]. Umar, M., Riaz, Y., & Yousaf, I. (2022). Impact of Russian-Ukraine war on clean energy, conventional energy, and metal markets: Evidence from event study approach. *Resources Policy*, *79*(102966), 102966. https://doi.org/10.1016/j.resourpol.2022.102966