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Hedge Funds' Response to Geopolitical Instability: Investing in Emerging Markets During Political Crises

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ABSTRACT

This study examines the behavior of hedge funds during geopolitical crises in emerging markets, focusing on four major global events: the U.S.-China Trade War, the COVID-19 pandemic, the Russia–Ukraine conflict, and the Israel–Hamas war. Using fund-level holdings data sourced from the EDGAR SEC database, the study employs Chi-Square, ANOVA, and Kolmogorov–Smirnov statistical tests to analyze portfolio shifts among prominent hedge funds including Bridgewater Associates, Point72 Asset Management, Renaissance Technologies, and Two Sigma. The analysis evaluates both average portfolio values and asset-level changes to capture nuanced behavioral patterns. Results indicate that while most hedge funds display structural stability across crises, select firms like Bridgewater exhibit targeted rebalancing. KS test findings also reveal hidden asset-level repositioning beneath surface-level consistency. These observations challenge linear assumptions of hedge fund behavior in volatile environments and suggest a layered strategic approach that combines apparent portfolio steadiness with tactical internal adjustments. The study offers valuable insights for investors and policymakers seeking to understand hedge fund dynamics under geopolitical stress.

INTRODUCTION

Background

Geopolitical instability is a recurring force in global markets, often triggering capital flight and volatility, especially in emerging economies. These regions, though rich in growth potential, are highly sensitive to political disruption and shifting investor sentiment. Hedge funds, known for their flexible strategies, use of leverage, and advanced risk management, are uniquely positioned to either retreat from risk or exploit market dislocations during such periods. Their ability to adjust exposures quickly differentiates them from more rigid institutional investors.

Research Gap

Despite the rising frequency of geopolitical crises, there remains limited empirical research on how hedge funds respond to such instability in emerging markets. Much of the existing literature focuses on hedge fund behavior during financial downturns, with minimal attention paid to political shocks. This creates a significant gap in understanding whether hedge funds act as risk amplifiers, stabilizing forces, or opportunistic actors during geopolitical disruption.

Research Objective

This study investigates hedge fund responses to geopolitical crises in emerging markets by analyzing strategic behavior during four key events: the U.S.–China Trade War, the COVID-19 pandemic, the Russia–Ukraine conflict, and the Israel–Hamas war escalation in 2023. It examines whether funds reduce exposure, reallocate assets, or seek short-term opportunities, capturing both portfolio-wide adjustments and more granular asset-level repositioning. The aim is to understand the layered strategies hedge funds employ during geopolitical shocks.

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Data Source

The analysis relies on quarterly holdings data from the *U.S. SEC EDGAR database, based on Form 13F filings* **[1]** submitted by institutional investment managers. These filings provide standardized, time-stamped disclosures of equity positions, making them ideal for tracing hedge fund activity across pre- and post-crisis periods. This structured data foundation supports rigorous, time-series comparisons.

Time Period Selection Rationale

For each geopolitical event, two consecutive quarters are selected to reflect market conditions before and after the onset of the crisis. The COVID-19 case uses quarter 4 of 2019 as a baseline and quarter 1 of 2020 to capture the crash. For the Russia–Ukraine conflict, quarter 4 of 2021 shows pre-war positioning, while quarter 1 of 2022 captures the immediate reaction. The U.S.–China Trade War is represented by quarter 2 of 2018—just before the U.S. implemented tariffs on China—and quarter 3, which reflects initial hedge fund responses. The Israel–Hamas war escalation is observed from quarter 4 of 2023 to quarter 1 of 2024 due to its noticeable effects on global oil prices, defense stocks, and investor risk appetite. These defined windows provide clarity in identifying both anticipatory and reactive shifts in fund behavior.

Fund Selection Rationale

The hedge funds chosen for this study—Bridgewater Associates, Point72 Asset Management, Renaissance Technologies, and Two Sigma—were selected for their scale, transparency, and strategic diversity. Bridgewater, a global macro fund, offers insights into systematic responses to geopolitical macro-risk. Point72's discretionary, multi-manager structure captures active investment decisions under stress. Renaissance Technologies and Two Sigma, as leading quantitative funds, provide a lens into algorithmic and model-based behavior during crises. Together, they represent a broad spectrum of hedge fund strategies, enabling a comparative analysis of how different investment philosophies respond to geopolitical instability in emerging markets.

LITERATURE REVIEW

Hedge funds occupy a central yet underexamined role in global capital markets during geopolitical disruptions. Their behavior becomes especially significant in emerging markets, where political crises intensify volatility, liquidity shortages, and capital outflows. This review draws on financial crisis research, behavioral theory, and empirical analyses to build a theoretical foundation for understanding hedge funds' strategic responses to geopolitical instability in emerging economies.

Billio et al. **[2]** demonstrated that hedge funds experienced significant volatility convergence during the 2007–2009 financial crisis, driven by classical risk factors such as liquidity and credit spreads, along with a latent systemic factor. This systemic behavior—where diversification breaks down under stress—parallels how hedge funds react to geopolitical tensions in emerging markets, where weak institutional buffers and shallow capital markets exacerbate contagion effects.

To evaluate hedge fund strategies during such instability, one must first address the limitations in available data. *Agarwal, Fos, and Jiang* **[3]** exposed how hedge funds tend to underreport or misreport positions during periods of turbulence to mask poor performance. This reporting bias is especially problematic in emerging markets, where regulatory oversight is uneven, making it difficult to trace true fund behavior during episodes of political volatility.

Kaiser and Haberfelner **[4]** further emphasized how liquidation and survivorship biases distort hedge fund performance metrics post-crisis. Fund attrition, particularly in strategies such as Relative Value and Equity Hedge, tends to be underreported. These data limitations challenge efforts to evaluate hedge funds' resilience and responsiveness in politically unstable emerging economies—where exits and liquidations are often abrupt.

Understanding hedge fund repositioning under stress is critical. *Ben-David et al.* **[5]** showed that hedge funds liquidated nearly 30% of equity holdings during the global financial crisis, primarily driven by redemption pressures and leverage constraints rather than fundamental mispricing. This behavior is likely to recur in emerging markets during geopolitical shocks, where liquidity constraints are tighter and investor panic triggers abrupt deleveraging.

Recent studies connect geopolitical risk directly to fund allocation patterns. *Ali et al.* **[6]** found that hedge funds reduce exposure to emerging markets and increase holdings in U.S. equities—particularly in tech and financials—during periods of heightened geopolitical threat. This proactive reallocation underscores the role of geopolitical sentiment as a driver of hedge fund positioning across regional markets.

Khan **[7]**, using a time-varying parameter VAR model, provides empirical support that during geopolitical crises such as the Russia–Ukraine and Israel–Palestine conflicts, equity markets act as risk transmitters. In response, hedge funds shift allocations toward safe-haven assets such as oil and gold—reaffirming the defensive repositioning hypothesis in times of geopolitical stress. Bitcoin, notably, failed to serve as an effective hedge, reflecting the preference for traditional safe assets during periods of uncertainty.

In fragile markets, hedge funds can become amplifiers of risk rather than absorbers. *Karkkainen* **[8]** showed that funds constrained by redemptions and collateral calls shift from their typical arbitrage role to becoming reactive transmitters of financial contagion. This behavior is particularly destabilizing in emerging markets, where the withdrawal of large institutional capital can trigger broader market collapses due to limited liquidity.

Dutta **[9]** reinforced this systemic vulnerability by demonstrating that emerging markets often suffer disproportionately from capital flight during global crises—even when not directly involved. Hedge funds and institutional investors tend to group these markets under a single high-risk label, leading to broad-based withdrawals driven by global rather than local fundamentals. This supports the premise that geopolitical narratives strongly shape hedge fund capital flows.

Brookings Institution analysis **[10]** confirms that geopolitical events like Russia's invasion of Ukraine trigger reduced portfolio inflows to emerging markets. Even the anticipation of future geopolitical flashpoints—such as Taiwan—alters hedge fund allocation decisions. This is a critical insight for understanding pre-emptive de-risking behavior among hedge funds in anticipation of regional instability.

Contemporary hedge fund data reflect these theoretical insights. According to *Hedge Fund Research* **[11]**, as of 2023, hedge fund capital reached $4.46 trillion amid elevated geopolitical risk, with investors favoring funds that actively reposition for uncertainty. Notably, emerging market hedge funds posted strong returns by dynamically reallocating exposure to sectors such as oil and defense—demonstrating both agility and risk sensitivity during politically volatile periods.

Macro-level studies reinforce these patterns. *Hodula et al.* **[12]** and *Aysan et al.* **[13]** found that geopolitical risk contributes to heightened equity volatility and capital reallocation in both developed and emerging markets. Aysan's research, focused on the Russia–Ukraine conflict, uses time-frequency analysis to demonstrate how geopolitical shocks disproportionately affect emerging markets—aligning with hedge funds' observed behavior of exiting such regions during tension.

Finally, *Dabla-Norris et al.* **[14]** from the IMF highlight that geopolitical fragmentation increases capital flow volatility in emerging markets. The authors stress the need for emerging economies to maintain reserve buffers and liquidity safeguards, acknowledging that large-scale institutional investors—including hedge funds—rapidly reallocate capital in response to geopolitical threats, increasing systemic fragility.

In summary, the literature reveals a consistent pattern: hedge funds respond to geopolitical instability in emerging markets with defensive reallocation, risk-off positioning, and liquidity prioritization. These responses are driven not only by fundamentals but also by anticipation, sentiment, and systemic pressures. Moreover, the presence of data biases masks the full extent of hedge fund behavior, reinforcing the need for event-specific, fund-level analysis—precisely what this study aims to deliver.

METHODOLOGY

This study investigates how hedge funds adjusted their portfolios in response to four major global crises: the United States–China Trade War (second to third quarter of 2018), the COVID-19 market crash (fourth quarter of 2019 to first quarter of 2020), the Russia–Ukraine war (fourth quarter of 2021 to first quarter of 2022), and the Hamas–Israel conflict escalation (fourth quarter of 2023 to first quarter of 2024). The analysis focuses on Bridgewater Associates, Point72 Asset Management, Renaissance Technologies, and Two Sigma Investments, using fund-level equity holdings reported in Form 13F filings from the U.S. SEC EDGAR database. Renaissance Technologies was excluded from select periods due to incomplete data

These crises were selected because they represent sharp geopolitical and economic shocks that led to visible market dislocations and investor repositioning. Each period captures a clear transition from pre-crisis to post-crisis conditions, allowing for a controlled comparison of hedge fund behavior. Understanding how hedge funds respond to such events is critical for identifying systemic risk transmission, capital reallocation strategies, and the role of institutional investors in emerging market volatility. Since emerging markets are highly sensitive to capital flight during geopolitical disruptions, studying hedge fund positioning across these events provides insight into broader market stability and investor sentiment.

The study applies three core statistical tests to compare pre- and post-crisis portfolio behavior. The Chi-Square test examines distributional changes by categorizing holdings into four performance groups—pre-crisis beat, pre-crisis miss, post-crisis beat, and post-crisis miss. This helps determine whether the number of outperforming or underperforming positions changed significantly across the event. The Analysis of Variance (ANOVA) test evaluates whether the average value of holdings shifted meaningfully, measuring variance across the two periods and identifying capital reallocation trends. The Kolmogorov–Smirnov (KS) test, where applicable, compares the shape of value distributions before and after the crisis to detect deeper structural changes in portfolio composition. Each test uses a five percent significance threshold ($p < 0.05$) to assess whether any observed changes are statistically meaningful. Combined, these tests provide a multidimensional view of hedge fund strategy, capturing both surface-level and underlying behavioral shifts in response to geopolitical instability.

ANALYSIS

Chi-Square Test

2018 Trade War

Firm	**χ^2**	**p-value**
Bridgewater Associates	0.37	0.543
Point72 Asset Management	3.46	0.063
Renaissance Technologies	0.01	0.917
Two Sigma	1.72	0.189

During the United States–China Trade War, all four hedge funds maintained stable portfolio performance, with no statistically significant distributional shifts. Bridgewater and Renaissance showed strong stability, while Two Sigma exhibited minor fluctuations. Point72 came closest to significance, suggesting possible tactical adjustments, but overall, the firms remained largely unaffected by the trade-related volatility.

Fig 1.1 shows pre- and post-crisis performance distributions for each hedge fund during the U.S.–China Trade War. Most firms—especially Renaissance and Two Sigma—maintained stable holding patterns. Point72 shows slight variation, aligning with its near-significant chi-square result. Overall, *Fig 1.1* supports minimal disruption across funds.

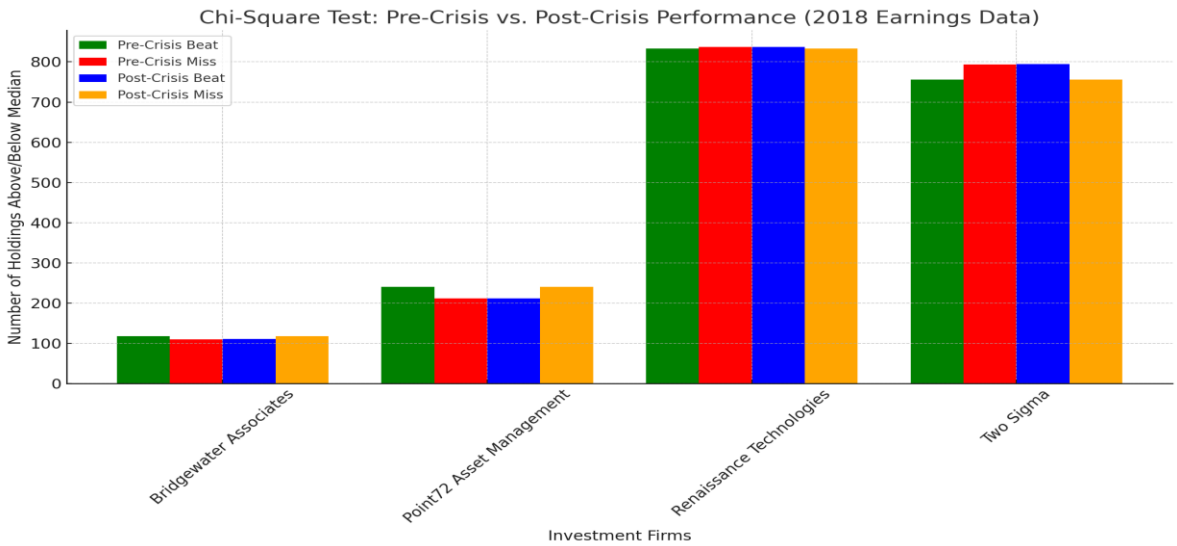

Figure 1.1 (2018 Trade war Chi-square test analysis)

2019–2020 COVID Crisis

Firm	**χ^2**	**p-value**
Bridgewater Associates	0.0000	1.0000
Point72 Asset Management	0.1801	0.6712
Two Sigma	0.0145	0.9043

Fig 1.2 displays pre- and post-COVID performance distributions for each hedge fund between 2019 and 2020. All firms—Bridgewater, Point72, and Two Sigma—maintained highly stable portfolios, with no significant shifts in beat/miss patterns. The uniformity in Fig 1.2 supports the conclusion that their strategies absorbed COVID-era volatility with minimal disruption.

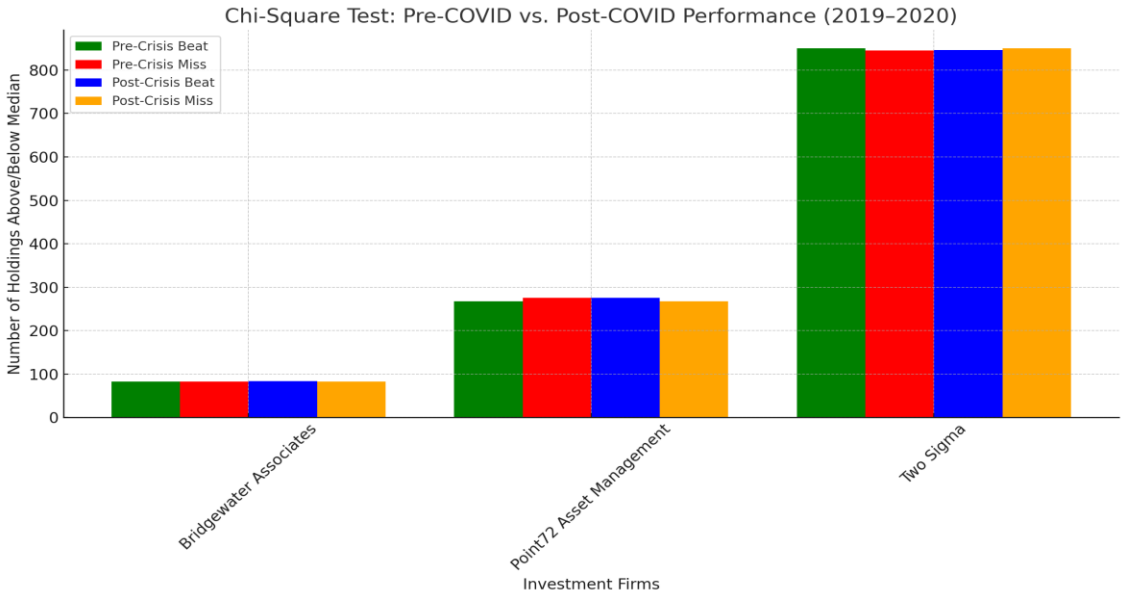

Figure 1.2 (*2019-2020 Covid Crisis Chi-square test analysis*)

2021–2022 Russia–Ukraine Crisis Analysis

Firm	**χ^2**	**p-value**
Bridgewater Associates	0.42	0.515
Point72 Asset Management	2.27	0.132
Renaissance Technologies	3.17	0.075
Two Sigma	0.05	0.816

Fig 1.3 shows pre- and post-crisis performance during the Russia–Ukraine war. All firms remained statistically stable, with Bridgewater and Two Sigma showing minimal change. Point72 exhibited slight distributional movement, while Renaissance Technologies came closest to significance, suggesting a possible algorithmic adjustment to the geopolitical shock. Overall, Fig 1.3 reflects controlled portfolio behavior across funds.

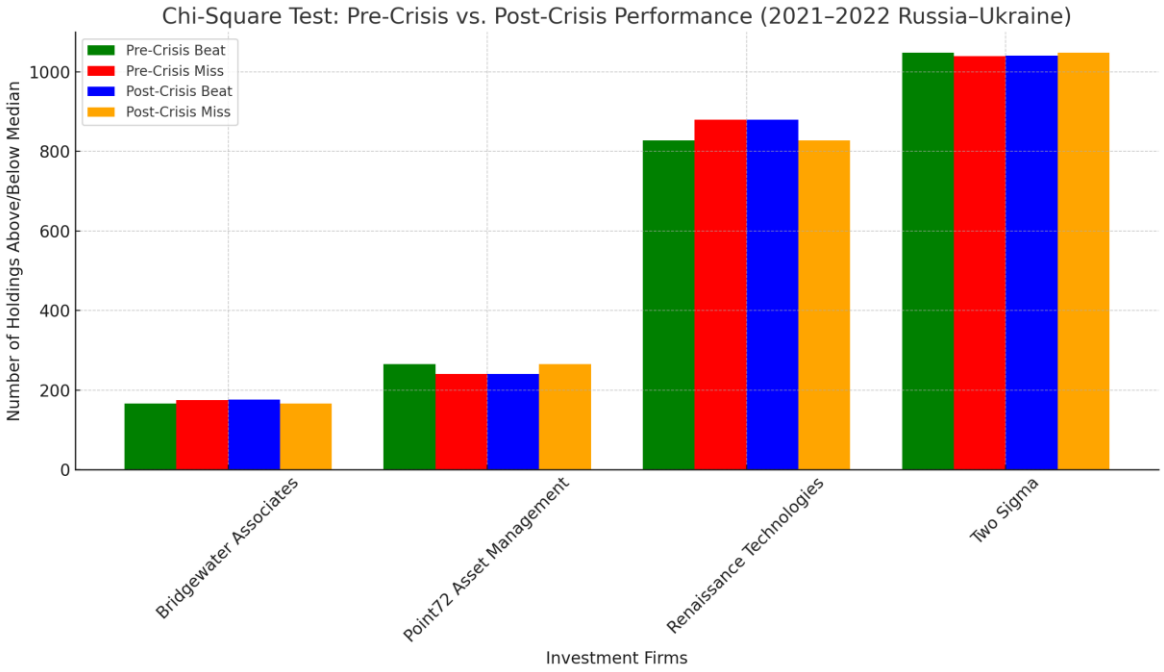

Figure 1.3 (*2021–2022 Russia–Ukraine Crisis Analysis*)

2023–2024 Israel Conflict Analysis

Firm	**χ^2**	**p-value**
Bridgewater Associates	0.135	0.713
Point72 Asset Management	0.842	0.359
Renaissance Technologies	0.266	0.606
Two Sigma	0.0014	0.971

Fig 1.4 presents pre- and post-crisis performance during the 2023–2024 Hamas–Israel escalation. All four hedge funds maintained statistically stable distributions. Bridgewater and Renaissance showed minor variation, Point72 showed a slight directional shift, and Two Sigma reported near-perfect symmetry. Overall, Fig 1.4 highlights the consistency and resilience of these firms' portfolio strategies amid regional geopolitical tension.

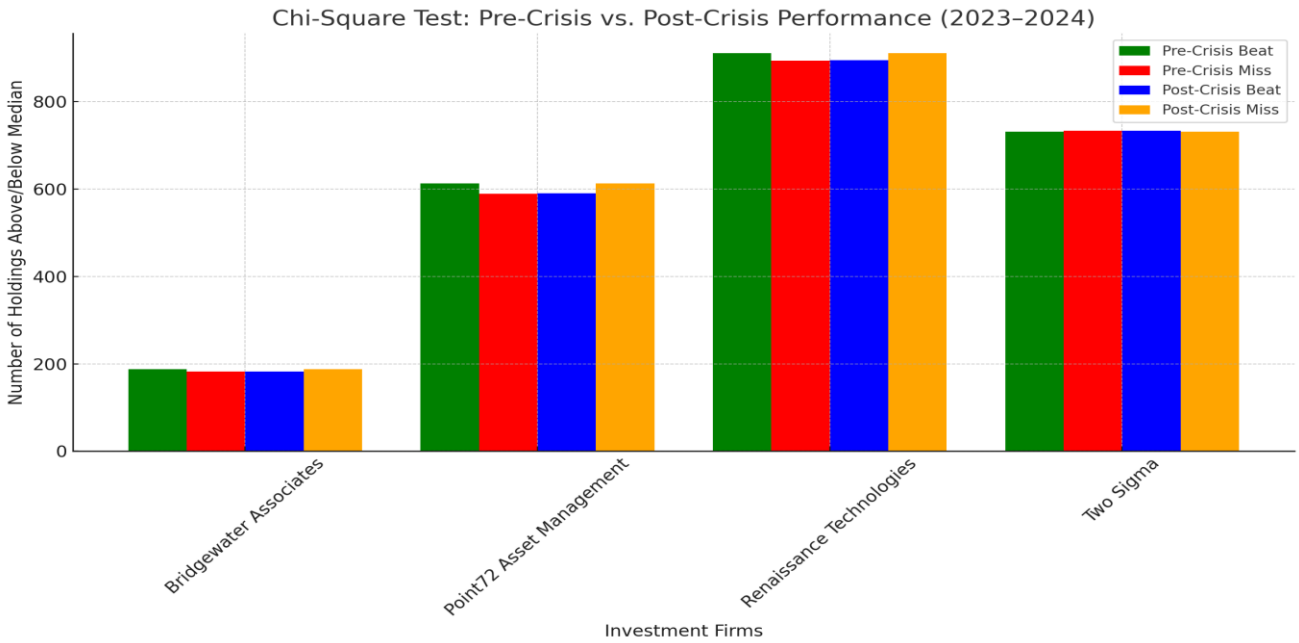

Figure 1.4 (2023–2024 Israel Conflict Analysis)

Anova

2018 Trade war

Firm	F-Statistic	P-Value
Bridgewater Associates	0.3270	0.5677
Point72 Asset Management	1.0484	0.3061
Renaissance Technologies	0.7892	0.3744
Two Sigma	2.8174	0.0933

ANOVA results show that none of the four hedge funds experienced significant changes in average portfolio values during the U.S.–China Trade War, with all F-statistics falling below the typical significance threshold of 4, as shown in Fig 2.1. Bridgewater Associates exhibited the lowest variability, while Point72 and Renaissance maintained similarly stable value compositions. Two Sigma recorded the highest F-statistic, suggesting more internal adjustment, though still not statistically significant. Overall, the findings and Fig 2.1 jointly indicate that all firms preserved portfolio stability despite the volatility triggered by the trade conflict.

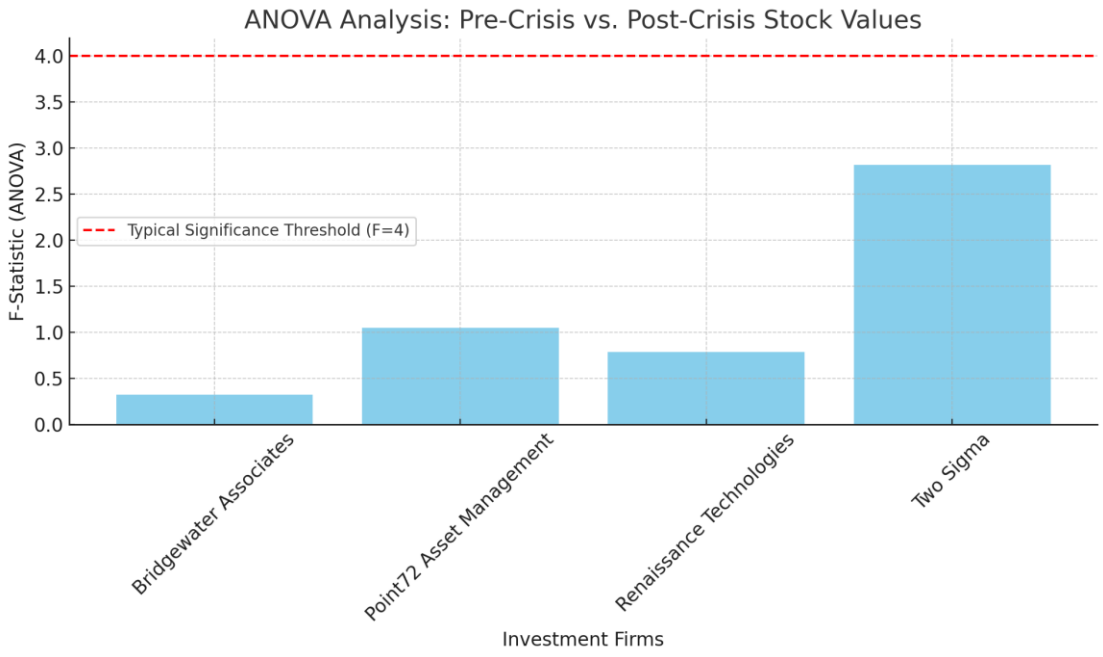

Figure 2.1 (Anova trade war analysis)

2019–2020 COVID ANOVA Analysis

Firm	F-Statistic	P-Value
Bridgewater Associates	8.8873	0.0031
Point72 Asset Management	0.787	0.3752
Two Sigma	1.0588	0.3036

Fig 2.2 illustrates the ANOVA results for the 2019–2020 period, capturing hedge fund behavior during the COVID-19 market shock. Bridgewater Associates stands out with a substantial spike above the significance threshold, indicating a statistically significant shift in average portfolio values—a clear sign of active reallocation during the crisis. In contrast, Point72 Asset Management and Two Sigma remained well below the threshold, reflecting portfolio stability and minimal reactive change. The chart visually reinforces that while most firms maintained consistent strategies, Bridgewater responded dynamically to pandemic-induced volatility.

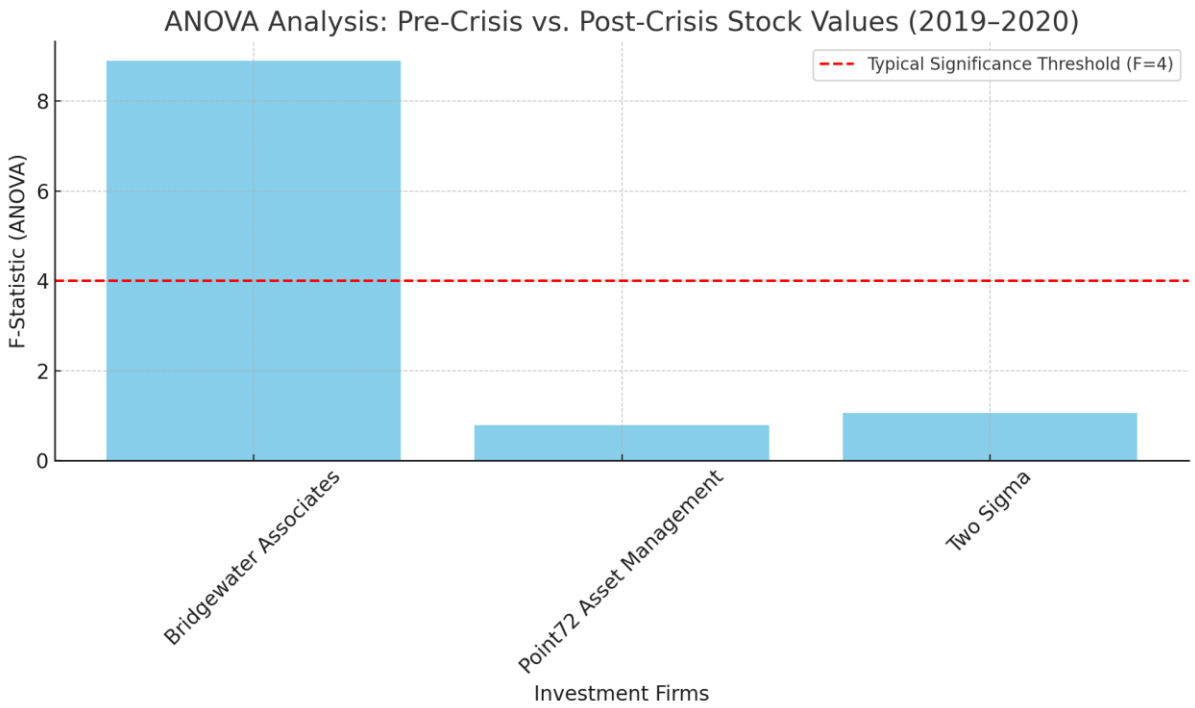

Figure 2.2 (Covid Anova analysis)

2022 Russia–Ukraine Crisis

Firm	F-Statistic	P-Value
Bridgewater Associates	7.7008	0.0057
Point72 Asset Management	2.1877	0.1394
Renaissance Technologies	1.2563	0.2624
Two Sigma	1.4453	0.2293

Fig 2.3 presents the ANOVA analysis for the 2021–2022 Russia–Ukraine conflict. Bridgewater Associates again shows a statistically significant change in average portfolio values, reflecting a strong response to the crisis—likely driven by macro shifts such as inflation hedging or commodity rebalancing. In contrast, Point72 Asset Management, Renaissance Technologies, and Two Sigma all fall below the significance threshold, indicating portfolio consistency and limited structural change. This suggests that while Bridgewater adapted visibly to the geopolitical shock, the other funds maintained steady allocations through more systemized or insulated strategies.

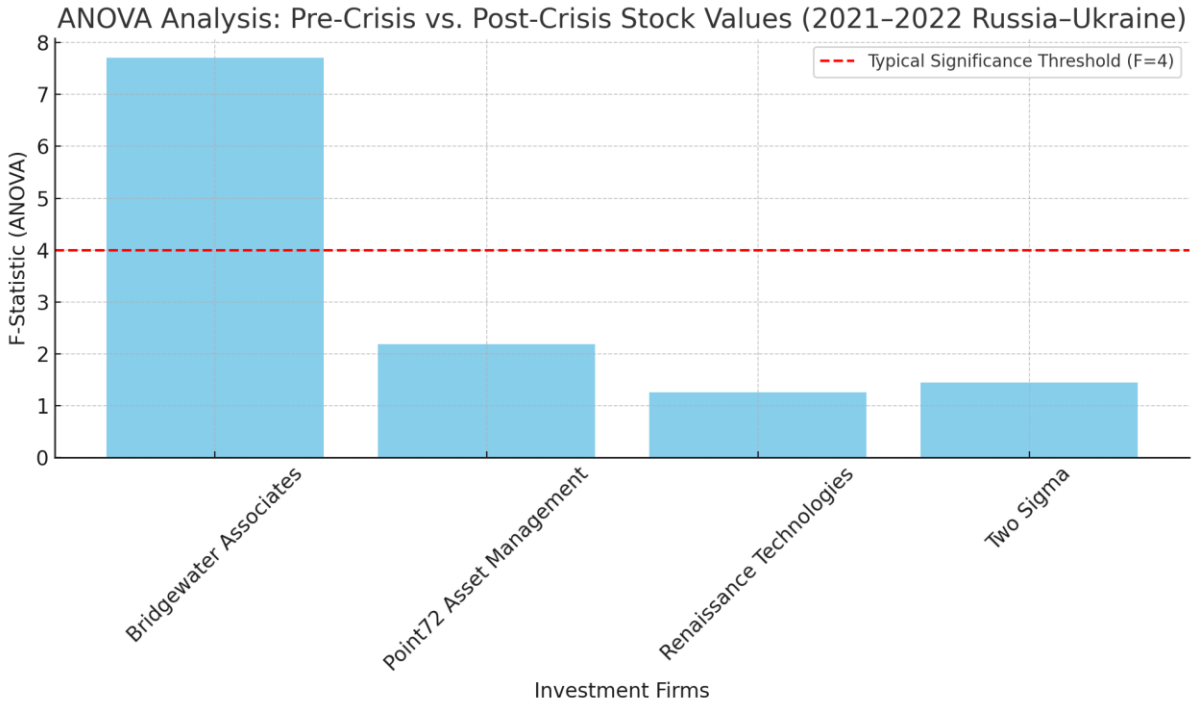

Figure 2.3 (Russia-Ukraine Anova analysis)

2023- 2024 Israel Conflict

Firm	F-Statistic	P-Value
Bridgewater Associates	0.0128	0.9100
Point72 Asset Management	0.1865	0.6659
Renaissance Technologies	0.2326	0.6296
Two Sigma	2.1719	0.1407

Fig 2.4 shows the ANOVA results for the 2023–2024 Israel–Hamas escalation. All four hedge funds remained below the significance threshold, indicating no statistically meaningful change in average portfolio values. Bridgewater, Point72, and Renaissance showed near-zero variation, reflecting strong portfolio continuity and possibly improved hedging mechanisms. Two Sigma exhibited the most movement during this period, though still statistically insignificant, suggesting a relatively more flexible or factor-sensitive response compared to its peers. Overall, the data points to widespread portfolio resilience during this geopolitical event.

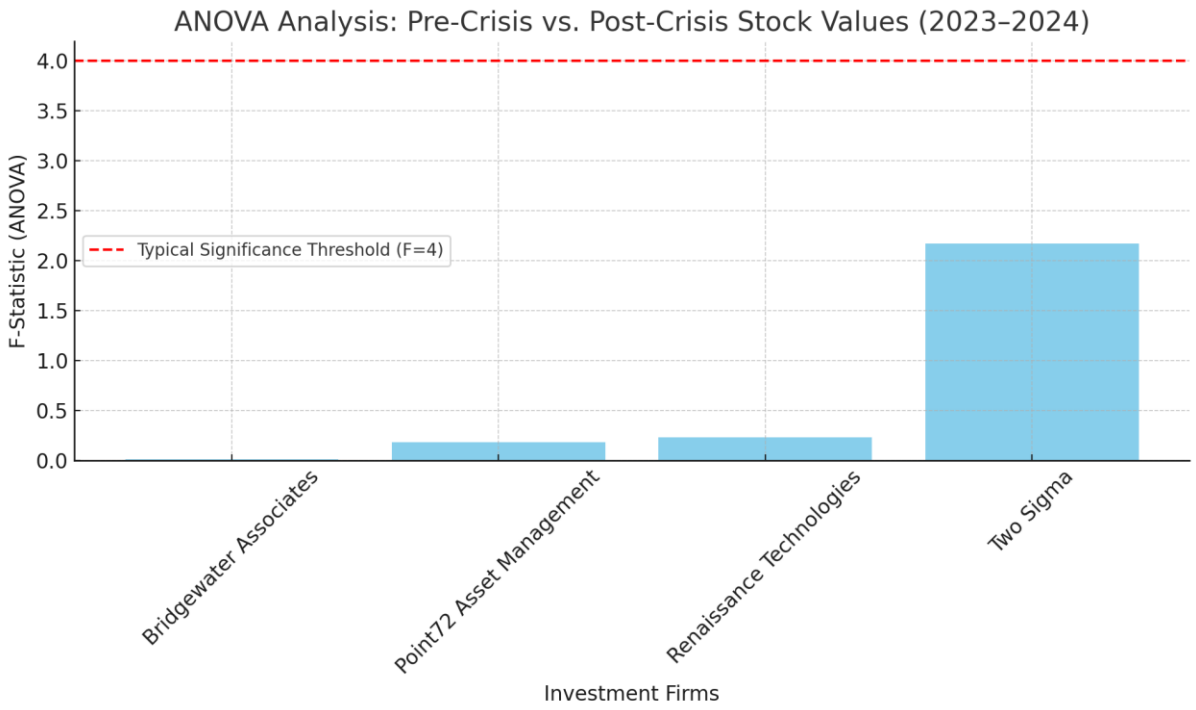

Figure 2.4 (Israel conflict Anova Analysis)

Kolmogorov-Smirnov Test

2018 Usa - China Trade war

Bridgewater Associates:

Before the 2018 earnings impact, Bridgewater Associates had a cohesive, stable portfolio with consistently moderate KS values, indicating aligned asset class distributions. Post-earnings, KS values sharply increased in categories like COM, CL A, and SP. ADR, signaling significant portfolio shifts due to sector-specific or firm-level events. This marked a transition from a balanced strategy to a fragmented, volatility-driven approach.

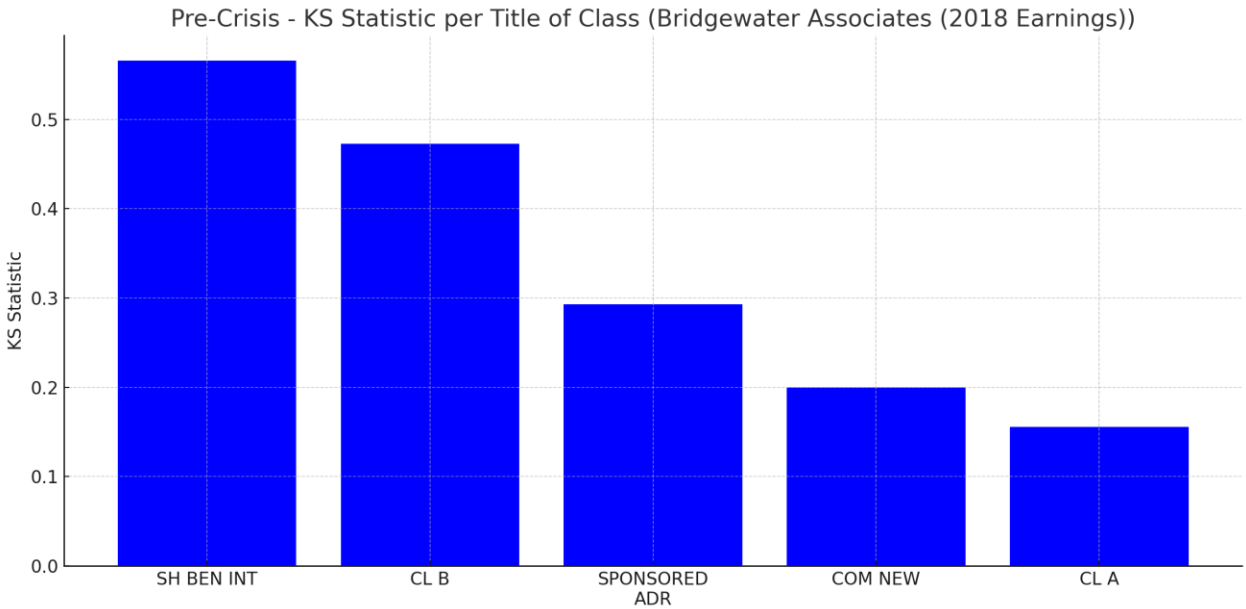

Figure 3.1 (2018 Bridgewater associates Pre-Crisis)

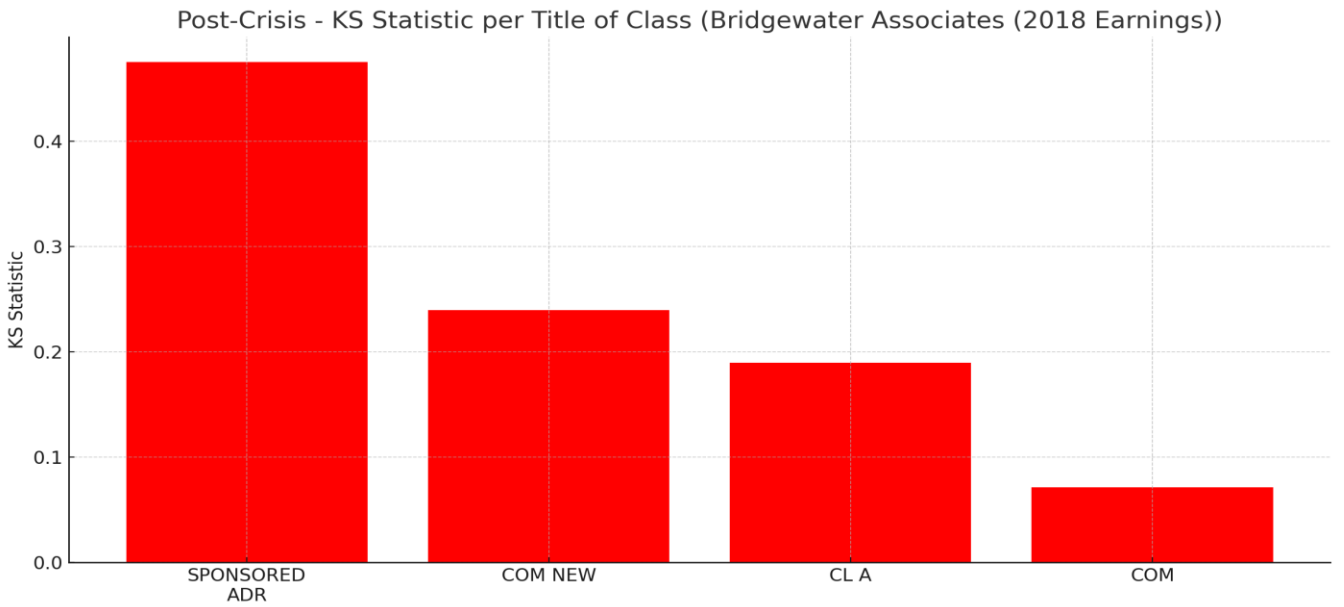

Figure 3.2 (2018 Bridgewater associates Post-Crisis)

Point72 Asset Management

Before the crisis, Point72's portfolio showed stable, uniform asset behavior, reflecting consistent and balanced allocation. Post-crisis, increased KS values for asset types like PFD STK, CL A, and SP. ADR indicated a shift toward divergence, suggesting strategic or reactive adjustments responding to earnings-driven sector variability. This shift highlights the firm's dynamic portfolio adaptation during earnings-related market changes.

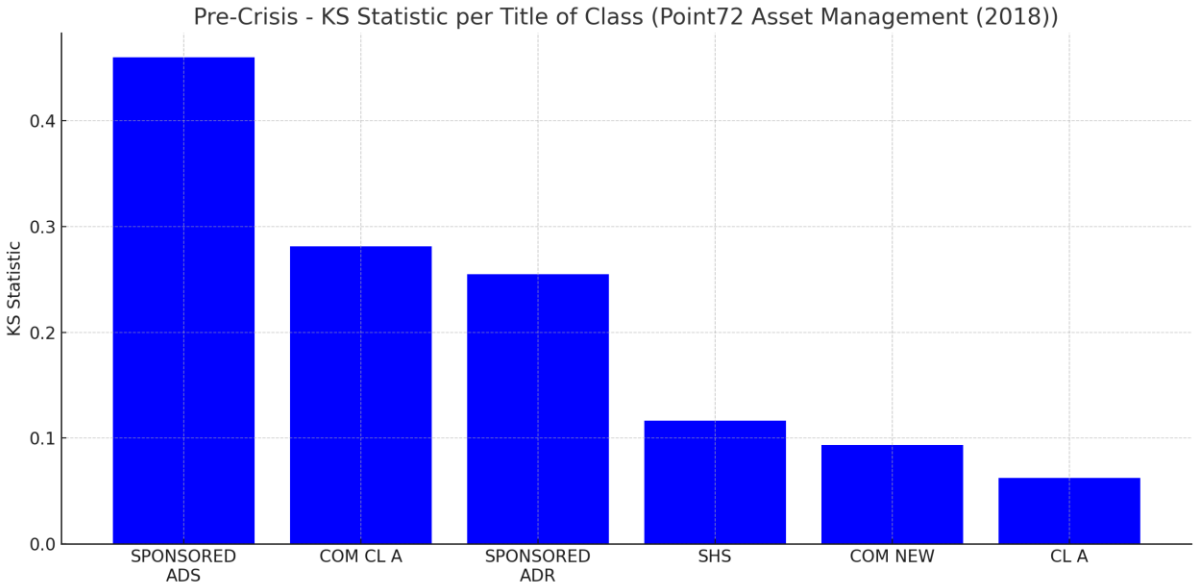

Figure 3.3 (2018 Point72 Asset Management Pre-Crisis)

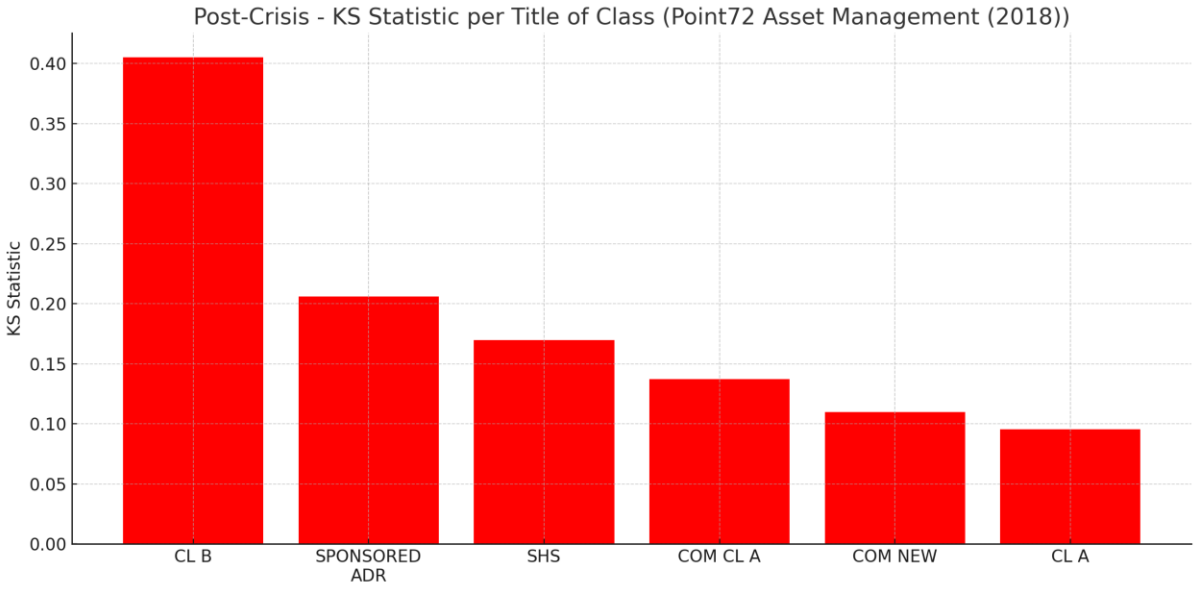

Figure 3.4 (2018 Point72 Asset Management Post-Crisis)

Renaissance Technologies (2018)

Before the 2018 earnings, Renaissance Technologies maintained a tightly structured, consistent portfolio driven by quantitative models, shown by low KS values across asset classes. After earnings, asset classes like ORD SHS and CL A experienced notable KS increases, indicating that the firm's algorithms detected volatility and adjusted exposure strategically. This shift emphasizes Renaissance's precise, data-driven response to earnings-induced market anomalies.

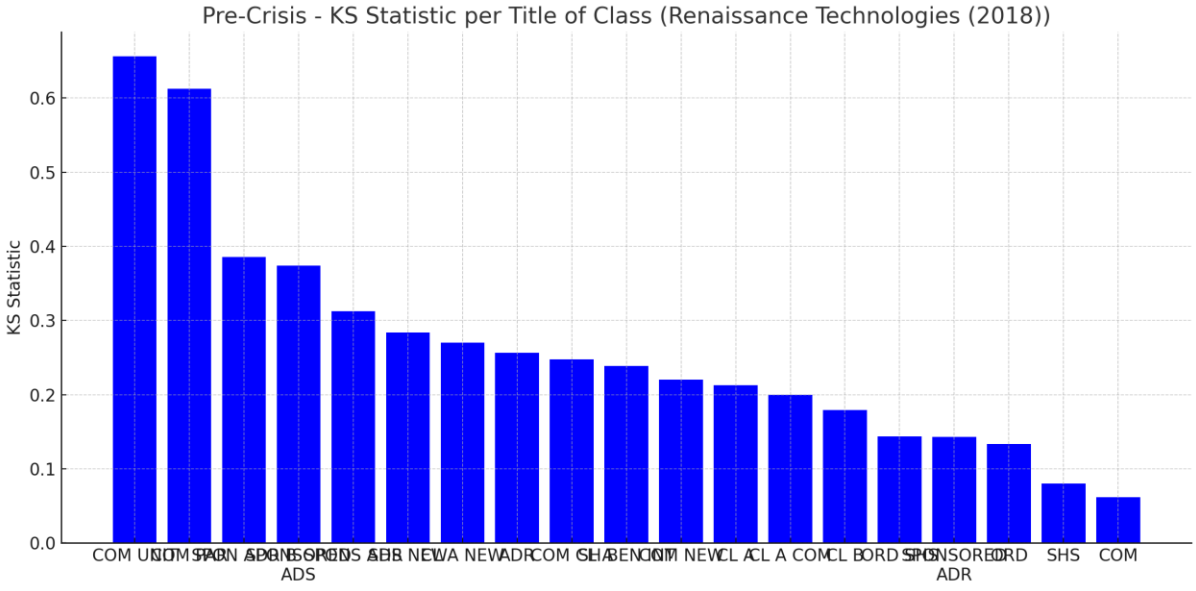

Figure 3.5 (2018 Renaissance Technologies Pre-Crisis)

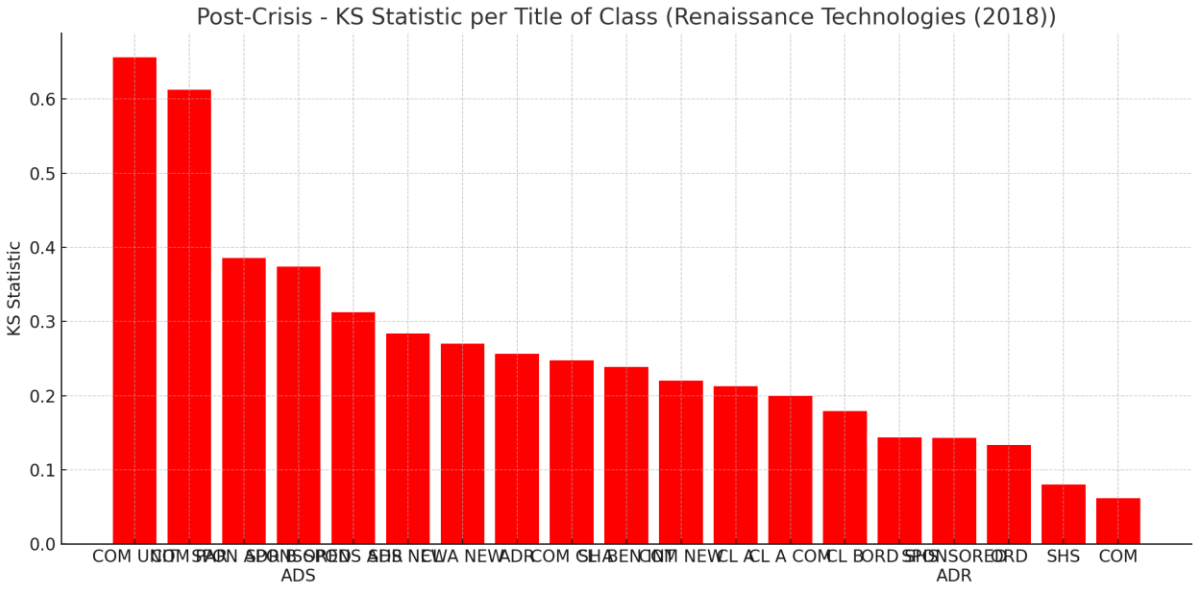

Figure 3.6 (2018 Renaissance Technologies Post-Crisis)

Two Sigma (2018)

Before the earnings impact, Two Sigma maintained a disciplined, quantitatively balanced portfolio, reflected by low KS values indicating uniform behavior. Post-earnings categories like COM, CL A, and SP. ADR showed increased KS values, signifying selective deviations and tactical adjustments. This transition underscores Two Sigma's sensitivity and adaptive response to earnings-driven market signals.

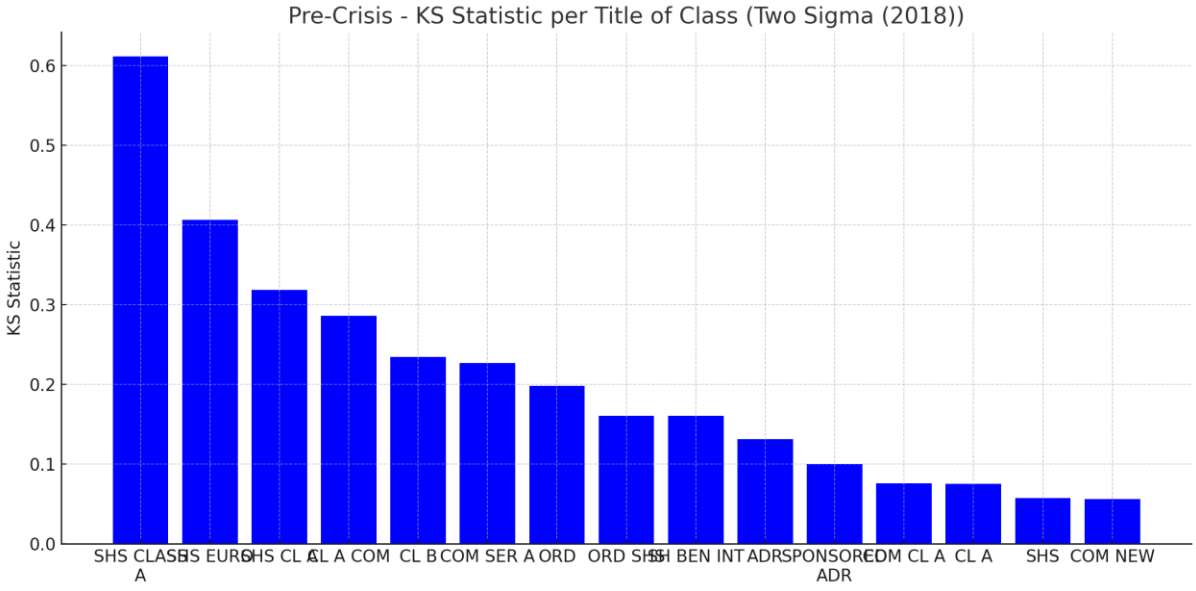

Figure 3.7 (2018 Two Sigma Pre-Crisis)

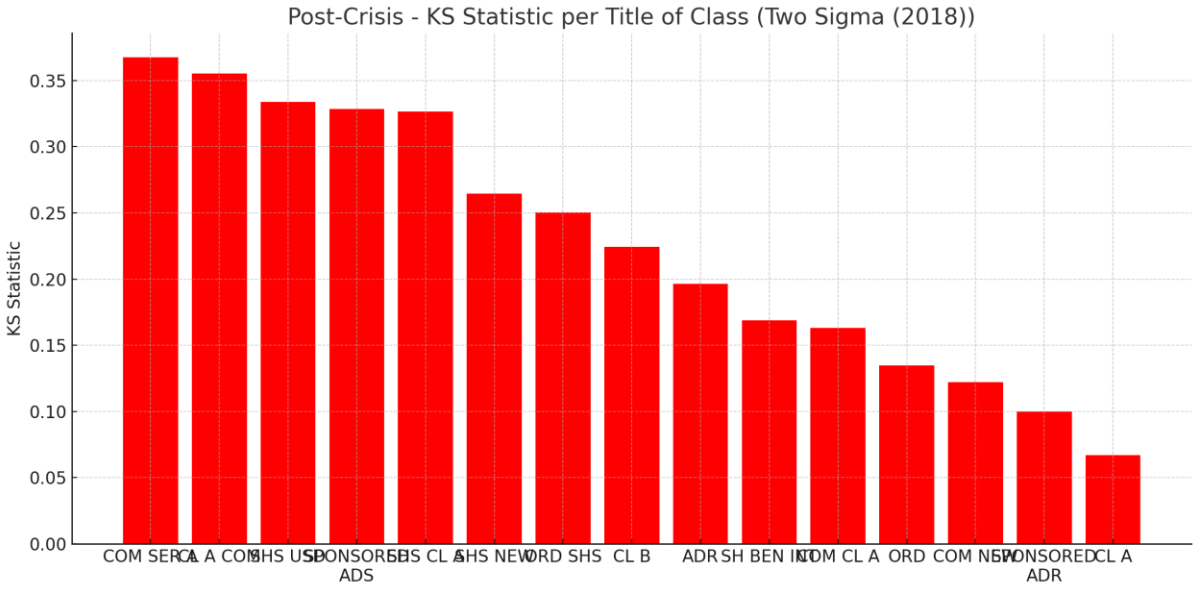

Figure 3.8 (2018 Two Sigma Post-Crisis)

Covid 19 2019-2020:

Bridgewater Associates

Before the COVID-19 crisis, Bridgewater Associates maintained a cohesive portfolio with low to moderate KS values, reflecting synchronized and stable asset class behavior. Post-crisis, KS statistics increased significantly for CL A, SP. ADR, and COM, indicating greater divergence and sector-specific disruptions. This shift highlights Bridgewater's strategic repositioning and adaptation to COVID-driven market volatility.

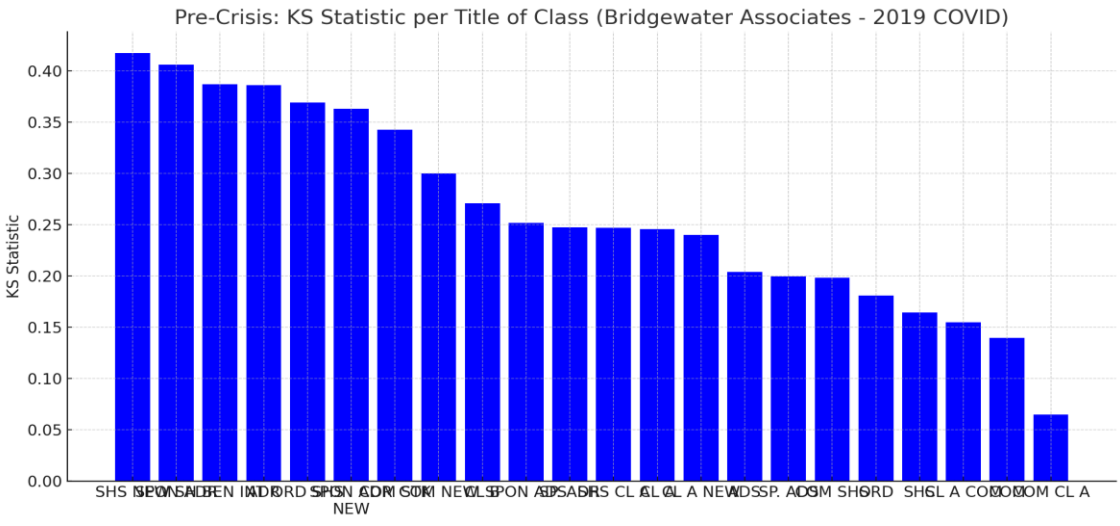

Figure 3.9 (2019 Bridgewater Associates Pre-Crisis)

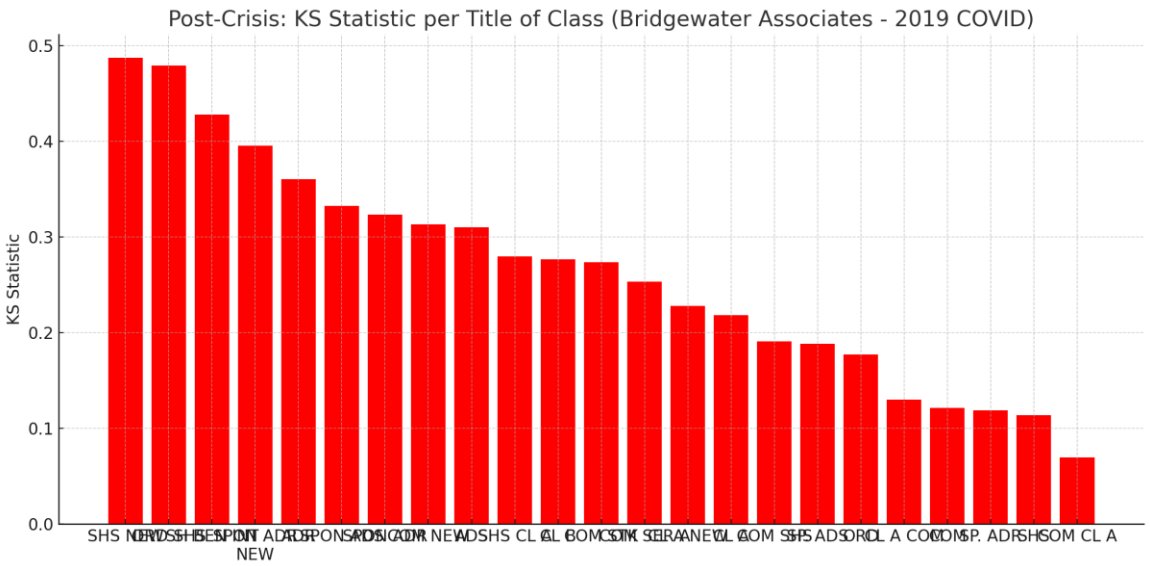

Figure 3.10 (2019 Bridgewater Associates Post-Crisis)

Point72 Asset Management

Before COVID-19, Point72's portfolio showed low, tightly clustered KS values, reflecting consistent asset behavior and disciplined exposure management. After the crisis, KS values rose for CL A, SP. ADR, and COM, indicating divergence likely due to sector-specific risks or intentional rebalancing. This shift illustrates Point72's adaptive response to pandemic-induced market volatility.

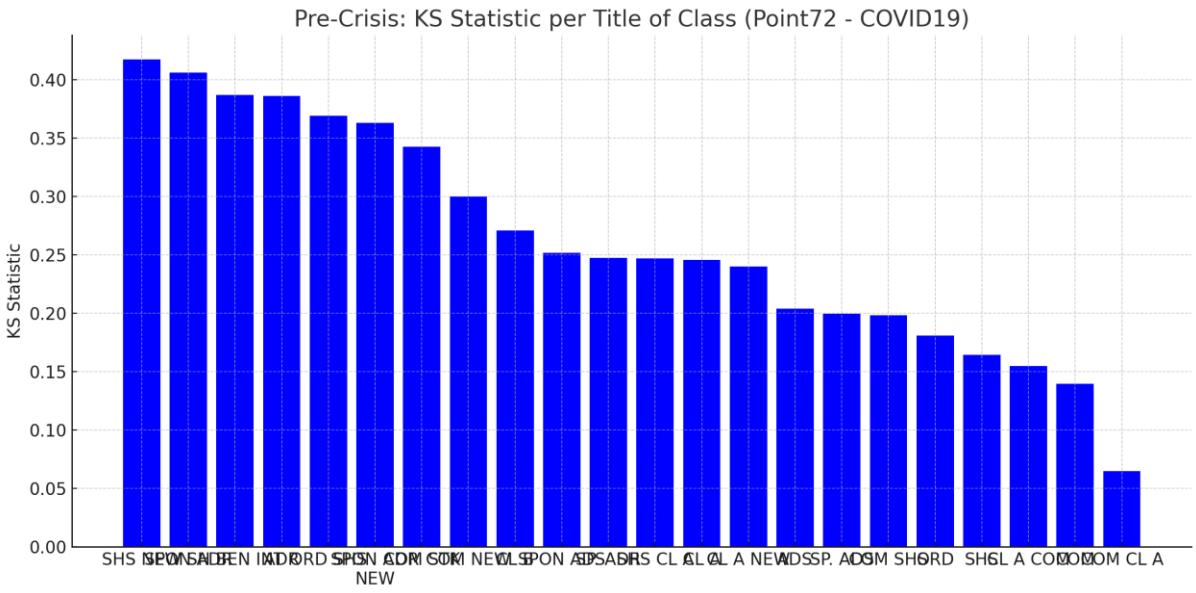

Figure 3.11 (2019 Point72 Asset Management Pre-Crisis)

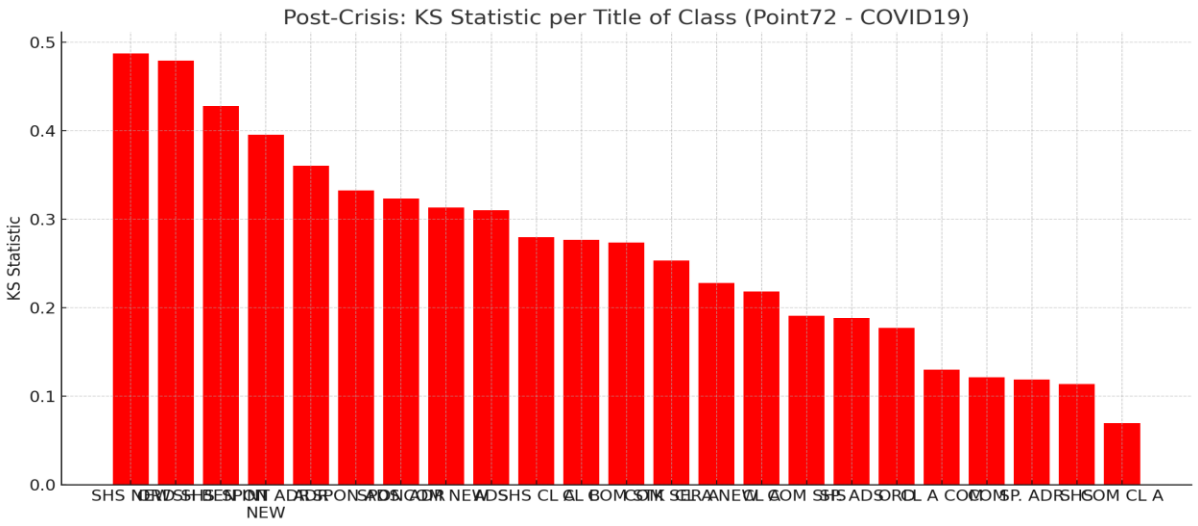

Figure 3.12 (2019 Point72 Asset Management Post-Crisis)

Two Sigma

Before the crisis, Two Sigma maintained a moderately cohesive portfolio with low-to-moderate KS values, reflecting disciplined and balanced asset allocation. Post-pandemic, KS values spiked for SP. ADR, CL A, and COM, signaling divergence driven by market sensitivity or strategic realignment. This transition highlights the firm's tactical adaptation to volatility and unexpected market shocks.

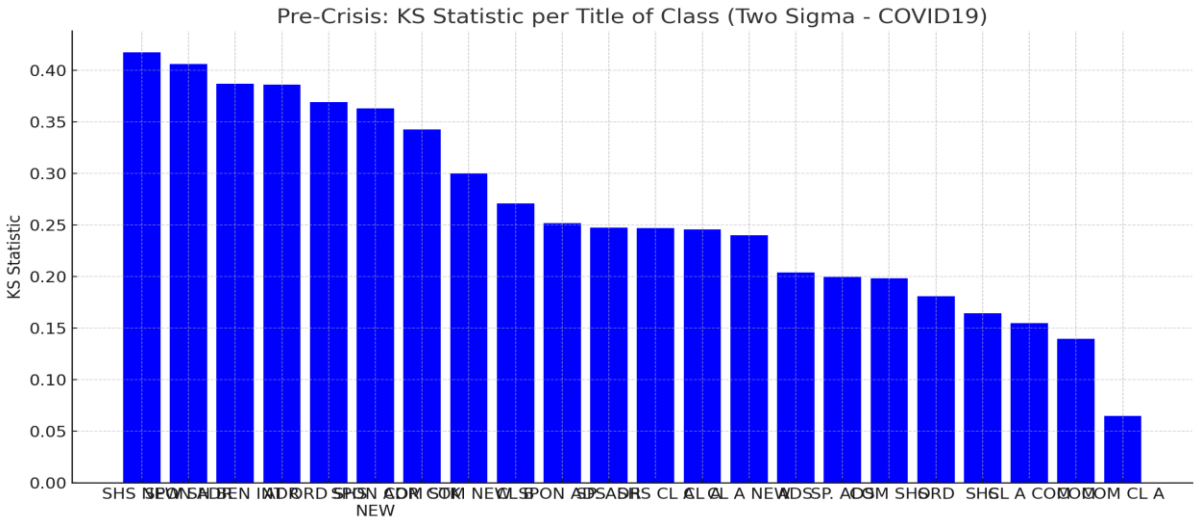

Figure 3.13 (2019 Two Sigma Pre-Crisis)

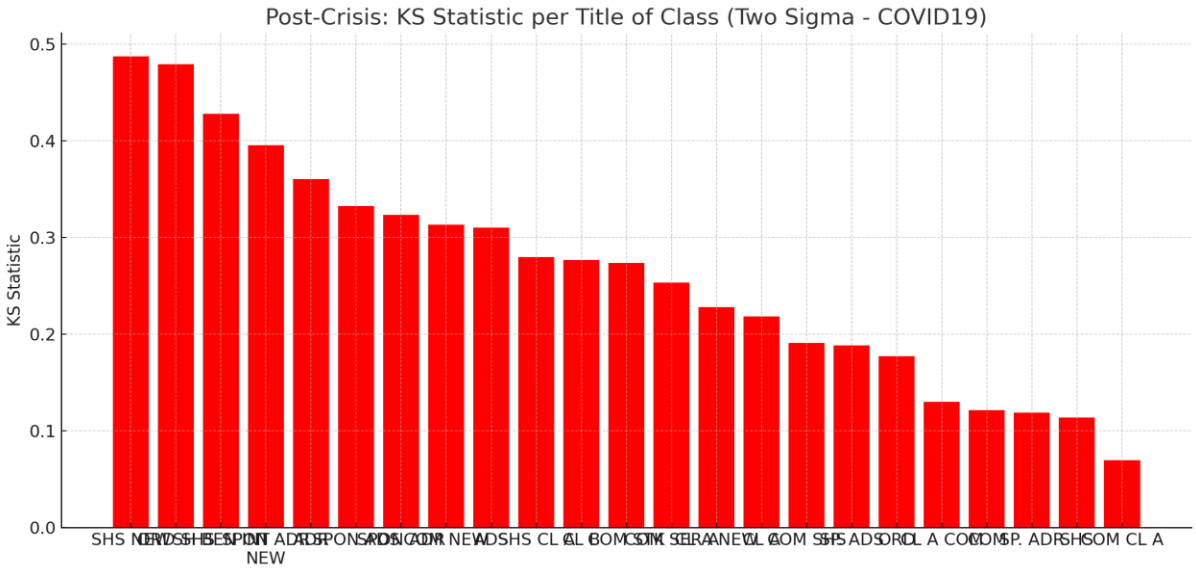

Figure 3.14 (2019 Two Sigma Post-Crisis)

2021-22 Russia- Ukraine War

Bridgewater Associates

Before the Russia-Ukraine conflict, Bridgewater Associates held a stable, well-aligned portfolio with low to moderate KS values, reflecting disciplined asset allocation. After the crisis, KS values rose for COM, CL A, and SP. ADR, indicating divergence driven by geopolitical volatility. This suggests targeted repositioning or sector-specific disruptions that fragmented the previously cohesive portfolio.

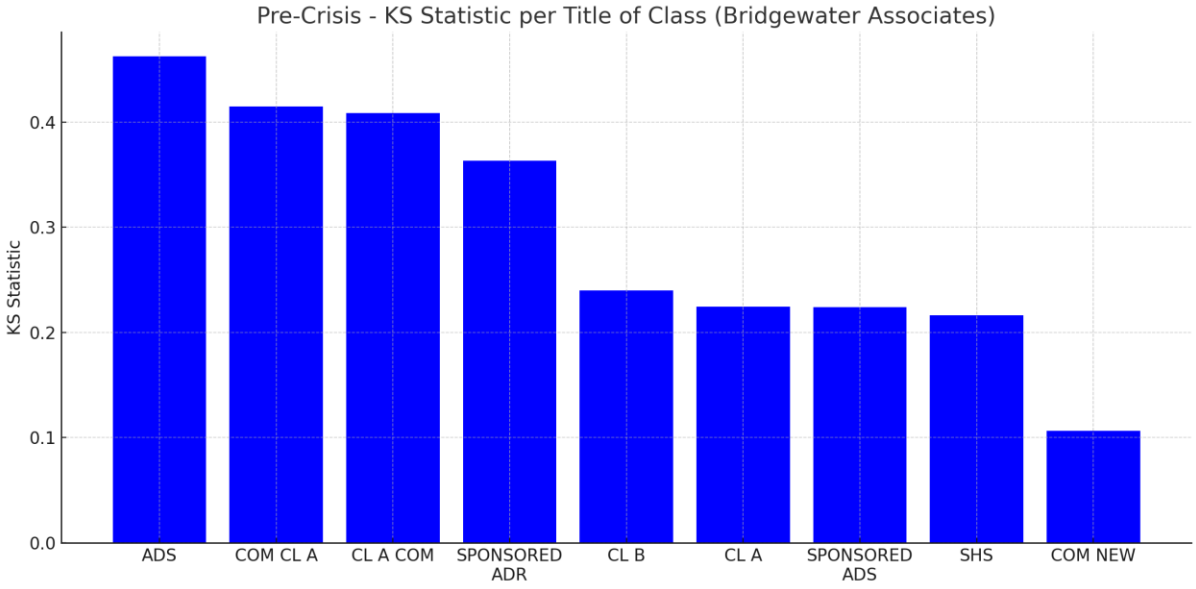

Figure 3.15 (2022 Bridgewater Associates Pre-Crisis)

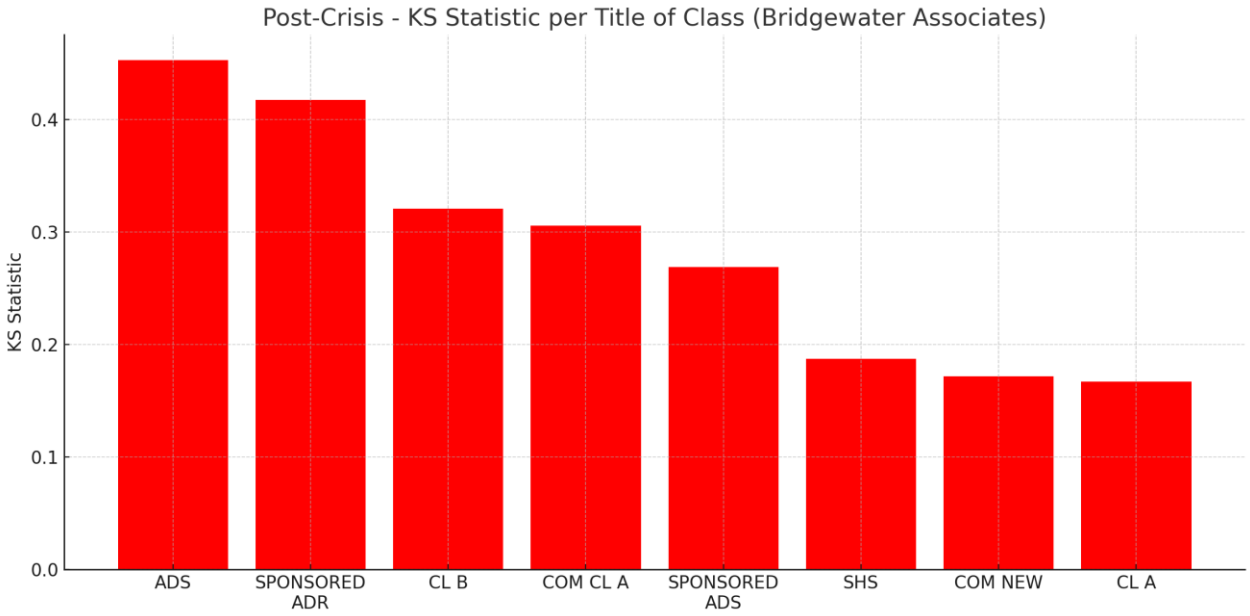

Figure 3.16 (2022 Bridgewater Associates Post-Crisis)

Point72 Asset Management

Before the conflict, Point72 maintained a cohesive portfolio with low, evenly distributed KS values, indicating consistent asset alignment. Post-crisis, KS values rose for PFD STK, CL A, and SHS, revealing fragmentation likely caused by strategic hedging or sector-specific impacts. This shift highlights Point72's dynamic response to geopolitical stress.

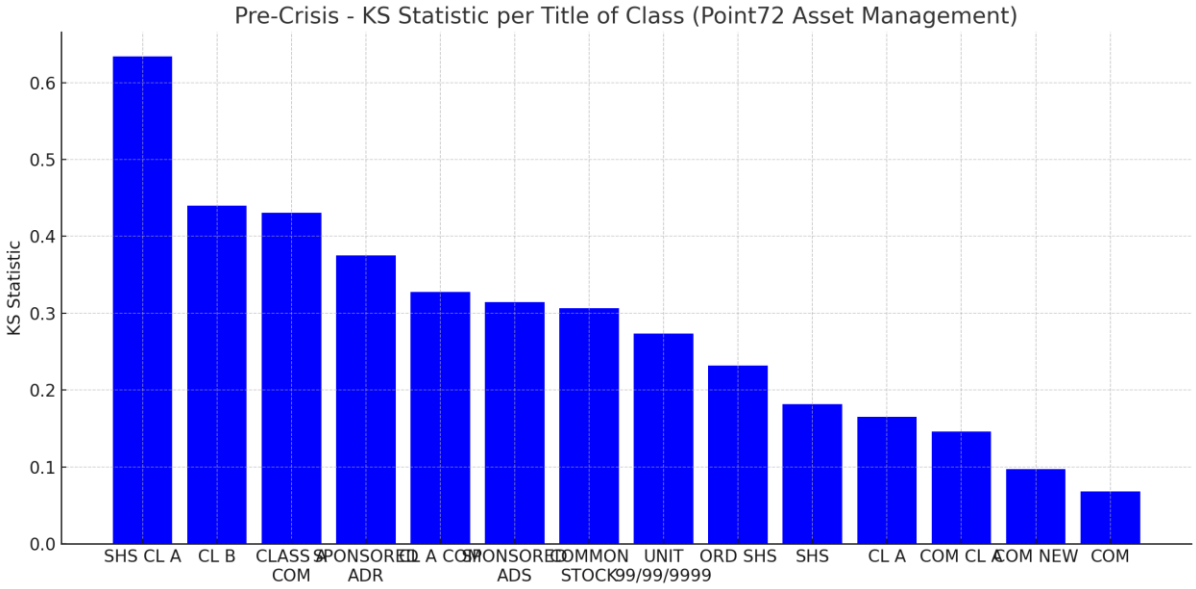

Figure 3.17 (2022 Point72 Asset Management Pre-Crisis)

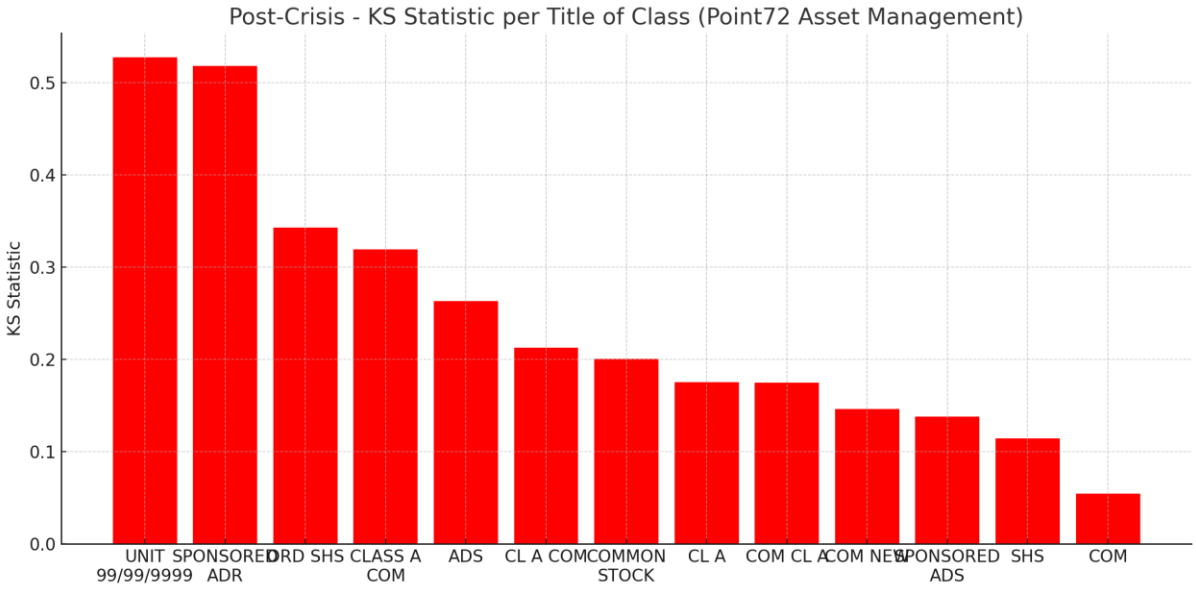

Figure 3.18 (2022 Point72 Asset Management Post-Crisis)

Renaissance Technologies

Pre-crisis, Renaissance Technologies showed a flat KS profile with strong asset alignment, consistent with its quantitative, model-driven strategy. Post-crisis, KS values spiked in SP. ADR, ORD SHS, and CL A COM, indicating disproportionate asset behavior. This reflects model-detected volatility and swift reallocation, emphasizing Renaissance's data-driven response to market disruptions.

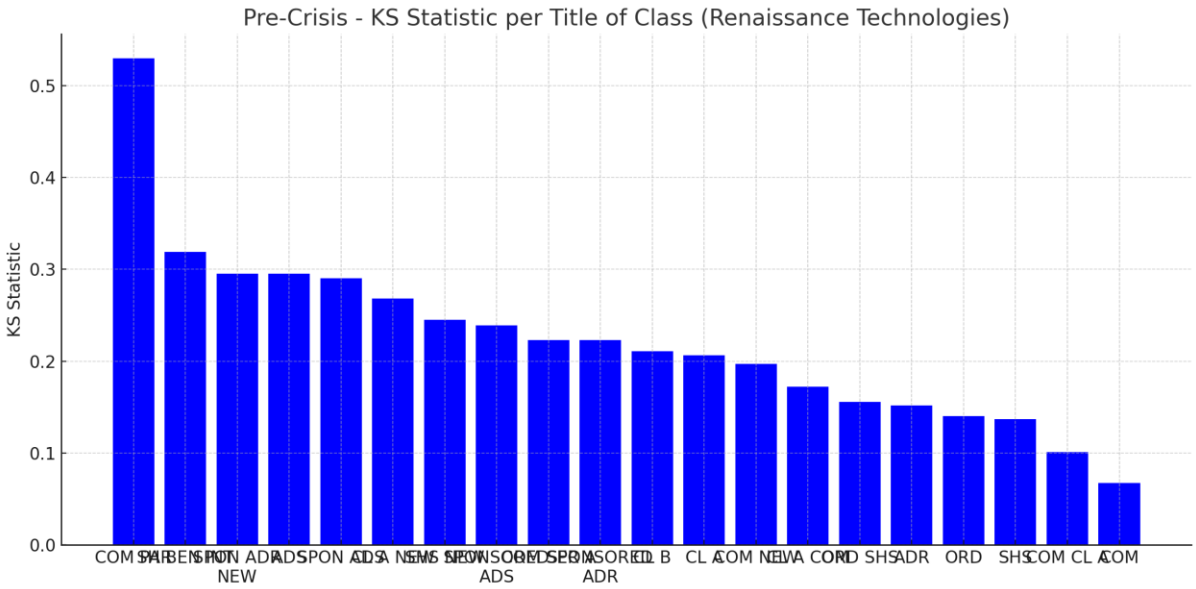

Figure 3.19 (2022 Renaissance Technologies Pre-Crisis)

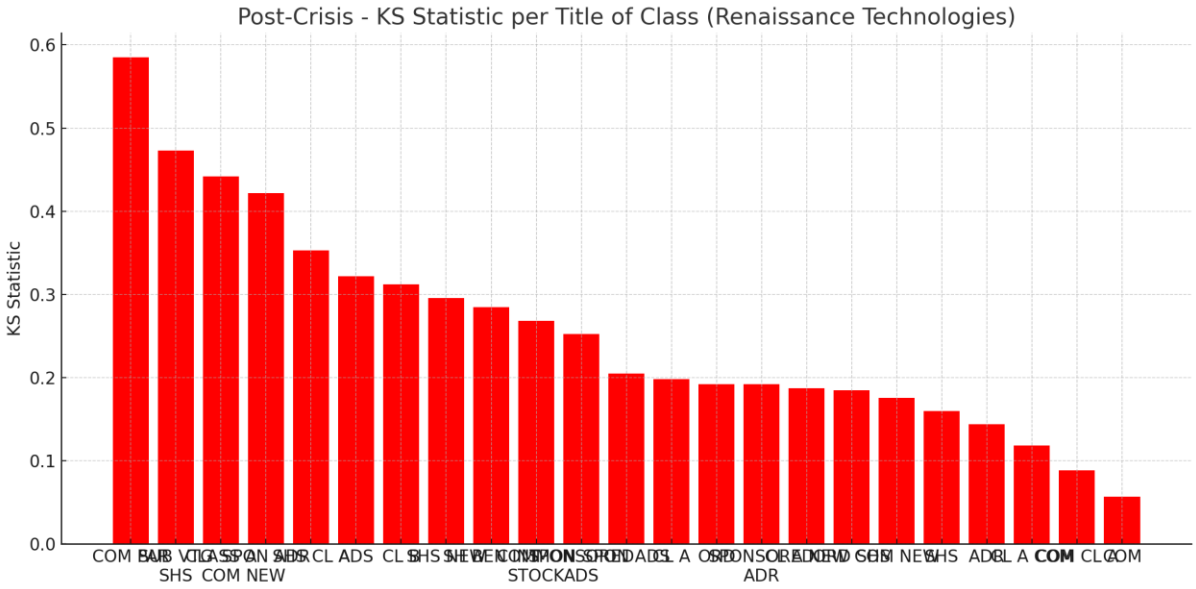

Figure 3.20 (2022 Renaissance Technologies Post-Crisis)

Two Sigma

Before the crisis, Two Sigma maintained a moderately cohesive portfolio with consistent KS values, reflecting a balanced, risk-adjusted strategy. Post-crisis, KS values rose sharply for CL A, SP. ADR, and COM, indicating asset-specific reactions to market disruptions. This suggests tactical or opportunistic adjustments driven by quantitative insights.

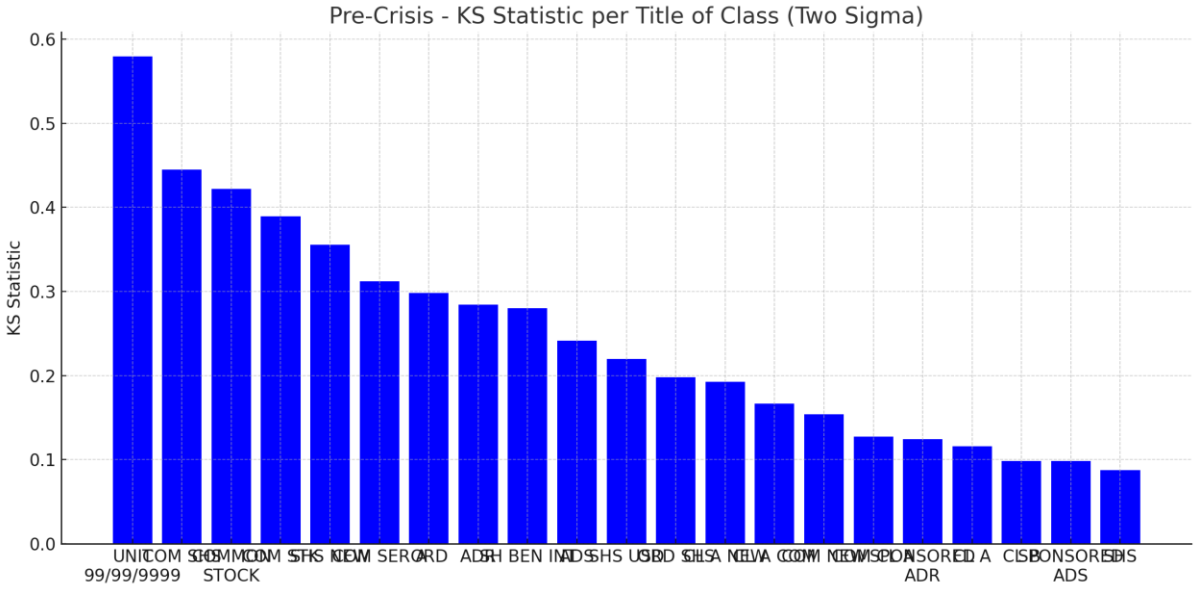

Figure 3.21 (2022 Two Sigma Pre-Crisis)

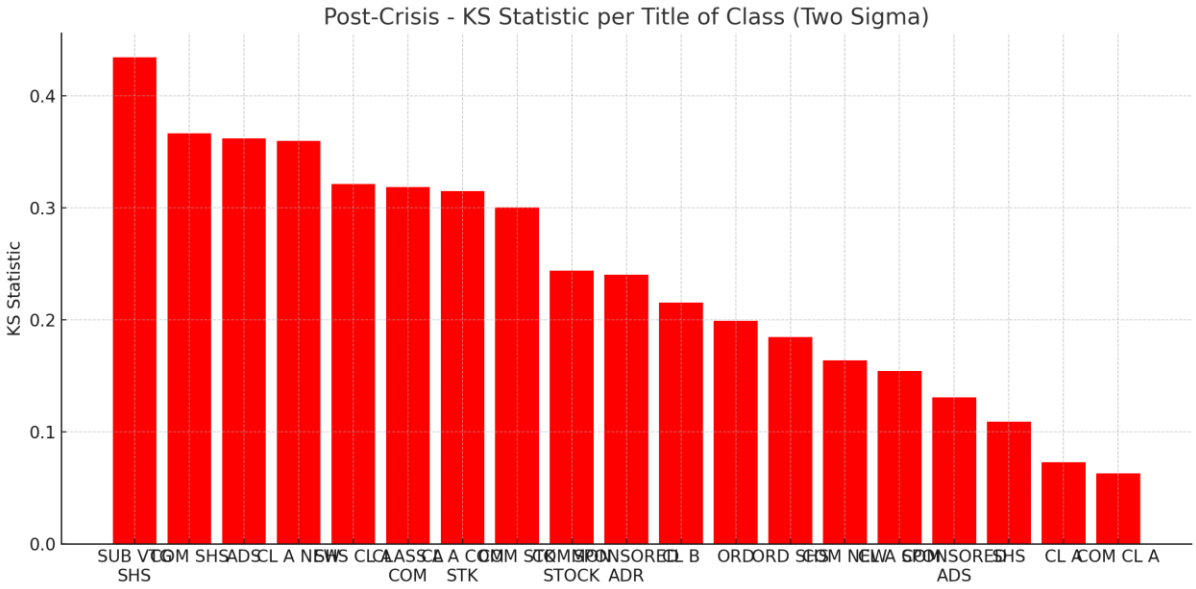

Figure 3.22 (2022 Two Sigma Post-Crisis)

2023-24 Israel - Hamas War

Two Sigma

Pre-crisis, Two Sigma's KS values showed a moderately uniform distribution, with slight divergence in categories like CL A, SPONSORED ADR, and ORD SHS, indicating overall portfolio stability. Post-crisis, KS values rose across more asset classes—particularly COMMON STOCK, CL A COM, and SPONSORED ADS—signaling increased fragmentation and asset-specific volatility. This likely led to portfolio rebalancing to manage risk or capitalize on shifting market dynamics

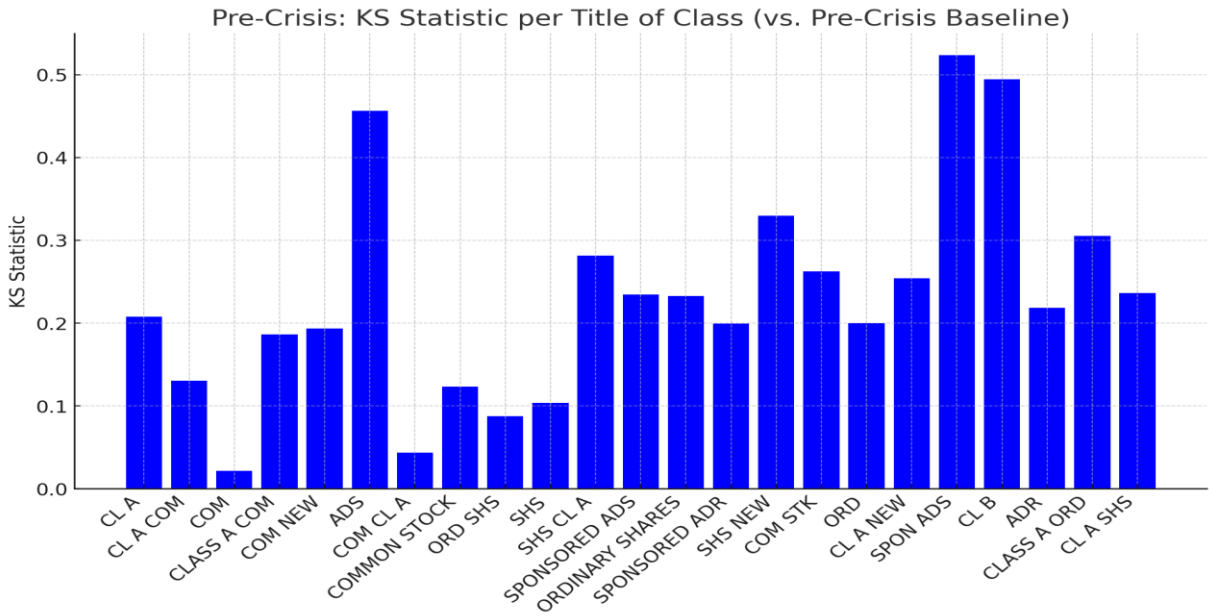

Figure 3.23 (2023 Two Sigma Pre-Crisis)

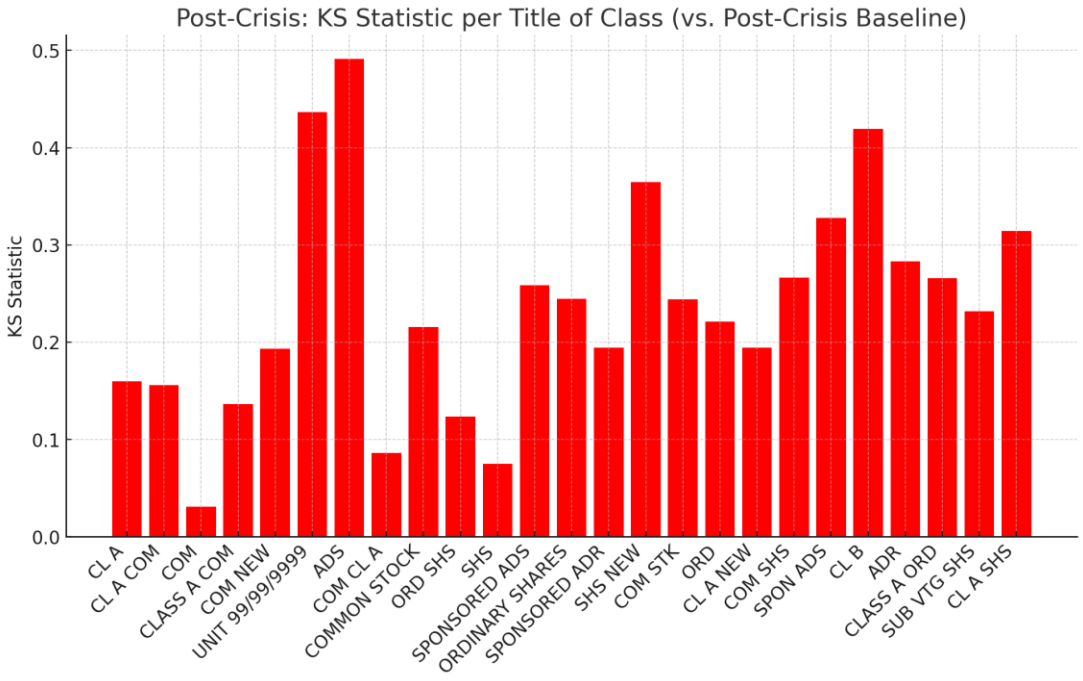

Figure 3.24 (2023 Two Sigma Post-Crisis)

Bridgewater Associates

Before the crisis, Bridgewater Associates maintained a stable, well-aligned portfolio with moderate KS values, reflecting uniform asset behavior. After the crisis, KS values spiked for CL A, COM, and SPONSORED ADR, indicating divergence driven by asset-specific sensitivity or strategic adjustments. This shift highlights Bridgewater's response to selective market volatility.

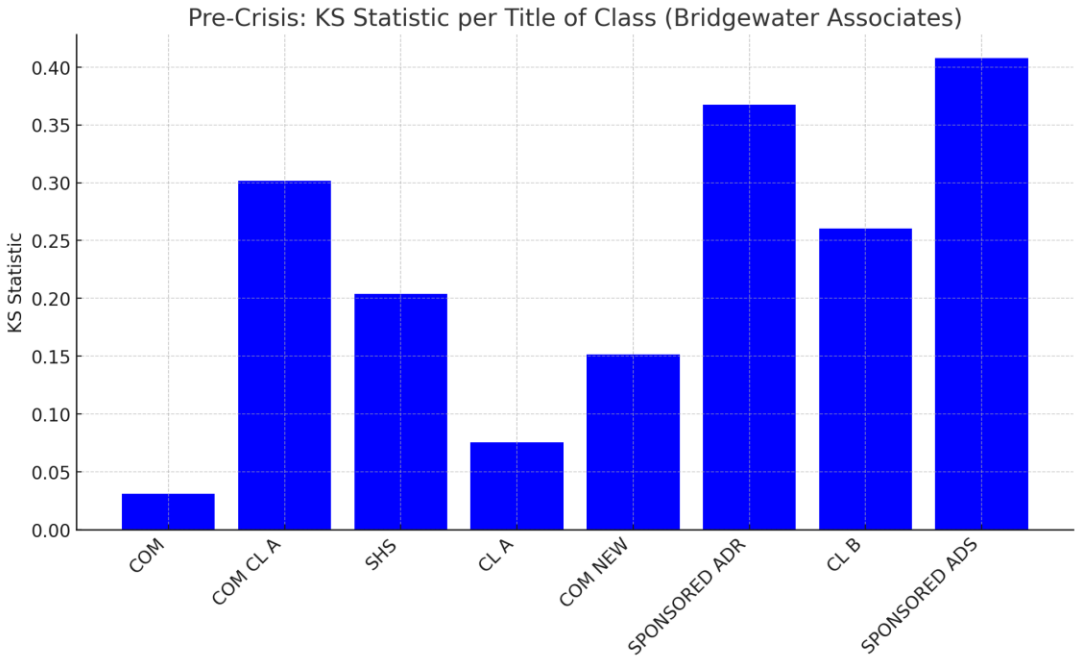

Figure 3.25 (2023 Bridgewater Associates Pre-Crisis)

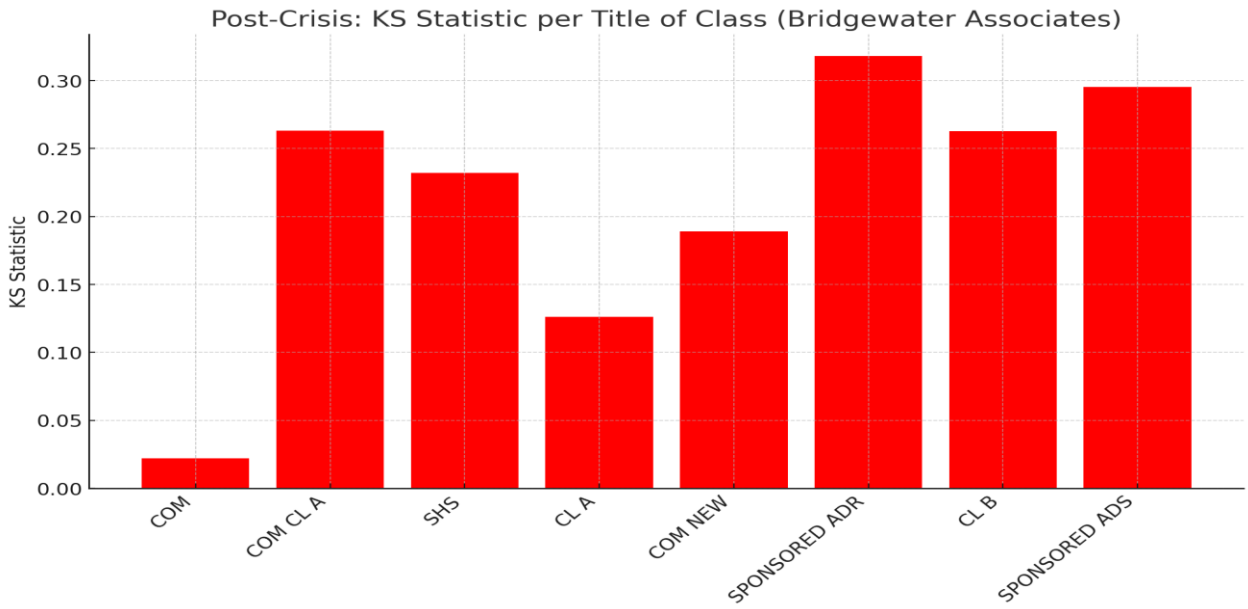

Figure 3.26 (2023 Bridgewater Associates Post-Crisis)

Point72 Asset Management

Before the crisis, Point72 maintained a stable, well-balanced portfolio with low, evenly distributed KS values, reflecting consistent asset management. Post-crisis, KS spikes in SP. ADR, CL A, and PFD STK signaled fragmentation and unique asset behavior. This suggests Point72 responded with strategic rebalancing to manage volatility and sector-specific risks.

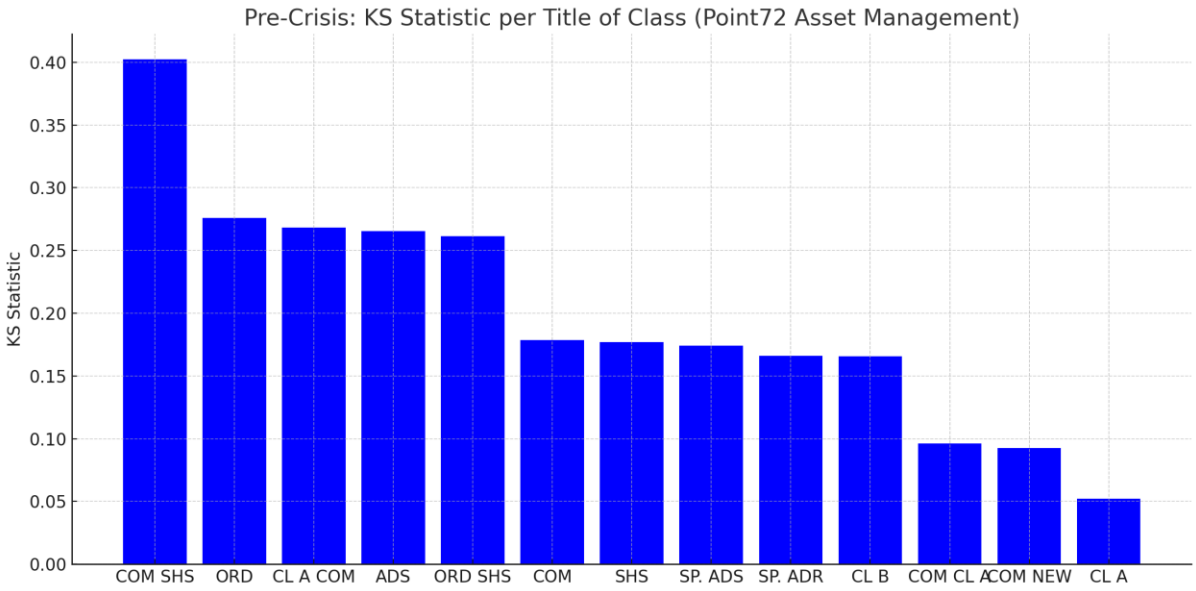

Figure 3.27 (2023 Point72 Asset Management Pre-Crisis)

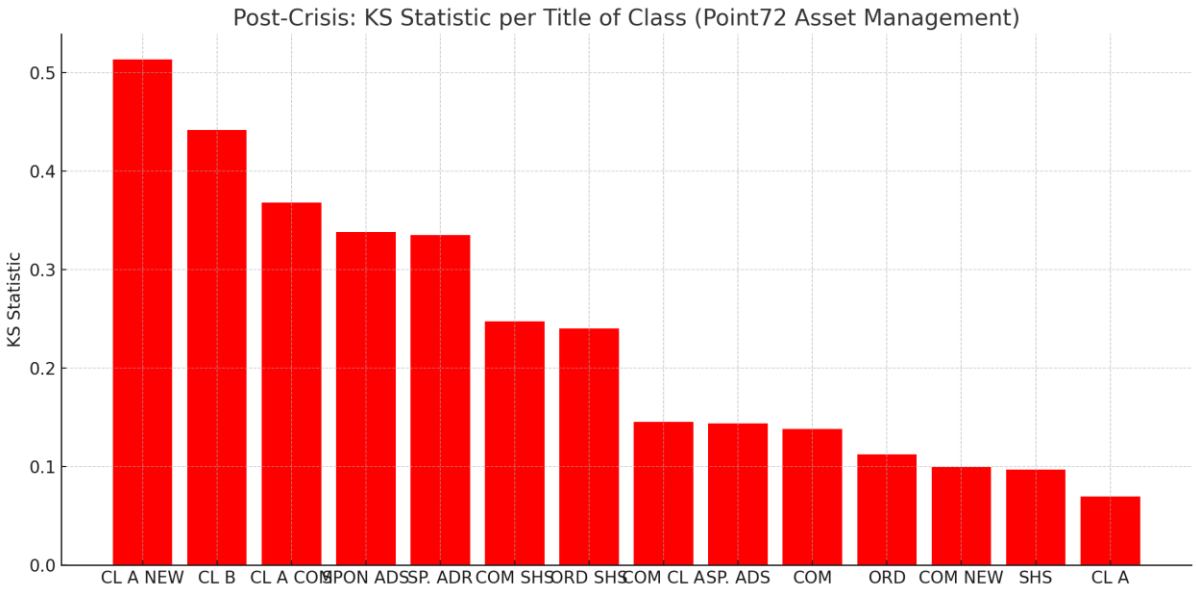

Figure 3.28 (2023 Point72 Asset Management Post-Crisis)

Renaissance Technologies

Before the crisis, Renaissance Technologies maintained a disciplined, cohesive portfolio with low to moderate KS values, consistent with its quantitative strategy. After the crisis, KS values rose for CL A, SP. ADR, and COM NEW, indicating divergence likely driven by volatility or algorithmic repositioning. This reflects Renaissance's adaptive, model-based response to shifting market dynamics.

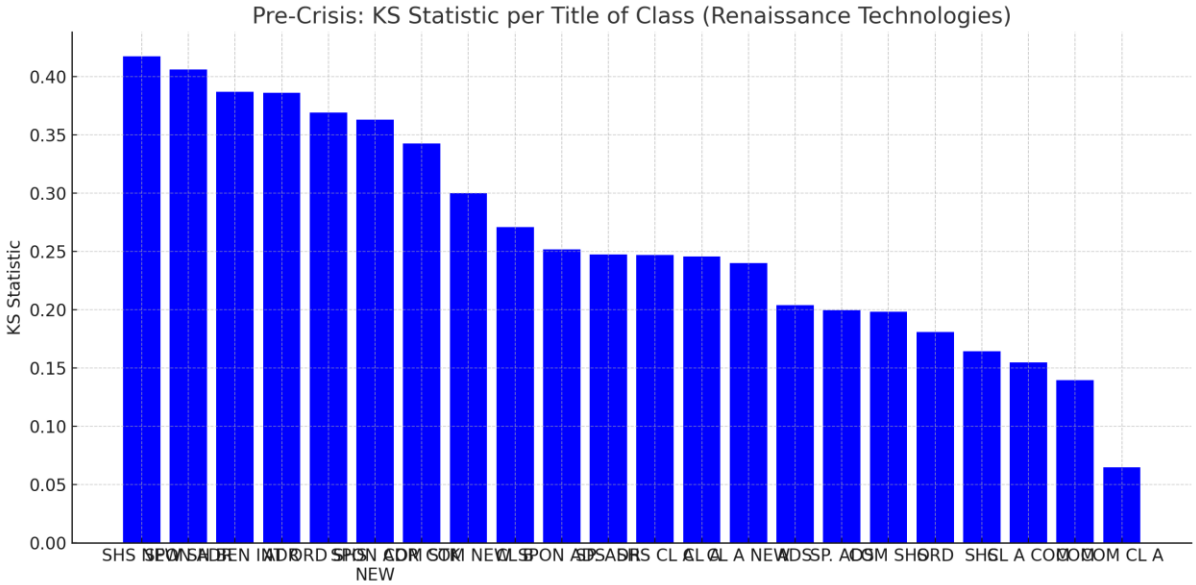

Figure 3.29 (2023 Renaissance Technologies Pre-Crisis)

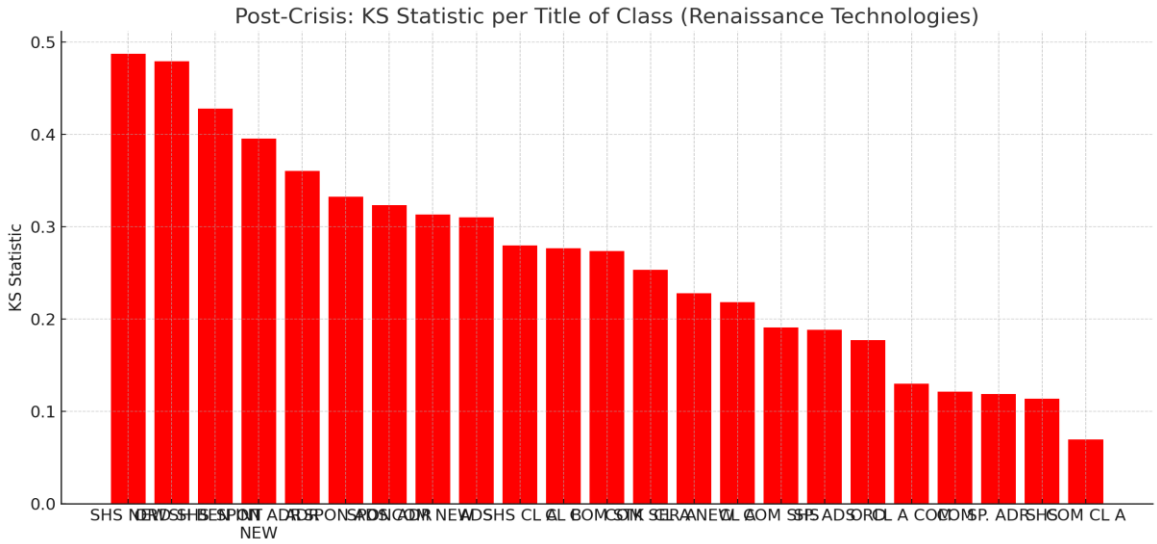

Figure 3.30 (2023 Renaissance Technologies Post-Crisis)

DISCUSSION

This study offers a multidimensional view of hedge fund behavior during geopolitical crises by applying Chi-Square, ANOVA, and Kolmogorov–Smirnov (KS) tests across four major events. While surface-level indicators such as performance distribution and average portfolio values remained statistically unchanged, deeper analysis reveals nuanced strategic adaptations beneath apparent stability.

Chi-Square results showed that most funds did not experience significant shifts in performance distribution before and after crises, suggesting structural consistency in portfolio composition. Renaissance Technologies and Two Sigma, in particular, demonstrated exceptional stability across all periods, likely due to model-driven strategies that prioritize internal signals over geopolitical volatility.

ANOVA results revealed that while many firms maintained stable average values, Bridgewater Associates exhibited notable shifts during the COVID-19 pandemic and the Russia–Ukraine conflict. These changes, although not mirrored in distribution, likely reflect macro-hedging or real-time rebalancing rather than reactionary exits. This contrasts with Point72 and Two Sigma, whose average exposures remained unchanged, possibly indicating stronger risk insulation or disciplined sector allocation.

The KS test uncovered the most subtle but meaningful shifts, identifying post-crisis divergence in asset-level distributions—particularly within Bridgewater and Point72. These internal fractures suggest selective reallocation within portfolios, invisible to mean-based or categorical analysis. Such findings affirm that hedge funds often recalibrate internally rather than overhaul entire strategies during crises.

Together, these results suggest hedge fund responses to geopolitical shocks are marked more by controlled repositioning than aggressive market moves. The combination of statistical tools demonstrates that while portfolios appear outwardly stable, many firms engage in fine-tuned adjustments to maintain performance under stress. For investors, this highlights the importance of fund structure and strategy type in crisis resilience. For policymakers, it suggests that hedge funds may help absorb rather than propagate systemic risk in emerging markets.

Although this study is limited by quarterly reporting and lack of derivative data, the integrated use of three distinct statistical approaches offers a robust foundation for analyzing institutional behavior. Future research could explore these dynamics in smaller funds or across longer crisis durations, where initial restraint may evolve into more visible shifts.

CONCLUSION

This study finds that hedge funds respond to geopolitical crises not through large-scale exits but through subtle, strategic reallocations. While performance distributions and average values remained statistically stable, deeper

analysis revealed internal portfolio shifts—especially in Bridgewater and Point72—indicating measured adjustments rather than reactive behavior. Renaissance and Two Sigma maintained high consistency across all crises. In answering the central question, the results show that hedge funds in emerging markets tend to preserve structural stability while quietly repositioning, acting not as crisis amplifiers but as resilient, adaptive investors.

ACKNOWLEDGEMENT

This paper is an independent work, separate from any school curriculum or qualification. It was done in the pursuit of higher education.

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