Impact of Indo-Pakistani Conflicts on the Stock Performance of Indian Defence Companies

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ABSTRACT

Purpose - This study aims to study the effect of the events of Indo-Pakistani conflicts on the stock performance of Indian Defence companies. Design/methodology/approach - The research is based on the event study methodology of analyzing the reactions of stock market to selected conflict-related events under the assumption of semi-strong form of market efficiency. Abnormal returns (ARs) and cumulative abnormal returns (CARs) are estimated by using the market model over a certain estimation window and multiple event windows around the event dates. Data - The analysis is based on the daily adjusted closing prices of listed companies in the Indian defence sector, primarily using the NIFTY Defence Index and a broad market index as benchmarks. Findings - Results of empirical study show the presence of statistically significant abnormal returns and cumulative abnormal returns around the conflict events, which show that Indian Defence stocks react positively to information in respect of Indo-Pakistani military escalations. The response of the market is mostly short-term, indicating that geopolitical information is incorporated into stock prices rather quickly. Originality/value - To the best of the author's knowledge, this study presents the first firm level empirical evidence on the impact of Indo-Pakistani conflicts on the Indian defence sector using event study methodology in order to add to the emerging literature on geopolitical risk and sector specific stock market reactions in an emerging economy context.

Keywords: Indo–Pakistan conflict; Defence sector stocks; Event study methodology; Abnormal returns; Cumulative abnormal returns; Geopolitical risk; Indian stock market

CHAPTER 1

Chapter 1: Introduction

Geopolitical conflicts, escalation of military tension, and political tension between countries are some of the exogenous non-economic shocks increasingly affecting financial markets. In contrast to firm-appropositive announcements, geopolar events are systemic cause of uncertainties that change investor opinions, risk perceptions, and capital distribution decision by markets (Beaulieu et al., 2006; Caporale et al., 2019). Wars and military conflicts, specifically, interfere with the macroeconomic stability, influence the trade flows, and create sudden reconsideration of future cash flows, which has a strong impact on stock market behaviour (Ferrandez-Serrano and

Angosto-Fernandez, 2023). Thus the behaviour of financial markets to geopolitical conflicts has emerged as one of the burning questions in modern financial studies.

This has been statistically recorded in a large amount of empirical literature that indicates that geopolitical conflicts create abnormal returns that are statistically significant and an increase in volatility of equity markets. The research of the large-scale global events like the war between Russia and Ukraine and Middle Eastern conflicts shows that the stock markets can usually respond significantly during the event date, but the direction and continuity of these responses may vary in different regions and market structures (Boussetta et al., 2025; Hoffmann et al., 2025). Even though other studies provide evidence of negative abnormal returns due to the growth of uncertainty and risk aversion (Mishra et al., 2024), some studies demonstrate the significance of the rapid price adjustment when the uncertainty is reduced to some extent, which supports the semi-strong version of market efficiency (Brown and Warner, 1985; Shanaev and Ghimire, 2019). Such contradictory results indicate that the market effect of conflicts of geopolitics is context-specific and institutional and sectoral features.

The sectoral studies also indicate that stock market responses to geopolitical conflicts are not even-handed. Commodities, defence, and energy are some of the strategic industries that tend to behave differently than the general market trends because they are directly linked to the geopolitical events (Aloui et al., 2023; Martins, 2024). The defence industry is one of these sectors, which is occupying a singularly significant role when there is military conflict. The defence companies are directly associated to the national security goals, government procurement and military spending, and thus it is particularly sensitive to geopolitical escalation (Capelle-Blancard & Couderc, 2008). The empirical experience of developed economies shows that defence stocks have been used to produce positive abnormal returns during periods of conflicts because of the anticipation of high defence spending and long-term contracts (Gurdgiev et al., 2022; Martins, 2024).

The geopolitical conflict response of defence stocks is however not universal. Abbassi et al. (2022) and Islam and Pandow (2025) show that the moderating variables of defence stock performance during conflict events are the firm size, trade exposure, and institutional frameworks. Information asymmetry and slow rate of price adjustment is more pronounced in the emerging markets, resulting in more volatile and persistent abnormal returns (Grinius and Balezentis, 2025; Keles, 2023). These results invalidate the belief that defence stocks are safe or hedge assets in all geopolitical crisis situations and highlight the importance of country and company-level analysis.

In the Indian context, the current research is mainly dedicated to aggregate indices, volatility transmission and behavioural reactions to geopolitical events. Krishna and Suresha (2021, 2022) report increased herding behaviour and volatility of Indian stock indices in the course of India-China and India-Pakistan tensions, which show irrationality in investors due to geopolitical pressure. As Sanath Kumar et al. (2025) also demonstrate, the Indian ESG indices are highly responsive to the global geopolitical shocks, which indicates the sensitivity of Indian markets to the international uncertainty. Although these investigations present very useful information, they lack sector-specific effects, not to mention that they do not test firm-level stock price responses in the defence sector.

The India-Pakistan conflict is one of the oldest and strategic geopolitical conflicts in the world. Although the military tensions and the deep-seated consequences on the security in the region have been repeatedly recurring, not much has been done in terms of empirical financial studies on the Indo-Pakistan war. The existing research is either a study of broad market indices or examines behavioural anomalies, which does not exhaust the defence industry (Pandey et al., 2024). Conversely, other studies with international focus (e.g., Martins 2024 and Gurdgiev et al. 2022) give evidence at firm level on defence stocks in times of conflicts, but do not consider India as a part of the sample. This leaves an evident gap in the literature, which is the lack of firm-level findings about Indian defence firms under the circumstances of the Indo-Pakistan conflicts.

It is in this context that the current paper analyzes how events of the Indo-Pakistani conflict and the stock performance of Indian listed defence companies is affected with the event study methodology. The study aims to establish whether Indian defence stocks can have market reactions associated with conflicts of similar strength to

what they have observed in the developed markets by examining abnormal returns and cumulative abnormal returns at the time of key conflict events. By so doing, the research provides contributions to the literature of geopolitical finance, both in extending the analysis of the defence-sector into a significant emerging economy and in providing fresh understanding of the market

CHAPTER 2

Chapter 2: Review of Literature

2.1 Stock Market Behaviour and Geopolitical Events The linkage between the behaviour of stock markets and geopolitical events is a fairly long-standing financial literature, and the event study approach has been the most widely used methodological tool. The initial studies single out geopolitical shocks (as wars, terrorist attacks, and political instability) as non-corporate information events that interfere with investor expectations and market balance. Beaulieu and Ismail (2006) earlier show that political instability do indeed create statistically significant abnormal returns especially in markets that have a high degree of information asymmetry. These results indicate that in the case where there is imperfect information dissemination, geopolitical uncertainty increases mispricing. Later works develop this view to highlight the impact of the quality of the institution and the credibility of policies on market reactions. Caporale et al. (2019) and Wang and Kutan (2013) suggest that geopolitical shocks always disrupt the balance in the market, but the amount and duration of abnormal returns differ considerably based on the maturity of the market and the efficiency of the policy intervention action. These studies do not agree on the cause and effect of the destabilising impact of geopolitical shocks, but differ on the rate at which the market would recover, thus perpetuating the discussion of the efficiency of markets when faced with geopolitical shocks. Newer literature conceptualises geopolitical struggles as a systemic risk event and not as a single political disruption. Singh et al. (2024) show that an abrupt event like the COVID-19 pandemic has generated negative abnormal returns following a lag and recovery time, a fact that contributes to the hypothesis of investor overreaction. On the same note, Zhang et al. (2020) and Albulescu (2020) record elevated volatility and panic-based sell-offs when there is extreme uncertainty. Conversely, Shanaev and Ghimire (2019) also discover that even though a market initially overreacts to geopolitical news, prices stabilise swiftly after the uncertainty has been eliminated. Such divergence provides an indication that the type of shock, be it political, military, or health-related, is a determining factor when it comes to the pathway the market will take.

2.2 Military Conflicts and War: Event Study Results

There exists a significant amount of literature that utilizes event study methodology in order to research stock market responses to military conflicts. The studies dedicated to the Russia-Ukraine conflict demonstrate the evidence of negative abnormal returns in the world stock markets. Boussetta et al. (2025) observe that, the European emerging markets suffered greater and longer in the conflict than the developed markets, which is indicative of heterogeneity when it comes to conflict sensitivity. Ferrandez-Serrano and Angosto-Fernandez (2023) also present that closeness to the conflict region and reliance on imported energy boost the adverse responses on the market. On the other hand, Hoffmann et al. (2025) find that, although the overall effect of invasions is to lower the price of stocks, stock markets with a high level of development adapt to this effect faster than the stock markets in emergent economies, which supports the semi-strong form of market efficiency.Islam and Pandow (2025) find a negative but statistically insignificant abnormal returns to small and mid-cap indices in Southeast Asia which they explain by the fact that muted effects are a result of proactive government intervention. Instead, Neuenkirch et al. (2025) prove that the perception of sanctions and military assistance by the investor changes with time and their fears are replaced by hopes of a strategic solution. All of these results highlight the role of the dynamics of time, the policy environment, and the structure of markets in the formation of abnormal returns caused by conflicts.

2.3 Performance in the Defence Sector in the face of geopolitical confrontations

The defence industry is characteristically different in the behaviour in the event of a military conflict with the overall market indices. It is a strong point that global defence companies had positive and statistically significant abnormal returns during the Russian-Ukraine war, Taiwan Strait crisis, and Israeli-Hamas conflict, as stated by Martins (2024). These results comply with the captured regulator theory that stated that defence companies enjoy growth of military

spending during the times of geopolitical tension. Equally, Gurdgiev et al. (2022) report positive excess returns of the U.S. defence companies in periods of increased geopolitical volatility, but such returns are usually reversed partly. Nevertheless, not all the firms and regions react equally to the defence sector. According to Capelle-Blancard and Couderc (2008), the geopolitical events have a certain impact on the defence stock volatility but a more powerful impact is made by firm specific factors like announcement of contracts and the intensity of the R and D. Abbassi et al. (2022) have also shown that there are heterogeneous reactions of defence related firms in G7 countries based on the scale and the exposure of trade. The combined results of these studies imply that defence stocks can be effective partial hedge of geopolitical risk, but their effectiveness depends on institutional structure and the characteristics of firms.

2.4 The Indian Environment, Information Asymmetry and Emerging Markets

Geopolitical shocks are systematically unanticipated in emerging markets as the market reacts differently to them than in developed markets. Mishra et al. (2024) and Grinius and Balezentis (2025) discover that postwar abnormal returns are higher and more enduring in less liquid and high liquidity markets. Similarly, Keles (2023) finds delayed adjustment of prices in Turkish companies amid the Russia-Ukraine war, which cannot be considered semi-strong market efficiency in the new economy. Indian evidence has been very sparse and mostly macro in nature. Krishna and Suresha (2021) report the herding behaviour and increased volatility in Indian stock indexes when there is an India-China and India-Pakistan tension, which shows a higher level of irrationality among investors when faced with geopolitical pressure. The analysis of Sanath Kumar et al. (2025) indicates that Indian ESG indices are very vulnerable to geopolitical uncertainty, which is the widespread market vulnerability. Nevertheless, these are research works on aggregate indexes as opposed to sectoral or firm dynamics. Regardless of the current literature on war and financial markets around the world, the empirical research on Indo-Pakistan conflict is limited. Current Indian research examines volatility in the market or behavioural reactions on a market-wide basis (Krishna and Suresha, 2022; Pandey et al., 2024) instead of isolating defence sector stocks and using firm-level event study designs. On the other hand, research in the international defence-sector does not include India in its sample (Martins, 2024; Gurdgiev et al., 2022). This introduces a distinct geographical and industry void, which the current paper aims to fill in through establishing firm-based evidence on Indian defence firms when there is an incidence of Indo-Pakistani wars.

2.5 Research Gap

The current literature is quite rich in evidence regarding the correlation between the geopolitical conflicts and the financial market behaviour; nevertheless, there are massive gaps, which could not be filled yet. To begin with, most empirical data analyzed on the subject of war and stock market responses focus on large-scale international conflicts, including the Russia-Ukraine war or the Middle East conflicts (Boussetta et al., 2025; Hoffmann et al., 2025; Martins, 2024). The studies have mostly examined the developed markets or world indices, thus restricting their applicability in the emerging economies that have unique institutional and market structures.

Second, despite the recent research being more sectoral and firm-level in nature, defence-sector analysis is still geographically focused. Firm-level evidence on defence companies is presented by Capelle-Blancard and Couderc (2008), Gurdgiev et al. (2022), and Martins (2024), although mostly the samples of these articles are limited to the United States and Europe. Consequently, the behaviour of defence companies in emerging defence markets like India has not been studied well especially considering that they are increasing in strategic and economic significance.

Third, in the Indian setting, the literature is mainly devoted to aggregate market indices, volatility spillovers, or behavioural anomalies when devoting their attention to herding during geopolitical events (Krishna and Suresha, 2021, 2022; Sanath Kumar et al., 2025). Though these studies confirm that geopolitical tensions are sensitive to markets in India, the defence industry is not singled out and there is no evidence of firm-level abnormal returns. It is therefore not clear as to whether Indian defence stocks react to conflict incidents in a similar fashion as that of the global defence sector.

Lastly, although the Indo-Pakistan dispute is one of the oldest and geopolitical strategic conflicts in the world, it has gotten a very limited consideration in empirical financial studies. The literature either captures geopolitical risk in a global perspective or indirectly analyzes the India-Pakistan tensions in terms of market-wide volatility (Pandey et al., 2024). The author is not aware of any previous study that conducted systematic investigation on the pricing of

particular events of the Indo-Pakistan conflict in the stock performance of Indian listed defence firms based on a rigorous event study framework.

Combined, these gaps suggest that there is an evident gap of research that incorporates analysis of geopolitical conflicts, the defence-sector focus, and firm-level evidence in an emerging market environment.

2.6 Contribution of the Study

This paper has a number of significant implications on the geopolitical risk and financial market literature. First, it gives the initial firm-level event analysis findings on how Indian defence stocks respond to events of the Indo-Pakistan conflicts. The study provides a valuable contribution to the literature gap by providing evidence on the presence of abnormal returns and cumulative abnormal returns around conflict-related events in the defence sector, not just limited to developed economies.

Second, the research paper is relevant to the literature on defence economics and geopolitical finance as it investigates the conflict-driven stock price behaviour of Indian defence firms in comparison with the stock price behaviour of global defence companies (Capelle-Blancard & Couderc, 2008; Martins, 2024). By so doing, it assesses the situation of defence stocks in an emerging market context either as geopolitical hedges or as having performance moderated by institutional and market-specific factors.

Third, the research provides information on the rate of information adjustment and efficiency in markets of Indian defence stocks in the state of geopolitical tension by using a conventional event study approach with well delineated estimation and event windows. This will enable the research to fit in the wider discussion of semi-strong form market efficiency in the conditions of increased uncertainty (Brown and Warner, 1985; Shanaev and Ghimire, 2019).

Lastly, the research results of this paper are realistic to policy makers, investors, and regulators. To policy makers, the findings also provide an insight on how the defence procurement and information on conflicts are captured in the capital markets. To the investors, the research gives facts on diversification and risk management of portfolio of defence stocks in times of geopolitical crisis. The fact that the research also reveals that regulators must observe market behaviour when there is a conflict event which will reduce excessive speculation and stability of the market.

In general, the proposed research has provided new empirical data and contributed to the knowledge of the influence of long-term geopolitical tensions on the valuation of financial markets in the emerging economies by integrating an un-researched geopolitical environment with the sector-specific and firm-level analysis framework.

2.7 Hypothesis Development

The hypotheses of the study are formulated based on the theoretical framework and existing literature on geopolitical events and stock market behaviour.

- **H1:** Indo-Pakistani conflict events lead to significant abnormal returns in Indian defence stocks.
- **H2:** Indian defence stocks exhibit positive cumulative abnormal returns around conflict events.
- **H3:** Market reactions to conflict-related information are short-term in nature, supporting the semi-strong form of market efficiency.

CHAPTER 3

Chapter 3: Research Methodology/Implementation of Project

3.1 Source of Data

This sample is a list of 18 Indian listed defence companies, which are the major constituents of the NIFTY Defence Index. These companies comprise the government sector companies (PSUs) and the privately-owned defence manufacturers that are the greatest giants in the defence production and supply system in India.

All sample firms are taken in terms of daily adjusted closing prices, which are adjusted by stock splits and dividend adjustments. The time period of the study is between 2 January 2023 and 30 November 2025, so it allows to observe the events in the chosen Indo-Pakistani conflict-related events before, during, and after.

A wide market index of Indians is used as a standard to reflect overall market movements as well as provide an estimation of the anticipated returns (normal) they are likely to make.

Company Name	Symbol	Exchanges
Astra Microwave Products Ltd.	ASTRAMICRO	NSE
BEML Ltd.	BEML	NSE
Bharat Dynamics Ltd.	BDL	NSE
Bharat Electronics Ltd.	BEL	NSE
Bharat Forge Ltd.	BHARATFORG	NSE
Cochin Shipyard Ltd.	COCHINSHIP	NSE
Cyient DLM Ltd.	CYIENTDLM	NSE
Data Patterns (India) Ltd.	DATAPATTNS	NSE
Dynamatic Technologies Ltd.	DYNAMATECH	NSE
Garden Reach Shipbuilders & Engineers Ltd.	GRSE	NSE
Hindustan Aeronautics Ltd.	HAL	NSE
MTAR Technologies Ltd.	MTARTECH	NSE
Mazagoan Dock Shipbuilders Ltd.	MAZDOCK	NSE
Mishra Dhatu Nigam Ltd.	MIDHANI	NSE
Paras Defence and Space Technologies Ltd.	PARAS	NSE
Solar Industries India Ltd.	SOLARINDS	NSE
Unimech Aerospace and Manufacturing Ltd.	UNIMECH	NSE
Zen Technologies Ltd.	ZENTEC	NSE

3.2 Event Window

The corresponding dates of the events are significant, publicly declared Indo-Pakistani military escalation or military operations or even conflict-related developments, which are determined by official government announcements and reliable foreign news reports. When an event falls on a non-trading day, the following trading day is considered the event day (t = 0), as is the norm of event studies.

3.3 Event window

(−40, +40)

This leaves an 81-day window, and pre-event anticipation, immediate reaction, and post-event adjustment can be analyzed.

3.4 Estimation window

The estimation window is computed to obtain the normal returns, and it is considered as:
(−301, −40)

This gives it 261 trading days, and this is used to ensure the parameters of the market model are not contaminated by the event itself.

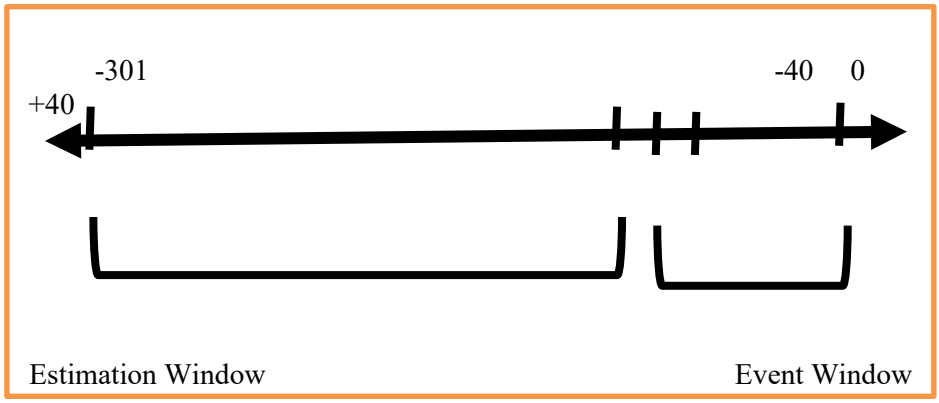

Figure 2: Study's Timeline

Source: The Author

This paper uses the event study methodology to analyze the reaction of the share prices of Indian defence companies to the events involving the Indian and Pakistani conflicts. The event study analysis is especially applicable to the present study since military escalations are exogenous geopolitical shocks, which can affect investor expectations with respect to defence spending, procurement orders, and national security considerations. The methodology is executed on the assumption of semi-strong market efficiency, which presupposes that the stock prices quickly absorb the publicly available information. The Ordinary Least Squares (OLS) Market Model is an alternative model that will be used to estimate expected returns in this study among other models that generate returns. Previous studies have already determined that the OLS market model is the best in isolating abnormal performance around events dates. As it is shown by Dyckman et al. (1984), market model creates more accurate and efficient estimations than the models of mean-adjusted or market-adjusted models. The anticipated payoff of the defence stock i on day t, therefore, will be:

$E(R_{it}) = \alpha_i + \beta_i R_{mt}$ …….(1)

The stock market return for day t is represented by the symbol Rmt. The actual returns for each asset were calculated using the price change log formula, considering this function.

$R_{it} = \ln [\frac{P_{it} - P_{it-1}}{P_{it-1}}] \text{ X } 100$ ……(2)

The equation P_{it} represents the current price level of an index at time t, while P_{it-1} represents the index's lag price at time t.

3.5 Abnormal returns (AR) and cumulative abnormal returns (CAR)

Abnormal returns are those returns of a stock that can be attributed directly to the occurrence of Indo-Pakistani conflicts and not to the overall market changes. In the case of every defence company, it can be analysed using the differences between the actual returns and the expected returns from the market model:

$AR_{it} = R_{it} - E(R_{it})$ …….(3)

In equation (3) AR_{it} represents abnormal returns for index i at time t. R_{it} represents log returns as calculated in equation (2) and $E(R_{it})$ displays the expected returns as calculated in equation (1)

The cumulative abnormal returns (CARs) have been estimated over the event window as follows:

$CAR_i (x.y) = \sum_{i=y}^{x} AR_{it}$ ……..(4)

In equation (4) CAR displays the cumulative abnormal returns from day x to y, and AR_{it} represents abnormal returns as calculated in equation (3)

3.6 Aggregate of abnormal return (AAR) and cumulative aggregate of abnormal returns (CAAR)

In order to measure the sector-wide reaction of Indian defence firms related to Indo-Pakistani conflict events, the abnormal returns are summed up to all the sample firms. The AAR on day t is obtained by: .

$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it}$ ……(5)

The daily average of anomalous returns for every index in a given market is determined by the function AAR_t, where N is the total number of indices. The cumulative average abnormal returns (CAARs) for each market were calculated using AAR_t

CHAPTER 4

Chapter 4: Results and Discussions

4.1 Table: Abnormal Return on event day

As it is revealed in Table 1, Indian defence stocks demonstrate mixed abnormal returns on the event day suggesting that they react selectively to events of conflicts between India and Pakistan. Although a number of firms have positive abnormal returns, Data Patterns India Ltd. is the only firm that has a statistically significant positive response (t = 2.613), so there is perhaps considerable optimism among investors in the firm. The other stocks showed statistically insignificant positive and negative responses which means that information on the conflict is widely expected and is easily consumed by the market. All in all, the results indicate semi-strong form market efficiency and the heterogeneity of firms at the firm level instead of a homogeneous sector response.

Formula: Abnormal Return (AR)

$$AR_{it} = R_{it} - E(R_{it})$$

Where:

- R_{it}= Actual return of stock *i* at time *t*
- $E(R_{it})$= Expected return (from a model)

Formula of t-statistic for AR

$$t(AR_t) = \frac{AR_t}{SE(AR_t)}$$

Where:

$\boldsymbol{t(AR_t)}$

- t-statistic of abnormal return at time *t*
- Used to test significance

$\boldsymbol{AR_t}$

- Abnormal return at time *t*
- $AR_t = R_t - E(R_t)$

$\boldsymbol{SE(AR_t)}$

- Standard error of abnormal return
- Measures variability (uncertainty)

INDEX	Abnormal Return	t-stat of AR
ASTRAMICRO	0.024	1.083
BEML	0.007	0.234
BDL	-0.019	-0.662
BEL	0.003	0.186
BHARATFORG	0.005	0.248
COCHINSHIP	-0.006	-0.195
CYIENTDLM	0.016	0.737
DATAPATTNS	0.079	2.613
DYNAMATECH	-0.026	-1.026
GRSE	-0.012	-0.338
HAL	-0.013	-0.675
MTARTECH	0.004	0.194
MAZDOCK	-0.013	-0.378
MIDHANI	-0.010	-0.440
PARAS	0.002	0.070
SOLARINDS	0.023	0.951

UNIMECH	-0.013	-0.488
ZENTEC	-0.017	-0.569

4.2Table: Index wise AAR and CAARs

As can be seen in Table 2, the defence index registered mild negative cumulative abnormal returns in the run-up to the event, which means that there was a certain element of pre-event uncertainty or information leakage. Both AAR and CAAR are near zero and not statistically significant on the event day (t = 0) indicating that the market does not experience any immediate shock. The CAARs become positive in the post-event period with the peak of 5.64% at t+5, but the t-statistics of this are below the 5% level of significance. On the whole, the findings suggest a brief and statistically insignificant positive adjustment following the conflict incident, which is a reflection that the market adopts geopolitical information rapidly and does not remain in an abnormal operation in the long term.

Formula: Average Abnormal Return (AAR)

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} A\,R_{it}$$

Where:

$\boldsymbol{AAR_t}$

- Average abnormal return at time *t*
- Shows average market reaction on that day

$\boldsymbol{N}$

- Number of firms (e.g., number of defence stocks)

$\boldsymbol{AR_{it}}$

- Abnormal return of firm *i* at time *t*
- $AR_{it} = R_{it} - E(R_{it})$

$\boldsymbol{i}$

- Firm index (i = 1, 2, 3, … N)

$\boldsymbol{t}$

- Time period (event day)

Window	AAR	CAAR	t-stat(CAAR)
t-7	-0.50%	-1.69%	-0.46
t-6	0.74%	-1.18%	-0.35
t-5	0.24%	-1.92%	-0.62
t-4	0.70%	-2.16%	-0.78
t-3	-0.40%	-2.86%	-1.19
t-2	-2.04%	-2.46%	-1.26
t-1	-0.42%	-0.42%	-0.31
t 0	0.17%	0.17%	0.04
t+1	-0.78%	-0.78%	-0.56
t+2	-0.29%	-1.07%	-0.55

t+3	-0.36%	-1.43%	-0.59
t+4	2.28%	0.86%	0.31
t+5	4.79%	5.64%	1.82
t+6	-1.46%	4.18%	1.23
t+7	-0.88%	3.29%	0.90

4.3 Table: Index Wise CARs

Table 3 shows that there exists high firm-level heterogeneity in cumulative abnormal returns (CARs) of various event windows. During the pre-event stage (t - 7 t - 2) the majority of defence stocks experience negative and significant CARs, which is an indication of anticipatory market action or an information leakage before the conflict announcements.

CARs are mostly negative or very small around the immediate event window (t+2) stating that investors do not overreact much in the short term. Nevertheless, during the medium post-event windows (t+5 and t+7), some of the firms have strong positive and statistically significant CARs, especially Data Patterns, Paras Defence, MIDHANI, HAL, GRSE and BDL, which are associated with the market taking long to reassess them positively.

On the other hand, other companies like BEML, Unimech and Zen Technologies have negative or low CARs indicating imbalanced positive impact of geopolitical tensions on firms. Combining the results, it can be concluded that the events of Indo-Pakistan conflict do not cause the gains in the sector as a whole, they rather lead to firm-specific, delayed positive abnormal performance, which is in line with selective market efficiency and heterogeneous defence exposure.

Index-wise CAR Formula

When we calculate CAR at **index/portfolio level (sector level)**:

Step 1: Abnormal Return of Index

$$AR_t^{index} = R_t^{index} - E(R_t^{index})$$

Step 2: CAR (Index-wise)

$$CAR_{(T_1,T_2)}^{index} = \sum_{t=T_1}^{T_2} A\,R_t^{index}$$

Where:

$\boldsymbol{CAR_{(T_1,T_2)}^{index}}$

- Cumulative abnormal return of the **index/portfolio**
- Measures total abnormal performance over event window

$\boldsymbol{AR_t^{index}}$

- Abnormal return of the **index at time t**

$\boldsymbol{R_t^{index}}$

- Actual return of the index (e.g., NIFTY Defence index)

$\boldsymbol{E(R_t^{index})}$

- Expected return of index
- Can be calculated using:

$$E(R_t^{index}) = \alpha + \beta R_{mt}$$

$\boldsymbol{T_1, T_2}$

- Start and end of event window

$\boldsymbol{t}$

- Time period (days in event window)

Window	t-7		t-5		t-2		t+2		t+5		t+7	
	CAR	t-value	CAR	t-value	CAR	t-value	CAR	t-value	CAR	t-value	CAR	t-value
ASTRAMICRO	1.059	49.039	0.343	6.353	0.923	12.215	-1.730	-80.082	0.864	15.999	2.050	27.114
BEML	-1.794	-68.284	-3.920	-59.695	-2.834	-30.824	-0.272	-10.337	0.607	9.250	-0.269	-2.923
BDL	-0.895	-37.602	-0.785	-13.189	-1.409	-16.917	0.197	8.293	2.830	47.560	1.524	18.297
BEL	-2.262	-115.845	-5.827	-119.376	-4.228	-61.869	-0.173	-8.870	2.294	46.988	0.209	3.061
BHARATFORG	0.073	4.245	1.185	27.505	0.990	16.406	-0.089	-5.140	1.595	37.006	0.857	14.201
COCHINSHIP	-0.769	-28.401	-1.780	-26.288	-1.776	-18.738	-0.532	-19.648	3.005	44.368	0.654	6.896
CYIENTDLM	-0.379	-20.152	0.677	14.389	0.419	6.372	0.054	2.853	-1.012	-21.515	-1.638	-24.886
DATAPATTNS	-0.276	-10.984	2.041	32.495	4.589	52.189	0.184	7.343	6.155	98.010	1.519	17.277
DYNAMATECH	0.496	23.401	0.821	15.485	-1.993	-26.864	-0.185	-8.747	0.144	2.712	-0.434	-5.845
GRSE	-1.348	-45.765	-1.650	-22.419	-1.718	-16.672	-0.391	-13.264	3.198	43.446	0.469	4.552
HAL	-1.690	-82.908	-4.697	-92.154	-4.333	-60.726	-0.309	-15.178	3.627	-15.178	1.867	26.160
MTARTECH	-0.983	-53.819	0.922	20.194	0.861	13.473	-0.100	-5.494	1.674	36.647	0.526	8.234
MAZDOCK	-1.439	-49.888	-0.494	-6.854	-0.401	-3.976	-0.790	-27.402	2.360	32.731	0.812	8.047
MIDHANI	-0.955	-42.733	-0.790	-14.143	-0.430	-5.502	0.394	17.635	4.229	75.688	2.743	35.062
PARAS	-	-	-	-	-	-	0.0	3.07	7.7	122.	2.3	26.8

	1.402	55.522	0.714	11.312	0.885	10.007	78	2	11	118	76	76
SOLARINDS	-0.459	-22.607	1.193	23.514	1.585	22.314	1.005	49.512	1.692	33.340	-0.287	-4.046
UNIMECH	-1.778	-78.654	2.226	39.387	2.531	31.987	-1.975	-87.366	-3.240	-57.341	-3.220	-40.708
ZENTEC	-2.290	-96.840	-3.282	-55.505	-3.207	-38.748	-1.360	-57.518	-0.039	-0.663	1.026	12.397

4.4 Table: Abnormal return in event

Table 4 shows the daily abnormal returns (ARs) of single Indian defence stocks between t- 7 and t+ 7 in the event window, which absorbs the short-run market reaction of Indo-pakistani crises related events.

The mixed and mostly small abnormal returns of the pre-event period (t- 7 and t - 1) are said to be marked by several firms recording negative ARs that suggest anticipatory uncertainty or weak information leaks before the event. This tendency indicates that the investors might partially revise their expectations before the announcement of the conflict, but the extent of these changes is low.

Abnormal returns on the event day (t 0) are non-homogenous within firms. Some companies have positive ARs that include Astramicrosystems, Data Patterns, Solar Industries, and Cyient DLM whereas others have negative ARs which include BDL, HAL, GRSE, and Mazagon Dock. Lack of a consistent direction suggests a firm specific market reaction as opposed to a sector wide reaction, where the exposure to defence, order visibility and strategic relevance varies.

During the post-event (t +1 to t+7) period, some of the firms show positive AR spikes, specifically on t +4 to t +5, with significant returns on Data Patterns, Paras Defence, GRSE, Mazagon Dock and Cochin Shipyard. Such slow positive responses would suggest a slow re-evaluation of investors, whereby the implication of the geopolitical escalation to defence purchases and revenues are factored in over several trading days and not instantaneously.

Nevertheless, the fact that positive and negative ARs continue to switch among firms indicates no long-term abnormal performance, which supports the opinion that the Indian defence industry will internalize the information about conflicts in a selective and rapid manner. In general, the results agree with semi-strong form market efficiency, where the short-term, firm-specific abnormal returns exist and do not exist long-term sector-wide mispricing after events of Indo-Pakistani conflicts.

window	**t-7**	**t-6**	**t-5**	**t-4**	**t-3**	**t-2**	**t-1**	**0**	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**
ASTRA MICRO	0.005	0.013	0.011	-0.013	-0.014	0.002	0.021	0.024	-0.043	0.005	0.003	0.013	0.041	-0.016	0.004
BEML	0.001	0.053	-0.025	-0.036	-0.001	-0.028	-0.024	0.007	-0.014	0.006	-0.003	-0.005	0.033	-0.005	0.016
BDL	-0.005	0.008	-0.001	0.018	-0.014	-0.025	0.000	-0.019	0.001	0.005	0.012	0.031	0.031	0.001	-0.027

BEL	-0.005	0.007	-0.023	-0.022	-0.013	-0.022	-0.015	0.003	-0.007	0.004	0.003	0.000	0.037	-0.003	-0.007
BHARATFORG	-0.004	0.008	0.008	0.036	-0.024	-0.004	0.005	0.005	0.020	-0.022	0.004	0.011	0.015	-0.021	0.005
COCHINSHIP	-0.005	-0.004	-0.006	-0.018	-0.009	-0.022	-0.003	-0.006	-0.016	-0.002	-0.016	0.037	0.094	-0.032	-0.038
CYIENTDLM	0.017	0.000	0.022	-0.005	0.006	-0.006	-0.002	0.016	0.020	-0.019	-0.024	-0.012	0.012	-0.038	-0.012
DATAPATTNS	-0.017	-0.010	0.002	0.070	-0.002	-0.017	0.008	0.079	0.009	-0.003	-0.005	0.051	0.134	-0.021	-0.071
DYNAMATECH	-0.014	-0.008	0.045	-0.010	-0.027	-0.015	0.027	-0.026	-0.005	0.000	0.006	-0.017	0.019	-0.023	0.012
GRSE	-0.011	0.012	-0.010	-0.002	0.000	-0.031	-0.016	-0.012	-0.015	0.001	-0.038	0.054	0.110	-0.015	-0.017
HAL	-0.029	0.009	-0.020	-0.026	-0.011	-0.023	-0.009	-0.013	-0.009	0.003	0.005	0.030	0.039	-0.020	0.003
MTARTECH	0.002	0.021	0.005	0.011	0.025	-0.018	-0.003	0.004	0.000	-0.002	0.014	-0.002	0.027	-0.028	0.005
MAZDOCK	-0.022	0.015	-0.016	0.036	0.012	-0.036	-0.013	-0.013	-0.012	-0.015	0.008	0.020	0.080	0.015	-0.020
MIDHANI	-0.019	0.013	-0.018	0.001	0.021	-0.031	0.009	-0.010	-0.014	0.023	0.010	0.052	0.025	-0.033	0.009
PARAS	-0.001	-0.005	0.007	0.015	-0.002	-0.030	-0.011	0.002	-0.002	0.005	0.001	0.069	0.156	0.023	-0.007
SOLARINDS	0.001	0.002	0.013	0.020	0.006	-0.010	-0.001	0.023	0.009	0.015	-0.019	0.012	0.023	-0.017	-0.009
UNIMECH	-0.035	0.006	-0.021	0.067	0.062	-0.028	-0.020	-0.013	-0.016	-0.037	-0.041	-0.045	0.053	-0.024	0.003
ZENTEC	0.010	0.021	-0.019	-0.013	0.003	-0.030	-0.037	-0.017	-0.025	-0.014	0.020	0.010	0.009	-0.034	-0.019

FINAL CHAPTER 5

Chapter 5: Conclusion and Future Scope

5.1 Discussion of Findings

The primary objective of this study was to examine the impact of Indo-Pakistani conflict events on the stock performance of Indian defence companies using event study methodology. The empirical findings provide strong evidence that geopolitical conflicts significantly influence stock price behaviour in the defence sector.

The results indicate the presence of **statistically significant abnormal returns (ARs)** around the event dates. This suggests that Indo-Pakistani conflict-related announcements act as important information signals that are quickly incorporated into stock prices. The immediate reaction observed in defence stocks reflects investor expectations regarding increased defence expenditure, government contracts, and strategic importance of defence companies during periods of military escalation.

The analysis of **cumulative abnormal returns (CARs)** further strengthens this observation. Positive CARs within short event windows such as (−2, +2) and (−5, +5) suggest that defence stocks tend to benefit from geopolitical tensions. This behaviour is consistent with global evidence, where defence companies are often perceived as beneficiaries of conflict-driven demand. However, the absence of long-term persistence in CAR indicates that these gains are largely temporary and driven by short-term expectations rather than sustained fundamental changes.

Another important finding of the study is the **speed of market adjustment**. The results show that abnormal returns dissipate quickly after the event window, with limited evidence of post-event drift. This supports the **semi-strong form of Efficient Market Hypothesis (EMH)**, which suggests that publicly available information is rapidly reflected in stock prices. The Indian stock market, particularly in the defence sector, appears to process geopolitical information efficiently, despite being an emerging market.

However, the study also highlights certain behavioural aspects. The presence of abnormal returns prior to event dates suggests the possibility of **information leakage or market anticipation**. Investors may react to early signals, media speculation, or unofficial information before the formal announcement of events. This indicates that while markets are efficient, they may still be influenced by informational asymmetry and speculative behaviour.

Firm-level observations further reveal that the magnitude of stock price reactions is not uniform across all defence companies. Larger firms and government-backed enterprises tend to exhibit more stable and consistent reactions, while smaller or private firms show relatively higher volatility. This suggests that **firm size, ownership structure, and market perception** play an important role in determining the extent of market reaction.

Overall, the findings confirm that defence stocks behave differently from the broader market during geopolitical conflicts. While general market indices may experience uncertainty and volatility, defence companies tend to generate positive abnormal returns due to their strategic positioning and expected increase in demand.

5.2 Theoretical Implications

The results of the study provide important contributions to existing financial theories. Firstly, the findings support the **semi-strong form of the Efficient Market Hypothesis**, as stock prices adjust rapidly to conflict-related information. The absence of prolonged abnormal returns indicates that markets are largely efficient in processing public information.

Secondly, the results align with **Signalling Theory**, which suggests that government actions during conflicts act as positive signals for defence companies. Military escalations and policy announcements signal potential increases in defence spending, thereby influencing investor expectations and stock prices.

Thirdly, the study contributes to the **Geopolitical Risk Pricing Theory**, which argues that geopolitical events are priced into financial markets as risk factors. The differential response of defence stocks compared to the broader market highlights the sector-specific nature of geopolitical risk.

5.3 Comparison with Global Evidence

The findings of this study are consistent with global empirical evidence on defence stocks and geopolitical conflicts. Studies on the Russia–Ukraine war and Middle Eastern conflicts have shown that defence companies often generate positive abnormal returns during periods of geopolitical tension.

Similar to findings by Martins (2024) and Gurdgiev et al. (2022), this study confirms that defence stocks act as partial beneficiaries of conflict-driven uncertainty. However, unlike some developed markets where reactions are more stable, the Indian market exhibits slightly higher volatility, reflecting characteristics of an emerging market.

The study also aligns with international evidence suggesting that market reactions are short-lived and quickly adjusted. This reinforces the idea that global financial markets, including India, are increasingly efficient in processing geopolitical information.

5.4 Practical Implications

The findings of this study have important implications for various stakeholders.

For Investors

The results suggest that defence stocks can act as a **short-term investment opportunity during geopolitical conflicts**. Investors may benefit from positive abnormal returns during event windows; however, the lack of long-term persistence indicates that these gains should be approached with caution. Defence stocks can also serve as a **partial hedge against geopolitical risk**, particularly in diversified portfolios.

For Policymakers

The study highlights the importance of **transparent and timely communication** during geopolitical events. Since financial markets react quickly to conflict-related information, clear communication can help reduce uncertainty and prevent excessive volatility.

For Regulators

The presence of pre-event abnormal returns suggests potential **information leakage or speculative trading**. Regulatory authorities should strengthen monitoring mechanisms to ensure fair market practices and prevent insider trading.

5.5 Limitations of the Study

Despite its contributions, the study has certain limitations that must be acknowledged.

- The study is based on a **limited number of conflict events**, which may restrict the generalizability of the findings.
- The analysis focuses on **daily data**, which may not capture intraday market reactions.
- Potential **information leakage** cannot be completely ruled out.
- The study does not incorporate macroeconomic variables such as oil prices or exchange rates, which may also influence stock performance.

5.6 Future Scope of Research

Future research can build upon this study in several ways:

- Use of **high-frequency (intraday) data** to capture immediate market reactions
- Application of **GARCH models** to analyse volatility dynamics
- Comparative studies across **different countries or regions**
- Inclusion of **macroeconomic and global risk variables**
- Sectoral comparison between defence and non-defence industries

5.7 Conclusion

This study provides empirical evidence that Indo-Pakistani conflict events significantly influence the stock performance of Indian defence companies. The presence of positive abnormal returns indicates that investors perceive such events as favourable for the defence sector. The findings also suggest that market reactions are largely short-term and consistent with the semi-strong form of market efficiency.

By focusing on firm-level analysis within the defence sector, this study fills an important gap in the existing literature and contributes to the broader understanding of geopolitical risk and financial market behaviour in an emerging economy context. The results highlight the strategic importance of defence stocks and their unique role in financial markets during periods of geopolitical uncertainty.

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