

The Effect of the UK Gilt Market Turmoil on Global Sovereign Default Risk

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Abstract

This study examines how news announcements related to the 2022 UK bond market turmoil affected sovereign credit risk across countries, as measured by changes in credit default swap (CDS) spreads. Using an event study approach, we analyze abnormal returns (ARs) before and after key announcements to assess market reactions, including anticipation and overreaction effects. We further compare cumulative abnormal returns (CARs) across regional country groups to identify cross-country differences in response. The findings show that the UK bond crisis had statistically significant impacts on CDS spreads in several regions, including all countries, the Americas and the Caribbean, East Asia and the Pacific, Europe and Central Asia, and other Eurozone countries. Notably, announcements concerning monetary tightening and fiscal stimulus triggered the strongest market responses. This study contributes to the literature by providing cross-regional evidence of the transmission of financial risk through sovereign CDS markets in the context of the UK bond market turmoil. In the full sample, news announcements and CDS spreads display clear bidirectional causality, though this relationship diminishes across regional subsamples. Panel-based evidence further indicates that negative news generates stronger and more persistent effects—particularly at the regional level—whereas positive news elicits only muted responses. These results are consistent with prior studies, highlighting the market's heightened sensitivity to adverse policy signals.

Keywords: event study, UK bond market crisis, sovereign default risk, credit default swap (CDS) spreads

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1. Motivation

In late September 2022, the British pound experienced a sharp depreciation, approaching parity with the U.S. dollar alongside the euro. This coincided with heightened instability in European financial markets, most notably a significant sell-off in UK government bonds, which triggered concerns over a broader systemic financial crisis. At the Annual Meeting of the Institute of International Finance (IIF) on October 14, 2022, former U.S. Treasury Secretary Larry Summers remarked:

“Central banks around the world are raising interest rates to combat inflation, potentially setting off a global economic crisis. The recent turmoil in the UK bond market is a warning sign.”²

On September 23, 2022, the UK government unveiled its largest fiscal stimulus package since 1972. This announcement not only led to a sharp increase in bond supply but also severely undermined investor confidence in the UK’s fiscal and monetary policy. The market responded with widespread sell-offs of both the pound and UK sovereign bonds, prompting the Bank of England to intervene with an emergency bond-buying program on September 28 to stabilize financial markets.

The causes of this volatility are multifaceted, including post-Brexit economic adjustments, inflationary pressures exacerbated by the Russia–Ukraine conflict, and a broader cycle of stagflation, economic slowdown, and fiscal stress. These developments raised fears of a systemic financial contagion, particularly given the deep financial linkages between the UK and other global economies.

Data from the Bank for International Settlements (BIS) indicate that countries such as the United States, Spain, France, Japan, Germany, Canada, Switzerland, and Australia have substantial financial exposure to the UK. For instance, 30–40% of U.S. exposure to Europe originates from the UK. These interconnections suggest that a UK debt crisis could have far-reaching implications for global financial stability.

Motivated by these concerns, this study seeks to assess whether the UK’s fiscal and monetary policy announcements during the 2022 bond market crisis had significant spillover effects on the sovereign default risk of other countries. Sovereign credit default swap (CDS) spreads are used as a proxy for default risk, given their established role as market-based indicators that efficiently incorporate new information. The European Central Bank’s 2008 annual report also emphasizes CDS spreads as effective measures of sovereign creditworthiness, particularly for countries with weaker fiscal profiles.

This study adopts an event study methodology, a widely used approach in financial economics to examine market reactions to significant announcements. While previous research has primarily applied this method to corporate events or to emerging markets (e.g.,

² Larry Summers elaborated on his remarks as follows:

"Rising interest rates, a strengthening U.S. dollar, shortages of energy and food, geopolitical tensions, and the challenges of climate change are converging. To bring inflation under control, the U.S. must raise interest rates beyond the levels anticipated by the Federal Reserve and financial markets. However, doing so may result in economic dislocations across the globe."

He further noted, "Attempts to avoid sharp interest rate hikes may lead to stagflation, ultimately requiring more drastic measures in the future. Such actions, however, come with various externalities for the rest of the world. One such consequence is the potential difficulty for other governments in accessing bond markets—recent turmoil in the UK sovereign bond market is a clear example."

Dooley and Hutchison, 2009), this study expands the scope to a broader international sample. Specifically, we examine 79 countries across six global regions to evaluate the cross-border transmission of sovereign credit risk triggered by the UK bond market crisis.

Relevant policy announcements—such as interest rate decisions and meeting minutes released by the Bank of England—serve as the basis for identifying key event dates³. We examine CDS spread behavior over a 120-day window surrounding these events to assess abnormal return patterns.

This study aims to examine the impact of news announcements related to the 2022 UK bond market turmoil on sovereign credit default swap (CDS) spreads. First, we test for abnormal returns (AR) to assess whether these announcements significantly affected sovereign risk across countries. Second, we analyze pre-announcement ARs to detect signs of market anticipation. Third, we examine post-announcement ARs to identify possible market overreactions, which may result from behavioral biases such as overconfidence or excessive pessimism, causing CDS spreads to temporarily deviate from fundamental values. Lastly, we compare cumulative abnormal returns (CARs) across different regions to explore cross-country differences in market responses.

2. Literature Review

The event study methodology, rooted in the Efficient Market Hypothesis (EMH) (Fama, 1969), is widely used in finance research to assess how specific events influence firm value (Shane & Spicer, 1983; Jacobs et al., 2008). It has also been extensively applied in empirical studies in accounting and management (Arya & Zhang, 2009; Chen et al., 2009; Carow et al., 2004).

Several studies are particularly relevant to the present research. Dooley and Hutchison (2009) employed an event study approach to examine how five-year sovereign credit default swap (CDS) spreads respond to sovereign debt default risk, with a focus on the spillover effects of the U.S. subprime mortgage crisis on emerging markets. Their goal was to identify which types of news announcements exerted the most significant impact and to determine the nature and magnitude of market responses. Thornton (2017) investigated the announcement effects of quantitative easing (QE) policies, showing that QE announcements significantly lowered 10-year bond yields—but only when market reactions could be clearly attributed to QE-related news.

In the context of international trade, Hartigan et al. (1986) analyzed the potential impact of U.S. Section 201 investigations under the 1974 Trade Act. Using event study methodology, they found that trade protection measures offered only limited support to struggling industries. More recently, Huang et al. (2019) studied the market impact of tariff announcements during the 2018–2019 U.S.–China trade war. Their findings highlighted contrasting stock price responses between firms in the two countries.

A large body of literature also examines the effect of corporate announcements—particularly new product launches—on stock prices. Empirical evidence generally indicates that such announcements are associated with positive abnormal returns. Studies by Woolridge and Snow (1990), Chaney et al. (1991), Chaney and Devinney (1992), and Koku et al. (1997) support the view that new product announcements typically generate favorable market reactions. Chaney et al. (1991) further noted industry-specific differences, with

³ See Table 1 for details.

more pronounced effects in high-tech sectors such as communications and computing. Chen et al. (2005) extended this line of research by examining the competitive spillover effects of new product announcements, finding that while the announcing firm experienced positive returns, competitors tended to suffer significant negative abnormal returns. Chen et al. (2013) also found that delays in product announcements had broader industry effects, reinforcing the market's sensitivity to product-related news.

3. Research Methodology

3.1 Event Study Method

This study adopts the event study methodology to statistically test for the presence of abnormal returns in sovereign credit default swap (CDS) spreads following major news announcements. The goal is to examine whether specific events significantly influence sovereign risk perceptions and whether such effects are reflected in the dynamics of CDS spreads.

The event study approach, widely applied in modern financial research, originates from the work of Ball and Brown (1968) and Fama et al. (1970). It is commonly used to assess whether new information or events trigger significant market reactions, as measured by abnormal returns. By testing whether the expected abnormal return is statistically different from zero, this method helps determine the relationship between market prices and event occurrences.

In this study, the event study framework is applied to measure abnormal changes in sovereign CDS spreads around the announcement dates of economic and policy events during the 2022 UK bond market crisis. Under the assumption of market efficiency, unanticipated information is expected to be quickly incorporated into CDS prices. CDS spread changes, therefore, reflect the market's aggregate assessment of a country's credit risk in response to new information. One key advantage of using sovereign CDS data is its availability and timeliness. However, the method relies on the Efficient Market Hypothesis (EMH); if markets do not fully reflect the impact of news announcements, event study results may be biased. The implementation of the event study methodology is detailed in *Appendix A*.

3.2 Event Date Selection

The event dates in this study correspond to key policy and economic announcements during the 2022 UK bond market turmoil. These include fiscal and monetary policy declarations aimed at stabilizing the British economy. Event timing is based on official press releases and meeting statements from the Bank of England. A list of the 11 selected announcement dates is provided in Table 1.

[Insert Table 1 here]

These events are chosen based on their policy relevance and the likelihood that they introduced new information into financial markets. Under the EMH, CDS spreads should incorporate the anticipated effect of such events immediately upon the first announcement. This is consistent with previous studies that adopt the first release date as the event date. Accordingly, we analyze CDS spread reactions across 79 countries spanning six major regions to examine the heterogeneity of market responses.

3.3 Estimation and Event Window Specification

The estimation window is used to model the normal behavior of CDS spreads. While no universal standard exists, this study adopts a 120-day estimation period, consistent with prior research. Additional robustness checks use 100-day and 60-day estimation periods⁴. This study provides details on the specification of the event window and data periods in *Appendix B*.

3.4 Estimation and Statistical Testing of Abnormal Returns

Step 1: Estimating Expected Returns of Sovereign CDS Spreads

This study adopts the commonly used **market model**, which accounts for risk exposure, to estimate expected returns and residuals. The following regression model is estimated using Ordinary Least Squares (OLS):

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

where

$t = t_1, t_2, \dots, i = 1, 2, \dots, N$, R_{it} : Return on sovereign CDS spread for country i on day t , α_i : Intercept, β_i : Slope coefficient capturing the sensitivity of country i 's CDS spread to market returns (risk factor), R_{mt} : Market return on CDS spreads on day t , ε_{it} : Error term.

The estimated coefficients $\hat{\alpha}$ and $\hat{\beta}$ are used to compute the expected return during the event window E :

$$E(\widehat{R}_{iE}) = \hat{\alpha}_i + \hat{\beta}_i R_{mE} \quad (2)$$

where

$E(\widehat{R}_{iE})$: Expected CDS return for country i during event period E , $\hat{\alpha}_i$, $\hat{\beta}_i$: Estimated intercept and risk coefficient, R_{mE} : Market return on CDS during event window E .

Step 2: Definition and Calculation of Abnormal Returns

Abnormal return (AR) is defined as the difference between actual and expected returns of sovereign CDS spreads during the event window:

$$AR_{iE} = R_{iE} - E(\widehat{R}_{iE}) \quad (3)$$

where

AR_{iE} : Abnormal return for country i during event period E , R_{iE} : Actual CDS return for country i , $E(\widehat{R}_{iE})$: Expected return for country i .

Since abnormal returns from individual countries may be influenced by external or confounding factors, cross-sectional averaging is necessary to isolate the impact of the event. Thus, we compute Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR) as follows:

Average Abnormal Return (AAR):

⁴ Although this study adopts a commonly used 120-day estimation window based on prior literature, robustness checks were also conducted using 100-day and 60-day windows. However, since the results based on the 120-day window were more robust, only those results are reported in this study.

$$AAR_E = \frac{1}{N} \sum_{i=1}^N AR_{iE}, E \subseteq [t_3, t_4] \quad (4)$$

where

AAR_E : Average abnormal return across all countries during period E , N : Number of sample countries.

Cumulative Average Abnormal Return (CAAR):

$$CAAR_E(\tau_1, \tau_2) = \sum_{\tau_1}^{\tau_2} AAR_E, (\tau_1, \tau_2) \subseteq [t_3, t_4] \quad (5)$$

where

$CAAR_E(\tau_1, \tau_2)$: Cumulative average abnormal return over event window (τ_1, τ_2) .

Step 3: Statistical Testing of Abnormal Returns

To assess whether an event significantly affects sovereign CDS spreads, statistical tests are conducted on AAR and CAAR to determine whether they deviate significantly from zero.

Two types of tests are employed: **parametric** and **non-parametric**. Parametric tests assume abnormal returns follow a normal distribution, whereas non-parametric tests do not rely on distributional assumptions. Given that abnormal returns are often not normally distributed, non-parametric methods are generally preferred for robust inference. Nonetheless, by the Central Limit Theorem, the cross-sectional average (AAR or CAAR) tends to approximate a normal distribution as sample size increases.

t-test for AAR:

$$t = \frac{AAR_E}{\sqrt{Var(AAR_E)}} = \frac{AAR_E}{\sqrt{\frac{1}{N(N-1)} \sum_{i=1}^N (AR_{iE} - AAR_E)^2}} \quad (6)$$

t-test for CAAR:

$$t = \frac{CAAR_{\tau_1, \tau_2}}{\sqrt{Var(CAAR_{\tau_1, \tau_2})}} = \frac{CAAR_{\tau_1, \tau_2}}{\sqrt{\frac{1}{N(N-1)} \sum_{i=1}^N \left(CAR_{i, \tau_1, \tau_2} - \sum_{j=1}^N \frac{CAR_{j, \tau_1, \tau_2}}{N} \right)^2}} \quad (7)$$

where

$CAAR_E(\tau_1, \tau_2)$: Cumulative average abnormal return, $Var(CAAR_E(\tau_1, \tau_2))$: Variance of the respective statistic.

4. Empirical Results

Abnormal returns on the event day are estimated using the methodology outlined above for each of the 79 sample countries. The event window spans 21 trading days, covering 10 days before and after the event day. Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR) are computed for each event window, and standard test statistics commonly used in event studies are applied to derive their corresponding t -values and t -statistics.

There is no consensus on the optimal length of the event window. To capture market reactions to the event announcement and potential information leakage, this study defines the event window as k trading days before and after the event day (t), with k initially set to 10. To further examine short-term abnormal behavior, we divide the window into seven sub-periods: $(-10, -10)$, $(+5, -5)$, $(+1, -1)$, $(-5, -1)$, $(-10, -1)$, $(+1, +5)$, and $(+1, +10)$,

and compare these intervals with the estimation window to identify significant abnormal returns.

4.1 Data Sources

Data used in this study are presented in Tables 2 and 3. Sovereign credit default swap (CDS) data are sourced from Datastream. Following prior literature, the CDS spread is calculated as the difference between a given country's CDS and that of the United States, which serves as the benchmark. The sample includes 79 countries, classified into six regions based on the World Bank's categorization: (1) Americas and the Caribbean, (2) East Asia and the Pacific, (3) Europe and Central Asia, (4) Middle East and Africa, (5) Eurozone periphery, and (6) other Eurozone countries. The dataset spans from January 2021 and consists of daily observations.

[Insert Table 2 here]

[Insert Table 3 here]

4.2 Results for All Countries

This section evaluates the effects of 11 key events on abnormal returns (AR) of sovereign credit default swap (CDS) spreads across all countries. As reported in Tables 4, the average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) are largely statistically significant, highlighting the market's sensitivity to the financial developments in the United Kingdom. Notably, the announcement events most strongly associated with significant reactions are discussed in detail below.

The monetary tightening announced by the Bank of England on August 4, 2022 (Event 6) triggered widespread market responses. Significant abnormal returns were observed during the pre-event window, particularly between Day -10 and Day -6, suggesting information leakage and asymmetric information prior to the official announcement. Interestingly, the magnitude of abnormal return fluctuations was even greater before the announcement than after.

Similarly, the announcement on September 22, 2022 (Event 7), where the Bank of England not only raised interest rates but also initiated active quantitative tightening, led to the most pronounced pre-event abnormal return surges among all examined events. Statistically significant ARs were detected from Day -10 to Day -1, as well as on Day +1 and Day +3, indicating both anticipatory trading and persistent post-event effects. CAAR estimates from various event windows further confirm the significance of the announcement, particularly in the pre-event intervals such as CAAR(-5,-1) and CAAR(+1,-1).

The fiscal stimulus package introduced on September 23, 2022 (Event 8) also yielded considerable market volatility. A significant spike in abnormal returns occurred on the event day itself, aligning with the semi-strong form of market efficiency. Preceding the announcement, Days -10 to -2 exhibited the most substantial abnormal return increases across the entire observation period, reinforcing the presence of pre-disclosure trading. Post-event significance was also noted on Day +2. The CAAR results affirm the impact of this event, with notably high values in pre-event windows such as CAAR(-10,-1) and CAAR(-5,-1).

The emergency bond-buying program announced on September 28, 2022 (Event 9), which marked a reversal of prior tightening efforts, induced significant ARs from Day -10 to Day

-5. The sharpest fluctuations were again concentrated in the pre-announcement period, underscoring the persistent issue of information asymmetry. The CAAR results for windows such as CAAR(-10,-1) and CAAR(-5,-1) further emphasize that market reactions were more pronounced before the announcement date.

On **October 3, 2022 (Event 10)**, the UK government retracted its proposed income tax reform, a move that significantly influenced CDS spreads. Pronounced abnormal returns were detected between Day -10 and Day -3, with the largest observed surge in abnormal returns prior to the announcement. As with earlier events, the CAARs in pre-event windows confirm heightened market sensitivity prior to policy reversals.

Finally, the Bank of England's interest rate hike on **November 3, 2022 (Event 11)** produced significant abnormal returns both before and after the announcement. Specifically, Day -7 and Days +6 to +10 showed elevated ARs, with the post-event window demonstrating larger volatility increases than the pre-event period. CAAR(+1,+10) underscores the persistence of the announcement's effect. Overall, the results suggest that the market was not only reactive but also anticipatory, likely influenced by expectations surrounding the broader UK debt crisis.

[Insert Table 4 here]
[Insert Figure 1 here]

4.3 Empirical Results for the Americas and the Caribbean

This section examines the impact of the eleven UK financial events on the abnormal returns of sovereign CDS spreads for countries in the Americas and the Caribbean. As shown in Tables 5, several events resulted in statistically significant abnormal returns and cumulative abnormal returns.

The event on **August 4, 2022 (Event 6)**, when the Bank of England announced an interest rate hike, elicited significant market reactions both before and after the announcement. Abnormal returns were observed as early as ten days prior and extended up to ten days post-announcement, indicating not only a market response in line with the semi-strong form of market efficiency but also potential information leakage and a high degree of market anticipation. CAAR values across various event windows confirmed the persistence and significance of these reactions both pre- and post-event.

In contrast, the event on **September 22, 2022 (Event 7)**—when the Bank of England raised interest rates and announced quantitative tightening—did not produce significant single-day abnormal returns. However, cumulative returns over several pre-event windows (e.g., CAAR(-5, -1)) suggest a more muted but still measurable market response ahead of the announcement.

The fiscal stimulus package announced on **September 23, 2022 (Event 8)**, led to significant abnormal returns predominantly before the event, particularly from day -10 to day -2. Post-event reactions were minimal, further supporting the notion of information leakage and investor anticipation. Similarly, the Bank of England's emergency bond-buying announcement on **September 28, 2022 (Event 9)**, triggered the highest pre-event abnormal returns during the observation period, while post-event movements remained subdued.

On **October 3, 2022 (Event 10)**, the UK Treasury's reversal of its income tax policy also produced noticeable pre-event abnormal returns, indicating early market sensitivity.

However, little movement was observed after the official announcement. Finally, the interest rate hike on November 3, 2022 (Event 11), was met with significant abnormal returns on the announcement day and throughout the surrounding window, with CAAR values suggesting heightened responsiveness both before and after the event. These results reflect strong anticipatory behavior and prolonged adjustment dynamics in the region's CDS markets.

[Insert Table 5 here]

[Insert Figure 2 here]

4.4 Empirical Results for East Asia and the Pacific

Turning to the East Asia and Pacific region, the analysis shows multiple UK financial events generated significant abnormal returns in sovereign CDS spreads. As presented in Tables 6, both the average and cumulative abnormal returns in several event windows reached statistical significance.

The earliest reaction occurred following the Bank of England's rate hike on December 16, 2021 (Event 1), with significant abnormal returns recorded on the announcement day and in the preceding ten-day period. These patterns suggest information asymmetry and market anticipation, with sustained effects visible across multiple CAAR windows.

Subsequent events, such as the rate hike on May 5, 2022 (Event 4), produced both pre- and post-event abnormal returns. Notably, abnormal returns were present up to ten days before and several days after the announcement, supporting the interpretation of both anticipatory trading and persistent market adjustment. Similar dynamics were observed for the June 16, 2022 (Event 5), event, where the Bank of England not only raised rates but also announced passive quantitative tightening. Significant abnormal returns were concentrated in the pre-event window and again towards the end of the post-event horizon, indicating delayed responses or extended digestion of policy signals.

These findings suggest that sovereign CDS markets in the East Asia and Pacific region were highly responsive to UK monetary developments, with effects manifesting well beyond the announcement dates.

[Insert Table 6 here]

[Insert Figure 3 here]

4.5 Empirical Results for Europe and Central Asia

In the Europe and Central Asia region, the analysis reveals multiple UK events with significant impacts on CDS spreads, as evidenced in Tables 7. In particular, five out of the eleven events exhibited statistically significant effects either before, after, or on the day of announcement.

The August 4, 2022 (Event 6), rate hike resulted in abnormal returns across a wide range of windows, including strong responses on the event day and symmetric movements in the ten-day pre- and post-event periods. The September 22, 2022 (Event 7), announcement combining a rate hike and quantitative tightening elicited the highest magnitude of abnormal returns before the event, with notable continuation immediately after. These results suggest pronounced pre-announcement information flows and swift post-announcement adjustments.

The September 23, 2022 (Event 8), fiscal stimulus announcement, and the September 28, 2022 (Event 9), emergency bond-buying action both triggered significant abnormal returns during the pre-event period. These patterns highlight widespread market anticipation of fiscal instability and concerns about UK debt sustainability.

The October 3 (Event 10) policy reversal and November 3 (Event 11) rate hike also demonstrated significant pre-event movements, with the latter generating robust post-event reactions. Notably, the November 3 (Event 11) event showed higher CAAR values in post-event windows, suggesting extended market reevaluation. Overall, the reactions in this region underscore both anticipatory trading and prolonged price discovery in response to UK macro-financial shifts.

[Insert Table 7 here]
[Insert Figure 4 here]

4.6 Empirical Results for the Middle East and Africa

This section analyzes the impact of 11 events on the abnormal returns of sovereign credit default swap (CDS) spreads in Middle Eastern and African countries. The results show that most average abnormal returns (AARs) and cumulative average abnormal returns (CAARs) are statistically insignificant. This may be attributed to the limited financial exposure and low economic policy interdependence between these countries and the United Kingdom, which likely reduced the sensitivity of their sovereign CDS markets to the UK-related events⁵.

4.7 Empirical Results for Other Eurozone Countries

Among the non-peripheral Eurozone countries, the analysis indicates limited responsiveness to UK financial events. As shown in Tables 8, only the June 16, 2022 (Event 5), announcement—where the Bank of England implemented a rate hike and passive quantitative tightening—produced statistically significant effects, especially in post-event windows such as CAAR(+1, +10). This suggests some degree of market sensitivity to broader systemic developments originating from the UK.

Nonetheless, the overall lack of significant abnormal returns for other events diverges from initial expectations, indicating possible regional decoupling or diminished contagion. Further research incorporating additional macro-financial variables may help to better understand the channels through which UK financial events influence Eurozone credit markets.

[Insert Table 8 here]
[Insert Figure 5 here]

4.8 Empirical Results for Eurozone Peripheral Countries

This section examines the impact of 11 events on the abnormal returns of sovereign credit default swap (CDS) spreads in peripheral countries. The results show that most average and

⁵ Due to the lack of significant results for Middle Eastern and African countries, this study excludes their empirical findings from further analysis.

cumulative abnormal returns are statistically insignificant, possibly due to the small sample size, which may reduce statistical power and lead to biased or inconclusive findings.⁶

4.9 Summary of Findings

This study systematically examines the impact of major UK debt crisis–related news announcements on the abnormal returns of sovereign credit default swap (CDS) spreads across various regional country groups. Employing an event study framework, we find that several country groups—including the global sample, the Americas and the Caribbean, East Asia and the Pacific, and Europe and Central Asia—exhibit statistically significant abnormal return responses to key monetary and fiscal policy announcements originating from the United Kingdom.

Our analysis highlights that policy announcements involving interest rate hikes by the Bank of England and fiscal stimulus measures had the most pronounced effects on sovereign credit risk, particularly for the aforementioned regions. Events such as the Bank of England’s rate hikes (Events 6, 7, and 11), the announcement of active quantitative tightening (Event 7), emergency bond purchases (Event 9), and the reversal of income tax cuts (Event 10) all triggered significant market reactions. Notably, the abnormal returns observed prior to these announcements were often larger than those following the events, suggesting the presence of information asymmetry and potential news leakage. These pre-announcement effects align with heightened speculation and media coverage in late 2021 regarding the UK’s potential policy responses to rising debt pressures, which likely shaped market expectations leading into the second half of 2022.

Moreover, countries in Europe and Central Asia were particularly sensitive to UK fiscal policy shocks, possibly due to their deeper geopolitical and historical linkages with the United Kingdom. Similarly, East Asian and Pacific economies were notably impacted by earlier monetary tightening events (Events 1, 4, and 5), with statistically significant abnormal returns occurring both before and after the announcements, indicating persistent market effects and a strong anticipatory response to UK monetary policy.

While Other Eurozone countries, exhibited more limited evidence of significant reactions, we observe that some specific events—such as the Bank of England’s May and June 2022 rate hikes—did trigger measurable abnormal returns. These relatively muted effects may reflect lower financial integration or economic interdependence with the UK in these regions, as well as potential sample size limitations.

Taken together, the findings underscore that sovereign CDS markets are not only sensitive to domestic conditions but also to major economic developments in leading advanced economies. The presence of statistically significant abnormal returns around UK policy announcements—especially during the latter half of 2022—indicates a global transmission mechanism of debt-related policy risks, driven by financial linkages, investor sentiment, and media influence. These insights contribute to a growing understanding of international sovereign risk contagion and highlight the relevance of policy transparency and timing in mitigating cross-border credit market volatility.

The absence of significant reactions may also point to reduced integration or exposure to UK financial developments among these economies. However, this finding warrants

⁶ Due to the insignificance of the results for Eurozone peripheral countries, this study excludes their empirical findings from further discussion.

cautious interpretation and future work may consider expanding the sample size or incorporating additional risk transmission indicators to better capture potential indirect effects of UK macro-financial shocks.

4.10 Robustness Check

Traditional event-study methods based on mean-difference tests do not adequately control for the inherent dynamics of CDS spreads, potentially biasing estimates of market reactions on announcement dates. To address this issue, we employ a panel data model with country fixed effects, estimating the response of CDS spreads to the announcement dummy D :

$$S_{i,t} = \alpha_i + \rho S_{i,t-1} + \beta D_{i,t} + \varepsilon_{i,t},$$

where $S_{i,t}$ denotes the CDS spread of country i on day t , α_i is the country fixed effect, and $D_{i,t}$ equals 1 on the announcement date and 0 otherwise.

We implement three complementary tests—Panel OLS, ARDL, and FM-OLS—to evaluate the short-run and long-run effects of news announcements (D) on CDS spreads. Following the literature, which documents stronger market responses to negative sovereign rating actions (Afonso et al., 2011), we classify the eleven events listed in Table 1 into two categories:

- **Negative news (Events 1–7, 11):** rate hikes, balance-sheet reductions, and other tightening measures expected to raise risk premia and increase CDS spreads.
- **Positive news (Events 8–10):** tax cuts, emergency purchase programs, and other expansionary or market-stabilizing policies expected to reduce risk premia.

Consistent with prior studies, all robustness tests use a ± 10 -day event window to capture short-term market adjustments.

Pairwise Granger Causality Tests

Table 9 shows that, in the full sample, both negative and positive news significantly reject the null hypothesis that announcements do not Granger-cause CDS spreads. Several events also reject the converse null, indicating that CDS spread fluctuations may partly reflect market expectations regarding policy timing. However, once countries are grouped by region, the causality results largely become insignificant—particularly for positive news (Event 10). This pattern aligns with Afonso et al. (2011), who document weaker market responses to favorable sovereign information. Overall, while the full sample reveals bidirectional causality, the relationship is not robust in regional subsamples.

[Insert Table 9 here]

Panel OLS Results

As shown in Table 10, negative news does not exhibit significant effects on CDS spreads when using the All-Countries sample, consistent with the aggregate findings in Table 4. In contrast, regional estimates (Tables 5–7) reveal clear and significant effects of negative announcements both before and after the event day, indicating stronger policy sensitivity at the regional level.

[Insert Table 10 here]

ARDL Model Results

The ARDL model is used to evaluate both the short-run adjustments and the existence of long-run equilibrium relationships within the ± 10 -day window. Table 11 indicates that most events exhibit a significant long-run relationship between CDS spreads and news announcements. Positive news (Events 9 and 10) shows no significant long-run coefficients, consistent with the view that favorable announcements elicit limited market responses. By contrast, negative news (Events 1–7, 11) consistently produces significant long-run effects, reinforcing the evidence reported in Tables 5–8.

[Insert Table 11 here]

FM-OLS Results

After establishing long-run cointegration, FM-OLS estimations are employed to quantify the direction and magnitude of long-run effects. Table 12 demonstrates that negative news generates significant and positive long-run impacts on CDS spreads, with stronger effects observed in regional subsamples. Positive news (Events 9 and 10) shows predominantly insignificant results, consistent with Tables 6 and 8 and previous findings that markets tend to respond weakly to favorable policy shocks.

[Insert Table 12 here]

Summary

The robustness results highlight two key findings. First, while news announcements and CDS spreads exhibit bidirectional causality in the full sample, this relationship weakens considerably once countries are grouped by region. Second, across alternative panel estimation methods, negative news produces stronger and more significant effects on CDS spreads—especially at the regional level—whereas positive news generally exhibits limited influence. These conclusions are consistent with Afonso et al. (2011), who argue that markets react more sharply to negative policy signals than to favorable announcements.

5. Conclusion

This study investigates the impact of news announcements associated with the UK debt crisis on the volatility of sovereign credit default swap (CDS) spreads across different country groups. Employing an event study methodology, we assess whether such announcements generate statistically significant abnormal returns, thereby serving as credible signals of changes in sovereign credit risk.

The empirical findings indicate that, at the global level, both average abnormal returns (AARs) and cumulative average abnormal returns (CAARs) exhibit statistically significant fluctuations surrounding key announcement dates. Notably, country groups such as the Americas and the Caribbean, East Asia and the Pacific, Europe and Central Asia, and other Euro Area economies experience substantial abnormal return movements, either before or after specific announcements. Among these, the Americas and East Asia–Pacific regions show particularly pronounced reactions, likely reflecting their close economic and trade relationships with the United Kingdom, which heighten their exposure to UK policy developments.

Across most regional groups, abnormal returns tend to be larger in the post-announcement window than in the pre-announcement period, suggesting the presence of market anticipation and indicating that the effects of policy announcements are persistent rather than transitory. Moreover, the response patterns differ across regions depending on the nature of the policy measures. Economies in East Asia, the Pacific, and non-core Euro Area countries exhibit greater sensitivity to monetary tightening—particularly interest rate hikes—while global markets, as well as countries in the Americas and Europe–Asia, respond more strongly to fiscal announcements, including stimulus plans and tax policy reversals.

By distinguishing between positive and negative news and applying panel-based tests, we find that CDS spreads and news announcements exhibit bidirectional causality across all country groups. Further analysis reveals that, once countries are classified into regional clusters, negative news exerts statistically significant effects, whereas the impact of positive news becomes considerably weaker. These findings are consistent with the existing literature, which shows that CDS spreads respond more strongly to adverse announcements while reacting more mildly to favorable rating events.

This study is subject to certain limitations. The scope of the CDS data is constrained by its relatively short time span and limited country coverage, which restricts the ability to perform extended time-series analysis or broader cross-sectional comparisons. Nonetheless, the evidence reveals that regions with stronger economic and financial linkages to the UK exhibit the most pronounced reactions, suggesting meaningful cross-border transmission effects. Future research may benefit from incorporating a wider range of countries, longer time horizons, and additional explanatory variables to further uncover the channels through which UK debt-related policy news influences sovereign credit risk across regions.

Overall, by applying an event study framework, this research provides empirical support for the existence of announcement effects in sovereign CDS markets. The findings offer new insights into how international investors process debt-related policy information and underscore the critical importance of policy transparency and timely communication in mitigating credit market volatility during periods of fiscal uncertainty.

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Table 1 Event Definitions

Event	Event Definition	Event Variable	Event Date	Event Description
1	The Bank of England raised interest rates by 15 basis points to 0.25%, halted additional asset purchases, and maintained the total size of the Asset Purchase Facility (APF) unchanged.	Lifrates1	2021/12/16	Bank of England interest rate hike
2	The Bank of England raised interest rates by 25 basis points to 0.5%.	Lifrates2	2022/2/3	Bank of England interest rate hike
3	The Bank of England raised interest rates by 25 basis points to 0.75%.	Lifrates3	2022/3/17	Bank of England interest rate hike
4	The Bank of England raised interest rates by 25 basis points to 1.0%, and plans to start selling its £20 billion corporate bond holdings beginning in September, aiming to complete the sales by early 2024, with the pace of sales adjusted flexibly.	Lifrates4	2022/5/5	Bank of England interest rate hike
5	The Bank of England raised interest rates by 25 basis points to 1.25% and began passive quantitative tightening for government bonds. Approximately £32 billion of maturing government bonds in July will not be reinvested.	Lifrates5	2022/6/16	The Bank of England raised interest rates and announced passive quantitative tightening. (shrink the balance sheet)
6	The Bank of England raised interest rates by 50 basis points to 1.75%, with plans to begin active quantitative tightening in September. The actual scale and implementation approach will be determined at the September meeting.	Lifrates6	2022/8/4	Bank of England interest rate hike
7	The Bank of England raised interest rates by 50 basis points to 2.25% and announced that active quantitative tightening would begin on October 3rd, with a planned reduction of £80 billion over the next year, decreasing the government bond holdings to £758 billion.	Lifrates7	2022/9/22	The Bank of England raised interest rates and announced active quantitative tightening. (shrink the balance sheet)

Table 1 (Continued)

8	The Treasury announced a mini-budget including tax cuts and an energy subsidy plan.	Taxcut	2022/9/23	Fiscal stimulus package
9	In response to rising UK government bond yields and market volatility following the government's tax cut announcement, the Bank of England announced a temporary bond purchase program. The Bank will buy long-term bonds between September 28 and October 14 (with no predetermined purchase amount) and postpone the quantitative tightening schedule to October 31.	Emergency Purchase Programme	2022/9/28	The Bank of England launched an Emergency Purchase Programme and postponed quantitative tightening. (shrink the balance sheet)
10	The Treasury announced the withdrawal of the proposed income tax band plan.	TaxBrackets	2022/10/3	Relevant fiscal policies
11	The UK raised interest rates by 75 basis points to 3.0%.	Lifrates8	2022/11/3	Bank of England interest rate hike

Source: The Bank of England, which is the central bank of the United Kingdom. Its monetary policy primarily aims to control inflation. Several interest rate meetings are held each year, with decisions made through a vote by nine committee members. The interest rate decision statement and meeting minutes are released simultaneously. This study extracts information from the Bank's official press releases.

Table 2 Sample Countries

Region	Number	Countries
Americas and Caribbean countries	15	Argentina, Bahamas, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Jamaica, Mexico, Panama, Peru, Uruguay, Canada
East Asia and Pacific countries	14	Australia, Bolivarian, China, Hong Kong, Indonesia, Japan, Malaysia, New Zealand, Philippines, Singapore, South Korea, Taiwan, Thailand, Vietnam
Europe and Central Asia countries	20	Bulgaria, Croatia, Czech Republic, Denmark, Hungary, Iceland, Kazakhstan, Norway, Poland, Romania, Russian Federation, Serbia, Sweden, Switzerland, Turkey, Ukrain, United Kingdom, India, Pakistan, Sri Lanka
Middle East and Africa countries	12	Algeria, Bahrain, Egypt, Iraq, Israel, Lebanon, Morocco, Qatar, Saudi Arabia, Tunisie, United Arab Emirates, South Africa
Eurozone peripheral countries	5	Greece, Ireland, Italy, Portugal, Spain
Other Eurozone countries (Core)	13	Austria, Belgium, Cyprus, Finland, France, Germany, Netherlands, Republic of Malta, Slovakia, Slovenia, Estonia, Latvia, Lithuania
Total number		79 countries

Table 3 Variables and Data Sources

Variable	Definition	Period	Data Source
Sovereign credit default swap	CDS(Sovereign credit default swaps), 5-year, dollar denominated CDS	2021M1~	Thomson Reuters Datastream
Sovereign credit default swap (benchmark country – United States)	5-year benchmark CDS (US)	2021M1~	Thomson Reuters Datastream

Table 4 *All Countries*

Event period	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
	N=68	N=68	N=68	N=68	N=68	N=64	N=63	N=63	N=63	N=64	N=62
AAR (t-value)											
-10	-0.04 (-1.4)	---	---	0.02 (1.4)	-0.04 (-1.4)	0.03 (3.93†)	-0.03 (-5.00†)	-0.03 (-5.23†)	0.02 (3.62†)	0.03 (4.07†)	0.004 (0.49)
-9	-0.04 (-1.4)	---	---	0.02 (1.4)	-0.04 (-1.4)	0.03 (3.88†)	-0.03 (-5.21†)	-0.03 (-5.25†)	0.02 (3.53†)	0.03 (2.12**)	0.005 (0.62)
-8	-0.04 (-1.4)	---	---	0.02 (1.4)	-0.04 (-1.4)	0.03 (3.87†)	-0.03 (-5.23†)	0.02 (3.03†)	0.02 (3.74†)	0.03 (2.56**)	0.01 (1.52)
-7	-0.04 (-1.4)	---	---	0.02 (1.4)	-0.04 (-1.4)	0.03 (3.61†)	0.02 (2.92†)	0.02 (3.36†)	0.03 (4.16†)	0.02 (1.66)	0.02 (1.79*)
-6	-0.04 (-1.4)	---	---	0.02 (1.4)	-0.04 (-1.4)	0.03 (3.14†)	0.02 (3.25†)	0.02 (3.27†)	0.02 (1.90*)	0.03 (2.10**)	0.01 (1.49)
-5	-0.04 (-1.4)	---	---	0.02 (1.4)	-0.04 (-1.4)	0.02 (0.45)	0.02 (3.16†)	0.02 (3.50†)	0.03 (2.32†)	0.02 (1.84*)	0.01 (1.44)
-4	-0.04 (-1.4)	---	---	0.02 (1.5)	-0.04 (-1.4)	0.02 (0.43)	0.02 (3.40†)	0.02 (3.94†)	0.02 (1.38)	0.03 (2.32**)	0.01 (1.30)
-3	-0.04 (-1.4)	---	---	0.02 (1.5)	-0.04 (-1.4)	0.02 (0.43)	0.02 (3.85†)	0.02 (1.84*)	0.02 (1.80*)	0.03 (1.91*)	-0.001 (-0.11)
-2	-0.04 (-1.4)	---	---	0.02 (1.5)	-0.04 (-1.4)	0.02 (0.44)	0.02 (1.80*)	0.03 (2.28**)	0.02 (1.54)	0.02 (1.29)	-0.002 (-0.22)
-1	-0.04 (-1.4)	---	---	0.02 (1.5)	-0.04 (-1.4)	0.02 (0.43)	0.03 (2.25**)	0.01 (1.29)	0.03 (2.00**)	0.02 (1.16)	-0.003 (-0.35)
0	-0.04 (-1.4)	---	---	0.02 (1.5)	-0.04 (-1.4)	0.02 (0.42)	0.01 (1.24)	0.02 (1.74*)	0.02 (1.56)	0.01 (1.06)	-0.002 (-0.24)
1	-0.04 (-1.4)	---	---	0.02 (1.5)	-0.04 (-1.4)	0.02 (0.42)	0.02 (1.71*)	0.02 (1.48)	0.01 (0.95)	0.01 (0.79)	-0.004 (-0.50)
2	-0.04 (-1.4)	---	---	0.03 (1.6)	-0.04 (-1.4)	0.02 (0.41)	0.02 (1.44)	0.03 (1.97*)	0.01 (0.83)	0.003 (0.26)	-0.01 (-1.01)
3	-0.04 (-1.4)	---	---	0.03 (1.5)	-0.04 (-1.4)	0.02 (0.41)	0.03 (1.95*)	0.02 (1.52)	0.01 (0.71)	0.004 (0.28)	-0.01 (-1.36)
4	-0.04 (-1.4)	---	---	0.02 (1.5)	-0.04 (-1.4)	0.02 (0.40)	0.02 (1.49)	0.01 (0.89)	0.01 (0.45)	0.01 (0.40)	-0.01 (-1.27)
5	-0.04 (-1.4)	---	---	0.03 (1.5)	-0.04 (-1.4)	0.02 (0.39)	0.01 (0.85)	0.01 (0.76)	-0.001 (-0.05)	0.0001 (0.01)	-0.01 (-1.54)
6	-0.04 (-1.4)	---	---	0.03 (1.6)	-0.04 (-1.4)	0.02 (0.41)	0.01 (0.72)	0.01 (0.63)	-0.0002 (-0.02)	-0.004 (-0.30)	-0.02 (-2.41†)
7	-0.04 (-1.4)	---	---	0.03 (1.6)	-0.04 (-1.4)	0.02 (0.41)	0.01 (0.58)	0.005 (0.36)	0.001 (0.08)	-0.01 (-0.47)	-0.02 (-2.43†)
8	-0.04 (-1.4)	---	---	0.03 (1.6)	-0.04 (-1.4)	0.02 (0.42)	0.004 (0.31)	-0.002 (-0.17)	-0.004 (-0.29)	-0.005 (-0.33)	-0.02 (-2.70†)
9	-0.04 (-1.4)	---	---	0.03 (1.6)	-0.04 (-1.4)	0.02 (0.42)	-0.003 (-0.23)	-0.002 (-0.13)	-0.01 (-0.59)	0.01 (0.50)	-0.02 (-2.82†)
10	-0.04 (-1.4)	---	---	0.03 (1.5)	-0.04 (-1.4)	0.02 (0.42)	-0.003 (-0.19)	-0.0004 (-0.03)	-0.01 (-0.76)	0.01 (0.45)	-0.02 (-2.26†)
Event window	CAAR (t-value)										
(+10,-10)	-0.7 (-1.4)	---	0.02 (0.02)	0.5(1.5)	0.09(0.3)	0.45(0.67)	0.18 (1.00)	0.22 (1.15)	0.27 (1.18)	0.3 (1.09)	-0.08 (-0.51)
(+5,-5)	-0.4 (-1.4)	---	0.01 (0.02)	0.3(1.5)	0.07(0.5)	0.20 (0.42)	0.23 (2.06**)	0.22 (1.85*)	0.17 (1.24)	0.2 (1.07)	-0.03 (-0.34)
(+1,-1)	-0.1 (-1.4)	---	0.001(0.01)	0.1(1.5)	0.02(0.6)	0.05 (0.42)	0.06 (1.76*)	0.05 (1.52)	0.06 (1.51)	0.04 (1.01)	-0.01 (-0.36)
(-5,-1)	-0.2 (-1.4)	---	0.004 (0.02)	0.1(1.5)	0.03(0.4)	0.09 (0.44)	0.11 (3.08†)	0.11 (2.60**)	0.11 (1.84*)	0.1 (1.72*)	0.02 (0.45)
(-10,-1)	-0.4 (-1.4)	---	0.01 (0.02)	0.2(1.4)	0.02(0.1)	0.25 (1.24)	0.05 (0.98)	0.10 (1.69*)	0.22 (2.61**)	0.3 (2.10**)	0.07 (0.86)
(+1,+5)	-0.2 (-1.4)	---	0.004 (0.02)	0.1(1.5)	0.03(0.6)	0.09 (0.41)	0.10 (1.50)	0.09 (1.33)	0.04 (0.60)	0.02 (0.35)	-0.05 (-1.17)
(+1,+10)	-0.4 (-1.4)	---	0.01 (0.03)	0.3(1.6)	0.07(0.7)	0.18 (0.41)	0.12 (0.88)	0.10 (0.76)	0.02 (0.14)	0.02 (0.16)	-0.1 (-1.95*)

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2. *N* indicates the number of countries. 3. “--” indicates that the AAR (t-value) or CAAR (t-value) is less than 0.00001 (<0.00001) and statistically insignificant.

Table 5 Americas and Caribbean countries

Event period	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
	N=13	N=13	N=13	N=13	N=13	N=11	N=11	N=11	N=11	N=11	N=11
AAR (t-value)											
-10	---	0.0004(0.1)	---	0.003(0.04)	---	0.05(5.36†)	0.02(1.33)	-0.05(-3.38†)	0.01(2.17*)	0.02(2.70**)	-0.01(-0.74)
-9	---	-0.0002(-0.02)	---	0.004(0.05)	---	0.05(5.21†)	0.02(1.16)	-0.05(-3.40†)	0.02(2.35**)	0.03(2.33**)	-0.01(-0.89)
-8	---	-0.0003(-0.04)	---	0.004(0.05)	---	0.05(4.32†)	0.03(1.28)	0.01(1.79*)	0.02(2.45**)	0.03(2.54**)	-0.01(-0.32)
-7	---	-0.0003(-0.04)	---	0.004(0.05)	---	0.05(4.15†)	0.01(0.55)	0.01(1.87*)	0.02(2.69**)	0.02(1.32)	-0.004(-0.25)
-6	---	-0.0002(-0.03)	---	0.004(0.05)	---	0.05(4.07†)	0.002(0.08)	0.01(2.09*)	0.03(2.33**)	0.02(1.42)	-0.01(-0.46)
-5	---	0.0003(0.03)	---	0.003(0.03)	---	0.05(4.29†)	0.0001(-0.001)	0.02(2.26**)	0.03(2.53**)	0.02(1.24)	-0.01(-0.80)
-4	---	0.0002(0.02)	---	0.01(0.1)	---	0.05(4.48†)	-0.01(-0.61)	0.02(2.49**)	0.02(1.34)	0.03(1.33)	-0.01(-1.25)
-3	---	0.0001(0.01)	---	0.01(0.1)	---	0.05(5.01†)	-0.02(-1.36)	0.03(2.25**)	0.02(1.44)	0.01(0.64)	-0.02(-2.36**)
-2	---	0.001(0.1)	---	0.01(0.1)	---	0.05(5.21†)	-0.02(-1.74)	0.03(2.45**)	0.02(1.26)	0.004(0.18)	-0.03(-2.52**)
-1	---	0.001(0.2)	---	-0.1(-0.8)	---	0.05(5.36†)	-0.02(-1.60)	0.01(1.24)	0.03(1.35)	0.002(0.10)	-0.02(-2.13**)
0	---	0.001(0.1)	---	-0.1(-0.8)	---	0.05(5.21†)	0.02(1.33)	0.02(1.37)	0.01(0.67)	-0.01(-0.44)	-0.02(-1.89*)
1	---	0.001(0.2)	---	-0.1(-0.8)	---	0.05(4.32†)	0.02(1.16)	0.02(1.19)	0.001(0.21)	-0.01(-1.09)	-0.03(-2.43**)
2	---	0.002(0.2)	---	-0.1(-0.8)	---	0.05(4.15†)	0.03(1.28)	0.03(1.30)	0.001(0.13)	-0.02(-1.45)	-0.03(-3.03†)
3	---	0.002(0.2)	---	-0.1(-0.8)	---	0.05(4.07†)	0.01(0.55)	0.01(0.58)	-0.01(-0.39)	-0.02(-1.32)	-0.04(-3.26†)
4	---	0.002(0.2)	---	-0.1(-0.7)	---	0.05(4.29†)	0.002(0.08)	0.002(0.12)	-0.01(-1.04)	-0.01(-0.63)	-0.03(-3.27†)
5	---	0.002(0.2)	---	-0.09(-0.7)	---	0.05(4.48†)	0.0001(-0.001)	0.001(0.03)	-0.02(-1.40)	-0.02(-0.96)	-0.05(-2.62**)
6	---	0.001(0.1)	---	-0.09(-0.7)	---	0.05(5.01†)	-0.01(-0.61)	-0.01(-0.56)	-0.02(-1.27)	-0.03(-1.56)	-0.05(-2.62**)
7	---	0.001(0.1)	---	-0.09(-0.7)	---	0.05(5.21†)	-0.02(-1.36)	-0.01(-1.29)	-0.01(-0.60)	-0.03(-1.69)	-0.05(-2.53**)
8	---	0.001(0.1)	---	-0.09(-0.7)	---	0.05(5.36†)	-0.02(-1.74)	-0.02(-1.68)	-0.02(-0.93)	-0.03(-1.58)	-0.05(-2.54**)
9	---	0.001(0.1)	---	-0.09(-0.7)	---	0.05(5.21†)	-0.02(-1.60)	-0.02(-1.53)	-0.03(-1.53)	-0.01(-0.52)	-0.05(-2.82**)
10	---	0.001(0.1)	---	-0.09(-0.7)	---	0.05(4.32†)	0.02(1.33)	-0.01(-0.76)	-0.03(-1.67)	-0.01(-0.70)	-0.04(-2.64**)
CAAR (t-value)											
Event window											
(+10,-10)	---	0.03(0.2)	---	-1.1(-0.5)	-2.2(-2.2**)	1.04(5.94†)	0.02(0.12)	0.06(0.27)	0.11(0.37)	-0.01(-0.02)	-0.6(-3.01**)
(+5,-5)	---	0.02(0.2)	---	-0.6(-0.6)	-1.4(-1.4)	0.54(6.05†)	0.20(1.42)	0.19(1.24)	0.10(0.60)	-0.02(-0.09)	-0.3(-2.82**)
(+1,-1)	---	0.004(0.2)	---	-0.3(-0.8)	-0.5(-0.5)	0.15(5.83†)	0.07(1.63)	0.06(1.27)	0.05(0.77)	-0.02(-0.4)	-0.07(-2.16*)
(-5,-1)	---	0.01(0.2)	---	-0.1(-0.2)	-0.4(-0.4)	0.25(6.05†)	0.11(2.39**)	0.11(2.20**)	0.12(1.55)	0.07(0.70)	-0.09(-1.85*)
(-10,-1)	---	0.01(0.2)	---	-0.05(-0.1)	-0.4(-0.4)	0.50(5.26†)	0.001(-0.06)	0.05(0.85)	0.22(2.01*)	0.2(1.22)	-0.1(-1.10)
(+1,+5)	---	0.01(0.2)	---	-0.5(-0.7)	-0.8(-0.8)	0.24(5.25†)	0.08(0.87)	0.06(0.66)	-0.03(-0.38)	-0.08(-1.06)	-0.2(-3.23†)
(+1,+10)	---	0.01(0.1)	---	-0.9(-0.7)	-1.6(-1.6)	0.49(5.06†)	0.05(0.29)	-0.01(-0.09)	-0.13(-0.79)	-0.2(-1.12)	-0.4(-3.02†)

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2. *N* indicates the number of countries. 3. “---” indicates that the AAR (t-value) or CAAR (t-value) is less than 0.00001 (<0.00001) and statistically insignificant.

Table 6 East Asia and Pacific countries

Event period	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10	N=10
AAR (t-value)											
-10	-0.04(-2.5**)	---	---	0.02(3.1†)	-0.04(-2.5**)	---	---	---	---	---	---
-9	-0.04(-2.3**)	---	---	0.03(3.4†)	-0.04(-2.3**)	---	---	---	---	---	---
-8	-0.04(-2.2**)	---	---	0.03(2.6**)	-0.04(-2.2**)	---	---	---	---	---	---
-7	-0.04(-2.1*)	---	---	0.03(2.4**)	-0.04(-2.1*)	---	---	---	---	---	---
-6	-0.04(-1.8*)	---	---	0.03(2.1*)	-0.04(-1.8*)	---	---	---	---	---	---
-5	-0.03(-1.6)	---	---	0.03(2.3**)	-0.03(-1.6)	---	---	---	---	---	---
-4	-0.03(-1.5)	---	---	0.04(2.3**)	-0.03(-1.5)	---	---	---	---	---	---
-3	-0.03(-1.4)	---	---	0.04(2.3**)	-0.03(-1.4)	---	---	---	---	---	---
-2	-0.03(-1.2)	---	---	0.03(2.1*)	-0.03(-1.2)	---	---	---	---	---	---
-1	-0.03(-1.1)	---	---	0.03(1.9*)	-0.03(-1.1)	---	---	---	---	---	---
0	-0.02(-0.9)	---	---	0.03(1.6)	-0.02(-0.9)	---	---	---	---	---	---
1	-0.02(-0.9)	---	---	0.03(2.0*)	-0.02(-0.9)	---	---	---	---	---	---
2	-0.02(-0.8)	---	---	0.03(2.0*)	-0.02(-0.8)	---	---	---	---	---	---
3	-0.03(-1.0)	---	---	0.03(2.1*)	-0.03(-1.0)	---	---	---	---	---	---
4	-0.04(-1.2)	---	---	0.04(2.3**)	-0.04(-1.2)	---	---	---	---	---	---
5	-0.04(-1.3)	---	---	0.04(2.1*)	-0.04(-1.3)	---	---	---	---	---	---
6	-0.04(-1.2)	---	---	0.03(1.5)	-0.04(-1.2)	---	---	---	---	---	---
7	-0.04(-1.2)	---	---	0.03(1.7)	-0.04(-1.2)	---	---	---	---	---	---
8	-0.03(-1.1)	---	---	0.04(1.9*)	-0.03(-1.1)	---	---	---	---	---	---
9	-0.03(-1.02)	---	---	0.04(1.9*)	-0.04(-2.5**)	---	---	---	---	---	---
10	-0.03(-0.9)	---	---	0.03(1.7)	-0.04(-2.3**)	---	---	---	---	---	---
Event window	CAAR (t-value)										
(+10,-10)	---	---	0.2(0.6)	0.01(0.02)	-0.04(-0.3)	---	-0.13(-1.16)	---	---	---	0.09(0.25)
(+5,-5)	---	---	0.1(0.6)	0.01(0.02)	0.03(0.4)	---	-0.09(-1.12)	---	---	---	0.05(0.26)
(+1,-1)	---	---	0.02(0.5)	0.001(0.02)	0.03(1.0)	---	-0.02(-0.88)	---	---	---	0.02(0.29)
(-5,-1)	---	---	0.04(0.6)	0.002(0.02)	-0.01(-0.2)	---	-0.03(-0.75)	---	---	---	0.03(0.31)
(-10,-1)	---	---	0.1(0.6)	0.01(0.03)	-0.06(-1.1)	---	-0.03(-0.44)	---	---	---	0.06(0.42)
(+1,+5)	---	---	0.04(0.5)	0.003(0.02)	0.02(0.6)	---	-0.05(-0.87)	---	---	---	0.02(0.18)
(+1,+10)	---	---	0.1(0.5)	0.005(0.02)	0.004(0.05)	-0.03(-0.22)	-0.09(-0.93)	---	---	---	0.02(0.09)

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2. *N* indicates the number of countries. 3. “--” indicates that the AAR (t-value) or CAAR (t-value) is less than 0.00001 (<0.00001) and statistically insignificant.

Table 7 Europe and Central Asia countries

Event period	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
	N=19	N=19	N=19	N=19	N=19	N=16	N=15	N=16	N=16	N=16	N=15
AAR (t-value)											
-10	---	---	---	---	-0.03(0)	<i>0.03(2.00*)</i>	<i>-0.03(-2.66**)</i>	<i>-0.04(-2.43**)</i>	<i>0.04(2.70**)</i>	<i>0.05(3.00†)</i>	-0.007(-0.44)
-9	---	---	---	---	---	<i>0.03(1.97*)</i>	<i>-0.04(-2.39**)</i>	<i>-0.04(-2.46**)</i>	<i>0.04(2.66**)</i>	0.01(0.27)	-0.004(-0.24)
-8	---	---	---	---	---	<i>0.03(1.96*)</i>	<i>-0.04(-2.41**)</i>	<i>0.04(2.62**)</i>	<i>0.05(2.66**)</i>	0.02(0.56)	0.009(0.58)
-7	---	---	---	---	---	0.03(1.70)	<i>0.04(2.39**)</i>	<i>0.04(2.52**)</i>	<i>0.05(2.94†)</i>	0.003(0.08)	0.02(1.07)
-6	---	---	---	---	---	0.02(1.31)	<i>0.04(2.31**)</i>	<i>0.04(2.48**)</i>	0.01(0.29)	0.01(0.34)	0.01(0.86)
-5	---	---	---	---	---	<i>0.14(11.70†)</i>	<i>0.04(2.27**)</i>	<i>0.04(2.49**)</i>	0.02(0.54)	0.02(0.35)	0.01(0.96)
-4	---	---	---	---	---	<i>0.14(12.38†)</i>	<i>0.04(2.29**)</i>	<i>0.05(2.76**)</i>	0.002(0.06)	0.02(0.51)	0.01(0.79)
-3	---	---	---	---	---	<i>0.14(12.35†)</i>	<i>0.05(2.55**)</i>	0.01(0.27)	0.01(0.31)	0.02(0.41)	-0.01(-0.80)
-2	---	---	---	---	---	<i>0.14(12.24†)</i>	<i>0.05(2.40**)</i>	0.02(0.52)	0.01(0.31)	0.005(0.10)	-0.01(-0.89)
-1	---	---	---	---	---	<i>0.14(11.55†)</i>	<i>0.06(2.89**)</i>	0.001(0.04)	0.02(0.45)	0.003(0.06)	-0.01(-0.96)
0	---	---	---	---	---	<i>0.14(10.41†)</i>	<i>0.04(1.74*)</i>	0.01(0.28)	0.02(0.32)	0.001(0.01)	-0.02(-1.14)
1	---	---	---	---	---	<i>0.14(11.16†)</i>	<i>0.05(2.27**)</i>	0.01(0.29)	0.001(0.01)	-0.01(-0.12)	-0.02(-1.30)
2	---	---	---	---	---	<i>0.14(10.87†)</i>	0.05(1.69)	0.02(0.43)	-0.001(-0.02)	-0.01(-0.31)	-0.02(-1.38)
3	---	---	---	---	---	<i>0.14(10.71†)</i>	0.06(1.71)	0.01(0.30)	-0.004(-0.09)	-0.02(-0.43)	-0.02(-1.41)
4	---	---	---	---	---	<i>0.14(9.70†)</i>	0.05(1.44)	-0.0003(-0.01)	-0.01(-0.21)	-0.02(-0.46)	-0.02(-1.19)
5	---	---	---	---	---	<i>0.14(8.76†)</i>	0.03(0.95)	-0.002(-0.04)	-0.02(-0.38)	-0.02(-0.58)	<i>-0.03(-1.76*)</i>
6	---	---	---	---	---	<i>0.14(10.42†)</i>	0.03(0.89)	-0.005(-0.11)	-0.02(-0.47)	-0.03(-0.78)	<i>-0.03(-1.86*)</i>
7	---	---	---	---	---	<i>0.14(10.99†)</i>	0.03(0.87)	-0.01(-0.23)	-0.02(-0.51)	-0.04(-0.84)	<i>-0.03(-1.83*)</i>
8	---	---	---	---	---	<i>0.14(11.97†)</i>	0.02(0.67)	-0.02(-0.40)	-0.03(-0.64)	-0.03(-0.75)	<i>-0.04(-2.20*)</i>
9	---	---	---	---	---	<i>0.14(12.51†)</i>	0.01(0.42)	-0.02(-0.49)	-0.04(-0.85)	-0.02(-0.44)	<i>-0.04(-2.20*)</i>
10	---	---	---	---	---	<i>0.14(12.31†)</i>	0.01(0.31)	-0.02(-0.53)	-0.04(-0.91)	-0.02(-0.47)	<i>-0.03(-1.95*)</i>
CAAR (t-value)											
Event window											
(+10,-10)	---	---	---	---	---	<i>2.41(9.26†)</i>	0.59(1.19)	0.17(0.24)	0.11(0.14)	-0.05(-0.06)	-0.28(-0.94)
(+5,-5)	---	---	---	---	---	<i>1.55(11.44†)</i>	<i>0.51(1.94*)</i>	0.18(0.44)	0.06(0.12)	-0.01(-0.03)	-0.13 (-0.84)
(+1,-1)	---	---	---	---	---	<i>0.42(11.08†)</i>	<i>0.14(2.33**)</i>	0.03(0.21)	0.04(0.26)	0.00(-0.01)	-0.05(-1.13)
(-5,-1)	---	---	---	---	---	<i>0.71(12.14†)</i>	<i>0.24(2.50**)</i>	0.13(0.90)	0.07(0.34)	0.07(0.29)	-0.01(-0.15)
(-10,-1)	---	---	---	---	---	<i>0.87(6.21†)</i>	0.21(1.24)	0.19(0.93)	0.27(0.92)	0.2(0.42)	0.02(0.11)
(+1,+5)	---	---	---	---	---	<i>0.70(10.41†)</i>	0.24(1.55)	0.05(0.19)	-0.03(-0.13)	-0.08(-0.38)	-0.11(-1.43)
(+1,+10)	---	---	---	---	---	<i>1.40(11.10†)</i>	0.34(1.08)	-0.03(-0.07)	-0.17(-0.40)	-0.2(-0.51)	<i>-0.28(-1.79*)</i>

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2. *N* indicates the number of countries. 3. “---” indicates that the AAR (t-value) or CAAR (t-value) is less than 0.00001 (<0.00001) and statistically insignificant.

Table 8 *Middle East and Africa countries*

Event period	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
	N=9	N=9	N=9	N=9	N=9	N=9	N=9	N=9	N=9	N=9	N=9
AAR (t-value)											
-10	---	---	---	---	---	---	---	---	---	---	---
-9	---	---	---	---	---	---	---	---	---	---	---
-8	---	---	---	---	---	---	---	---	---	---	---
-7	---	---	---	---	---	---	---	---	---	---	---
-6	---	---	---	---	---	---	---	---	---	---	---
-5	---	---	---	---	---	---	---	---	---	---	---
-4	---	---	---	---	---	---	---	---	---	---	---
-3	---	---	---	---	---	---	---	---	---	---	---
-2	---	---	---	---	---	---	---	---	---	---	---
-1	---	---	---	---	---	---	---	---	---	---	---
0	---	---	---	---	---	---	---	---	---	---	---
1	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---
CAAR (t-value)											
Event window											
(+10,-10)	---	---	---	---	---	---	---	---	---	---	-0.2(-1.43)
(+5,-5)	---	---	---	---	---	---	---	---	---	---	-0.1(-1.30)
(+1,-1)	---	---	---	---	---	---	---	---	---	---	-0.03(-1.06)
(-5,-1)	---	---	---	---	---	---	---	---	---	---	-0.04(-1.19)
(-10,-1)	---	---	---	---	---	---	---	---	---	---	-0.08(-1.33)
(+1,+5)	---	---	---	---	---	---	---	---	---	---	-0.05(-1.26)
(+1,+10)	---	---	---	---	---	---	---	---	---	---	-0.09(-0.92)

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2. *N* indicates the number of countries. 3. “--” indicates that the AAR (t-value) or CAAR (t-value) is less than 0.00001 (<0.00001) and statistically insignificant.

Table 9 Other Eurozone countries

Event period	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
	N=12	N=12	N=12	N=12	N=12	N=12	N=12	N=12	N=12	N=12	N=12
AAR (t-value)											
-10	0.002(0.3)	---	---	0.001(0.04)	0.002(0.3)	-0.04(-0.86)	---	---	---	0.005(0.34)	-0.004(-0.18)
-9	-0.002(-0.1)	---	---	-0.001(-0.05)	-0.002(-0.1)	-0.04(-0.86)	---	---	---	0.004(0.23)	-0.005(-0.20)
-8	-0.003(-0.2)	---	---	0.0001(0.01)	-0.003(-0.2)	-0.04(-0.86)	---	---	---	0.004(0.24)	-0.003(-0.16)
-7	-0.004(-0.2)	---	---	-0.0001(-0.01)	-0.004(-0.2)	-0.04(-0.86)	---	---	---	0.003(0.21)	-0.004(-0.19)
-6	-0.003(-0.2)	---	---	0.001(0.07)	-0.003(-0.2)	-0.04(-0.88)	---	---	---	0.003(0.20)	-0.004(-0.19)
-5	-0.003(-0.2)	---	---	-0.001(-0.06)	-0.003(-0.2)	-0.04(-0.89)	---	---	---	0.003(0.19)	-0.004(-0.19)
-4	-0.003(-0.2)	---	---	-0.001(-0.03)	-0.003(-0.2)	-0.04(-0.91)	---	---	---	0.004(0.20)	-0.003(-0.15)
-3	-0.003(-0.2)	---	---	-0.0002(-0.01)	-0.003(-0.2)	-0.04(-0.91)	---	---	---	0.004(0.17)	-0.004(-0.18)
-2	-0.003(-0.2)	---	---	0.001(0.03)	-0.003(-0.2)	-0.04(-0.91)	---	---	---	0.003(0.13)	-0.002(-0.10)
-1	-0.003(-0.2)	---	---	0.001(0.04)	-0.003(-0.2)	-0.04(-0.93)	---	---	---	0.003(0.12)	-0.002(-0.11)
0	-0.004(-0.2)	---	---	0.002(0.06)	-0.004(-0.2)	-0.04(-0.95)	---	---	---	0.003(0.13)	-0.002(-0.10)
1	-0.004(-0.2)	---	---	-0.0001(-0.002)	-0.004(-0.2)	-0.04(-0.96)	---	---	---	0.003(0.13)	-0.003(-0.13)
2	-0.003(-0.2)	---	---	-0.001(-0.04)	-0.003(-0.2)	-0.04(-0.96)	---	---	---	0.003(0.10)	-0.003(-0.12)
3	-0.002(-0.1)	---	---	0.001(0.02)	-0.002(-0.1)	-0.04(-0.96)	---	---	---	0.003(0.10)	-0.003(-0.14)
4	-0.003(-0.1)	---	---	-0.0003(-0.01)	-0.003(-0.1)	-0.04(-0.95)	---	---	---	0.002(0.10)	-0.003(-0.13)
5	-0.002(-0.1)	---	---	-0.001(-0.03)	-0.002(-0.1)	-0.04(-0.96)	---	---	---	0.002(0.08)	-0.004(-0.17)
6	-0.003(-0.2)	---	---	-0.001(-0.04)	-0.003(-0.2)	-0.04(-0.99)	---	---	---	0.002(0.07)	-0.01(-0.27)
7	-0.003(-0.2)	---	---	0.001(0.02)	-0.003(-0.2)	-0.04(-0.99)	---	---	---	0.002(0.06)	-0.01(-0.29)
8	-0.003(-0.2)	---	---	0.002(0.05)	-0.003(-0.2)	-0.04(-1.00)	---	---	---	0.002(0.06)	-0.01(-0.32)
9	-0.001(-0.1)	---	---	0.001(0.03)	-0.001(-0.1)	-0.04(-1.00)	---	---	---	0.003(0.09)	-0.01(-0.32)
10	-0.003(-0.2)	---	---	0.001(0.02)	-0.003(-0.2)	-0.04(-1.00)	---	---	---	0.003(0.09)	-0.01(-0.38)
CAAR (t-value)											
Event window											
(+10,-10)	---	---	---	---	0.6(2.9**)	-0.84(-0.93)	---	---	---	0.06(0.14)	---
(+5,-5)	---	---	---	---	0.6(4.9†)	-0.44(-0.93)	---	---	---	0.03(0.13)	---
(+1,-1)	---	---	---	---	---	-0.12(-0.95)	---	---	---	0.01(0.13)	---
(-5,-1)	---	---	---	---	---	-0.20(-0.91)	---	---	---	0.02(0.16)	---
(-10,-1)	---	---	---	---	---	-0.40(-0.89)	---	---	---	0.04(0.21)	---
(+1,+5)	---	---	---	---	0.6(9.8†)	-0.20(-0.96)	---	---	---	0.01(0.10)	---
(+1,+10)	---	---	---	---	0.6(5.4†)	-0.40(-0.98)	---	---	---	0.02(0.09)	---

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2. *N* indicates the number of countries. 3. “--” indicates that the AAR (t-value) or CAAR (t-value) is less than 0.00001 (<0.00001) and statistically insignificant.

Table 10 Eurozone periphery countries

Event period	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5	N=5
AAR (t-value)											
-10	---	---	---	-0.01(-0.47)	---	---	---	---	---	---	---
-9	---	---	---	-0.01(-0.42)	---	---	---	---	---	---	---
-8	---	---	---	-0.005(-0.26)	---	---	---	---	---	---	---
-7	---	---	---	-0.004(-0.22)	---	---	---	---	---	---	---
-6	---	---	---	-0.004(-0.18)	---	---	---	---	---	---	---
-5	---	---	---	-0.01(-0.38)	---	---	---	---	---	---	---
-4	---	---	---	-0.01(-0.81)	---	---	---	---	---	---	---
-3	---	---	---	-0.01(-0.41)	---	---	---	---	---	---	---
-2	---	---	---	-0.01(-0.23)	---	---	---	---	---	---	---
-1	---	---	---	-0.01(-0.23)	---	---	---	---	---	---	---
0	---	---	---	-0.003(-0.10)	---	---	---	---	---	---	---
1	---	---	---	-0.003(-0.12)	---	---	---	---	---	---	---
2	---	---	---	0.003(0.09)	---	---	---	---	---	---	---
3	---	---	---	0.001(0.03)	---	---	---	---	---	---	---
4	---	---	---	0.001(0.02)	---	---	---	---	---	---	---
5	---	---	---	-0.002(-0.07)	---	---	---	---	---	---	---
6	---	---	---	0.01(0.20)	---	---	---	---	---	---	---
7	---	---	---	-0.003(-0.11)	---	---	---	---	---	---	---
8	---	---	---	-0.001(-0.02)	---	---	---	---	---	---	---
9	---	---	---	-0.001(-0.04)	---	---	---	---	---	---	---
10	---	---	---	0.001(0.02)	---	---	---	---	---	---	---
CAAR (t-value)											
Event window											
(+10,-10)	---	---	---	-0.07(-0.14)	-0.3(-0.5)	---	---	---	---	---	---
(+5,-5)	---	---	---	-0.04(-0.15)	-0.1(-0.3)	---	---	---	---	---	---
(+1,-1)	---	---	---	-0.01(-0.15)	0.01(0.1)	---	---	---	---	---	---
(-5,-1)	---	---	---	-0.04(-0.39)	0.004(0.03)	---	---	---	---	---	---
(-10,-1)	---	---	---	-0.07(-0.36)	-0.01(-0.02)	---	---	---	---	---	---
(+1,+5)	---	---	---	-0.001(-0.01)	-0.1(-0.9)	---	---	---	---	---	---
(+1,+10)	---	---	---	0.001(0.002)	-0.3(-1.1)	---	---	---	---	---	---

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2. *N* indicates the number of countries. 3. “--” indicates that the AAR (t-value) or CAAR (t-value) is less than 0.00001 (<0.00001) and statistically insignificant.

Table 11 Granger Causality Tests

		Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
		Negative							Positive		Negative	
Null Hypothesis		(-10,10)	(-10,10)	(-10,10)	(-10,10)	(-10,10)	(-10,10)	(-10,10)	(-10,10)	(-10,10)	(-10,10)	(-10,10)
All countries	DUMMY does not Granger Cause ST	2.796* (0.06)	14.502 † (0.00)	4728.70 † (0.00)	5.318 † (0.01)	7.869 † (0.00)	2.405* (0.09)	0.329 (0.72)	9.814 † (0.00)	30.613 † (0.00)	17.530 † (0.00)	4.397** (0.01)
	ST does not Granger Cause DUMMY	3.726** (0.02)	1.685 (0.19)	8.557 † (0.00)	24.484 † (0.00)	2.529* (0.08)	8.913 † (0.00)	2.422* (0.09)	34.780 † (0.00)	41.251 † (0.00)	0.831 (0.44)	0.183 (0.83)
Americas and Caribbean	DUMMY does not Granger Cause ST	0.708 (0.49)	6.092 † (0.003)	6003.63 † (0.00)	2.234 (0.11)	2.27 (0.11)	4.141** (0.02)	0.636 (0.53)	1.323 (0.27)	2.946* (0.05)	2.423* (0.09)	3.596** (0.03)
	ST does not Granger Cause DUMMY	0.996 (0.37)	2.466* (0.09)	1.913 (0.15)	6.863 † (0.00)	6.832** (0.00)	1.118 (0.33)	0.205 (0.81)	6.400 † (0.00)	8.943 † (0.00)	0.024 (0.98)	1.351 (0.26)
East Asia and Pacific	DUMMY does not Granger Cause ST	0.537 (0.59)	13.047 † (0.00)	1807.01 † (0.00)	0.820 (0.44)	4.175** (0.02)	1.15 (0.32)	1.728 (0.18)	3.503** (0.03)	6.868 † (0.00)	24.117 † (0.00)	4.277** (0.02)
	ST does not Granger Cause DUMMY	0.452 (0.64)	0.571 (0.57)	3.796** (0.02)	2.948* (0.06)	2.078 (0.13)	1.913 (0.15)	2.574* (0.08)	4.746 † (0.01)	7.502 † (0.00)	0.024 (0.98)	0.549 (0.58)
Europe and Central Asia	DUMMY does not Granger Cause ST	0.694 (0.50)	0.421 (0.66)	523.424 † (0.00)	1.316 (0.27)	1.044 (0.35)	1.964 (0.14)	1.038 (0.36)	0.477 (0.62)	7.400 † (0.00)	2.001 (0.14)	0.129 (0.88)
	ST does not Granger Cause DUMMY	1.123 (0.33)	1.587 (0.21)	1.153 (0.32)	9.402 † (0.00)	0.395 (0.67)	1.250 (0.29)	1.095 (0.34)	9.230 † (0.00)	4.088** (0.02)	0.002 (0.99)	0.024 (0.98)
Other Eurozone countrie	DUMMY does not Granger Cause ST	1.636 (0.20)	8.020 † (0.00)	1301.70 † (0.00)	0.738 (0.48)	0.138 (0.87)	3.530** (0.03)	1.093 (0.34)	2.898* (0.06)	8.311 † (0.00)	0.713 (0.49)	0.098 (0.91)
	ST does not Granger Cause DUMMY	0.333 (0.72)	0.156 (0.86)	6.098 † (0.00)	3.181** (0.04)	0.282 (0.75)	0.804 (0.45)	0.557 (0.57)	4.345** (0.01)	9.752 † (0.00)	0.731 (0.48)	0.012 (0.99)
Periphery Countries	DUMMY does not Granger Cause ST	3.938** (0.02)	15.346 † (0.00)	617.260 † (0.00)	1.334 (0.27)	5.278 † (0.01)	3.651** (0.03)	1.057 (0.35)	1.863 (0.16)	2.596* (0.08)	1.066 (0.35)	0.189 (0.83)
	ST does not Granger Cause DUMMY	0.681 (0.51)	0.035 (0.97)	2.539* (0.08)	1.208 (0.30)	0.601 (0.55)	0.871 (0.42)	0.034 (0.97)	4.111** (0.02)	5.913 † (0.00)	0.779 (0.46)	0.072 (0.93)

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2 This section evaluates coefficient significance using a likelihood ratio test. The reported values in the table represent the F-statistics, with the corresponding p-values shown in parentheses.

Table 12 Panel OLS test

Event window		Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
		Negative							Positive		Negative	
All countries	(-10,10)	-0.011† (-3.55)	-0.002 (-1.39)	0.019* (1.86)	-0.013† (-2.89)	0.009† (4.60)	-0.006† (-3.62)	-0.026† (-7.49)	0.012† (3.56)	-0.007† (-3.02)	-0.002 (-1.12)	0.004** (1.98)
	(-10,0)	0.001 (0.35)	-0.0001 (-0.08)	-0.016† (-4.42)	-0.004 (-1.13)	0.005† (2.85)	-0.008† (-5.04)	-0.023† (-5.38)	0.010** (2.44)	-0.012† (-5.26)	-0.007† (-2.82)	-0.003 (-1.29)
	(0,10)	-0.026† (-7.13)	-0.006† (-4.53)	0.337† (62.84)	-0.020† (-3.67)	0.014† (6.79)	-0.003 (-1.62)	-0.020† (-7.95)	0.016† (7.29)	0.010† (4.77)	0.008† (4.07)	0.010† (4.79)
Americas and Caribbean	(-10,10)	-0.010 (-1.48)	0.002 (1.14)	0.013 (0.58)	-0.017** (-2.22)	0.016† (4.02)	-0.005 (-1.57)	-0.021** (-2.27)	0.015* (1.67)	-0.031† (-6.58)	-0.013** (-2.56)	0.005 (1.04)
	(-10,0)	0.0004 (0.07)	0.003* (1.80)	-0.015† (-4.57)	-0.008 (-1.26)	0.011** (2.43)	-0.006** (-2.04)	-0.025** (-2.11)	0.010 (0.87)	-0.033† (-7.00)	-0.022† (-3.58)	0.0002 (0.07)
	(0,10)	-0.024† (-2.99)	-0.002 (-1.23)	0.344† (64.55)	-0.021** (-2.53)	0.021† (6.12)	-0.004 (-0.89)	-0.017† (-2.95)	0.022† (4.08)	-0.010** (-2.03)	0.003 (0.53)	0.012** (2.55)
East Asia and Pacific	(-10,10)	-0.018** (-2.49)	-0.004 (-1.56)	-0.001 (-0.04)	-0.031† (-3.16)	0.019† (3.68)	-0.003 (-0.56)	-0.018** (-2.06)	0.015* (1.79)	0.007 (1.03)	0.003 (0.46)	0.016** (2.22)
	(-10,0)	-0.010** (-2.06)	-0.001 (-0.89)	-0.030† (-4.56)	-0.017† (-2.79)	0.011** (2.31)	-0.007 (-1.41)	-0.027** (-2.31)	0.013 (1.18)	-0.006 (-0.883)	-0.003 (-0.44)	0.006 (0.89)
	(0,10)	-0.030† (-3.34)	-0.010† (-3.36)	0.348† (39.20)	-0.034† (-2.75)	0.023† (4.03)	0.004 (1.07)	-0.014** (-2.08)	0.015** (2.29)	0.019† (3.21)	0.017† (3.38)	0.027† (3.58)
Europe and Central Asia	(-10,10)	-0.009 (-1.57)	-0.005* (-1.66)	0.030 (1.32)	-0.011 (-1.16)	0.008* (1.95)	-0.006** (-2.32)	-0.024† (-3.61)	0.013* (1.95)	-0.004 (-0.92)	-0.001 (-0.28)	-0.001 (-0.35)
	(-10,0)	0.004 (1.00)	-0.003 (-1.49)	-0.007 (-0.62)	0.001 (0.07)	0.005 (1.37)	-0.008† (-3.07)	-0.024† (-3.02)	0.010 (1.34)	-0.009* (-1.83)	-0.005 (-0.98)	-0.007* (-1.82)
	(0,10)	-0.025† (-3.68)	-0.007** (-2.20)	0.336† (22.23)	-0.019 (-1.72)	0.012† (2.93)	-0.003 (-1.10)	-0.017† (-3.75)	0.018† (3.70)	0.009** (2.57)	0.009† (2.88)	0.002 (0.62)
Other Eurozone countries	(-10,10)	-0.008 (-1.06)	-0.006** (-1.97)	0.027 (1.12)	-0.015* (-1.73)	0.0003 (0.07)	-0.004 (-1.53)	-0.015** (-2.09)	-0.0005* (-0.07)	0.006 (1.10)	0.001 (0.24)	-0.002 (-0.50)
	(-10,0)	0.004 (0.62)	-0.005* (-1.95)	-0.009 (-1.38)	0.001 (0.17)	-0.0001 (-0.06)	-0.005* (-1.72)	-0.016* (-1.79)	-0.001* (-0.09)	-0.000002 (-0.00)	-0.001 (-0.12)	-0.009** (-2.16)
	(0,10)	-0.022† (-2.60)	-0.008** (-2.57)	0.326† (24.87)	-0.019* (-1.84)	0.003 (0.71)	-0.003 (-1.14)	-0.009* (-1.82)	0.003 (0.53)	0.018† (3.50)	0.005 (1.03)	0.001 (0.30)
Periphery Countries	(-10,10)	-0.011 (-0.71)	0.006 (0.74)	0.014 (0.37)	-0.009 (-0.69)	-0.008 (-0.82)	-0.004 (-0.59)	-0.026** (-2.41)	0.019* (1.74)	-0.004 (-0.51)	0.0005 (0.05)	-0.001 (-0.14)
	(-10,0)	0.002 (0.25)	0.009 (1.44)	-0.031† (-2.79)	0.007 (1.17)	-0.015* (-1.94)	-0.009 (-1.15)	-0.028* (-1.99)	0.018 (1.35)	-0.011 (-1.22)	-0.005 (-0.51)	-0.007 (-1.03)
	(0,10)	-0.038** (-2.07)	-0.025† (-3.16)	0.350† (47.12)	-0.020 (-1.38)	0.011 (1.03)	-0.002 (-0.30)	-0.022† (-2.85)	0.021† (2.99)	0.013 (1.55)	0.012 (1.57)	0.005 (0.86)

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2. The Panel OLS specification is given by $S_{i,t} = \alpha_i + \rho S_{i,t-1} + \beta D_{i,t} + \varepsilon_{i,t}$. 3. The coefficients reported in the table correspond to β , with the associated t-statistics shown in parentheses.

Table 13 *ARDL model*

Event window (-10,10)		Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
		Negative							Positive		Negative	
All countries	Cointegration	✓	✓		✓	✓	✓		✓	✓	✓	✓
	ρ	+	+		--	+			+			+
Americas and Caribbean	Cointegration	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
	ρ	+	+		--	+		+	+			+
East Asia and Pacific	Cointegration	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
	ρ	+	+		--	+		+	+			--
Europe and Central Asia	Cointegration	✓			✓	✓	✓			✓	✓	✓
	ρ	+			--							+
Other Eurozone countries	Cointegration	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
	ρ	+		--	--				+			--
Periphery Countries	Cointegration	✓	✓	✓	✓		✓		✓	✓	✓	✓
	ρ	+			+				+			

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2. The ARDL model is specified as $\Delta S_t = \alpha_0 + \lambda(S_{t-1} - \rho D_{t-1}) + \sum_{i=1}^{p-1} \psi_i \Delta S_{t-i} + \sum_{j=0}^{q-1} \gamma_j \Delta D_{t-j} + \varepsilon_t$. λ denotes the error-correction (equilibrium adjustment) term, and ρ represents the long-run coefficient.

Table14 FM-OLS model

Events	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6	Event 7	Event 8	Event 9	Event 10	Event 11
	Negative							Positive		Negative	
	β (t-value)										
All countries	<i>-0.013 †</i> (-4.80)	-0.001 (-0.69)	-0.005 (-0.63)	<i>-0.015 †</i> (-3.95)	<i>0.007 †</i> (4.92)	<i>-0.006 †</i> (-4.71)	<i>-0.020 †</i> (-6.15)	<i>0.011 †</i> (4.67)	<i>-0.009 †</i> (-4.87)	<i>-0.004**</i> (-2.44)	<i>0.005 †</i> (2.96)
Americas and Caribbean	<i>-0.014**</i> (-2.41)	0.002 (1.57)	-0.015 (-0.86)	<i>-0.020 †</i> (-2.89)	<i>0.013 †</i> (4.55)	<i>-0.005*</i> (-1.81)	<i>-0.014**</i> (-2.15)	<i>0.011*</i> (1.80)	<i>-0.033 †</i> (-8.64)	<i>-0.013 †</i> (-3.22)	0.004 (1.26)
East Asia and Pacific	<i>-0.019 †</i> (-3.03)	-0.002 (-0.90)	-0.028 (-1.37)	<i>-0.036 †</i> (-4.59)	<i>0.016 †</i> (3.93)	-0.003 (-0.73)	<i>-0.011*</i> (-1.70)	<i>0.016 †</i> (2.92)	0.004 (0.82)	0.0004 (0.09)	<i>0.014**</i> (2.58)
Europe and Central Asia	<i>-0.012**</i> (-2.26)	<i>-0.004*</i> (-1.65)	0.008 (0.44)	-0.014 (-1.63)	<i>0.007**</i> (2.41)	<i>-0.006**</i> (-2.87)	<i>-0.019 †</i> (-3.85)	<i>0.013 †</i> (2.65)	-0.005 (-1.51)	-0.003 (-0.94)	0.001 (0.19)
Other Eurozone countrie	-0.011 (-1.57)	<i>-0.005**</i> (-2.04)	0.005 (0.30)	<i>-0.019**</i> (-2.59)	0.0002 (0.07)	<i>-0.005**</i> (-2.52)	<i>-0.012**</i> (-2.23)	0.002 (0.32)	0.004 (1.11)	-0.001 (-0.38)	0.001 (0.26)
Periphery Countries	-0.011 (-0.83)	<i>0.011*</i> (1.67)	-0.010 (-0.35)	-0.008 (-0.74)	-0.010 (-1.34)	-0.004 (-0.79)	<i>-0.019**</i> (-2.36)	<i>0.017**</i> (2.22)	-0.007 (-1.05)	-0.001 (-0.16)	-0.001 (-0.28)

Notes: 1. †, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 2. The FM-OLS model is specified as $S_{i,t} = \alpha_i + \rho S_{i,t-1} + \beta D_{i,t} + \varepsilon_{i,t}$. 3. The table reports the estimates of β , with the corresponding t-statistics in parentheses.”

Figure 1 *All Countries'* Average Abnormal Returns (AAR)

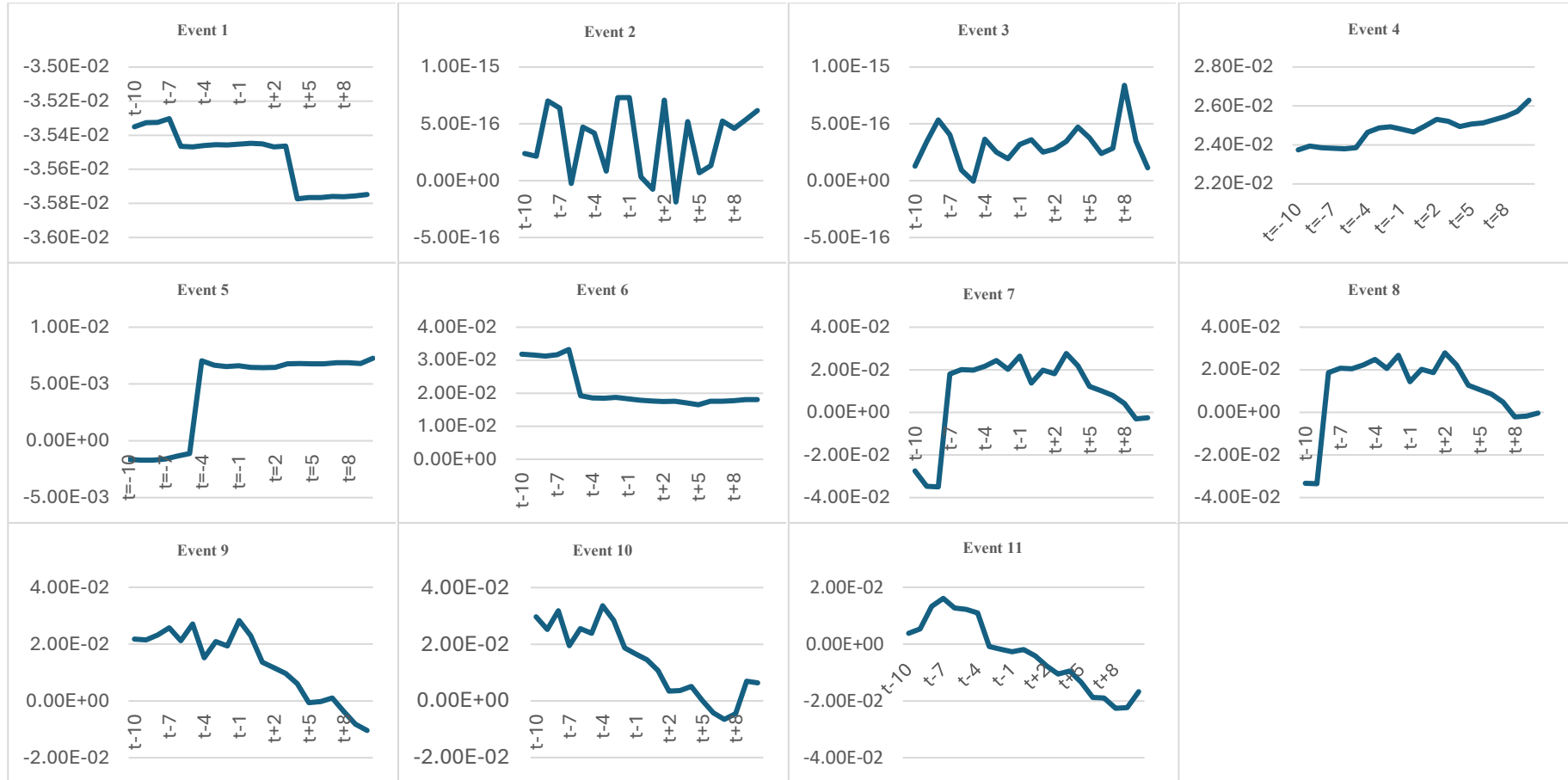


Figure 2 Americas and Caribbean countries' Average Abnormal Returns (AAR)

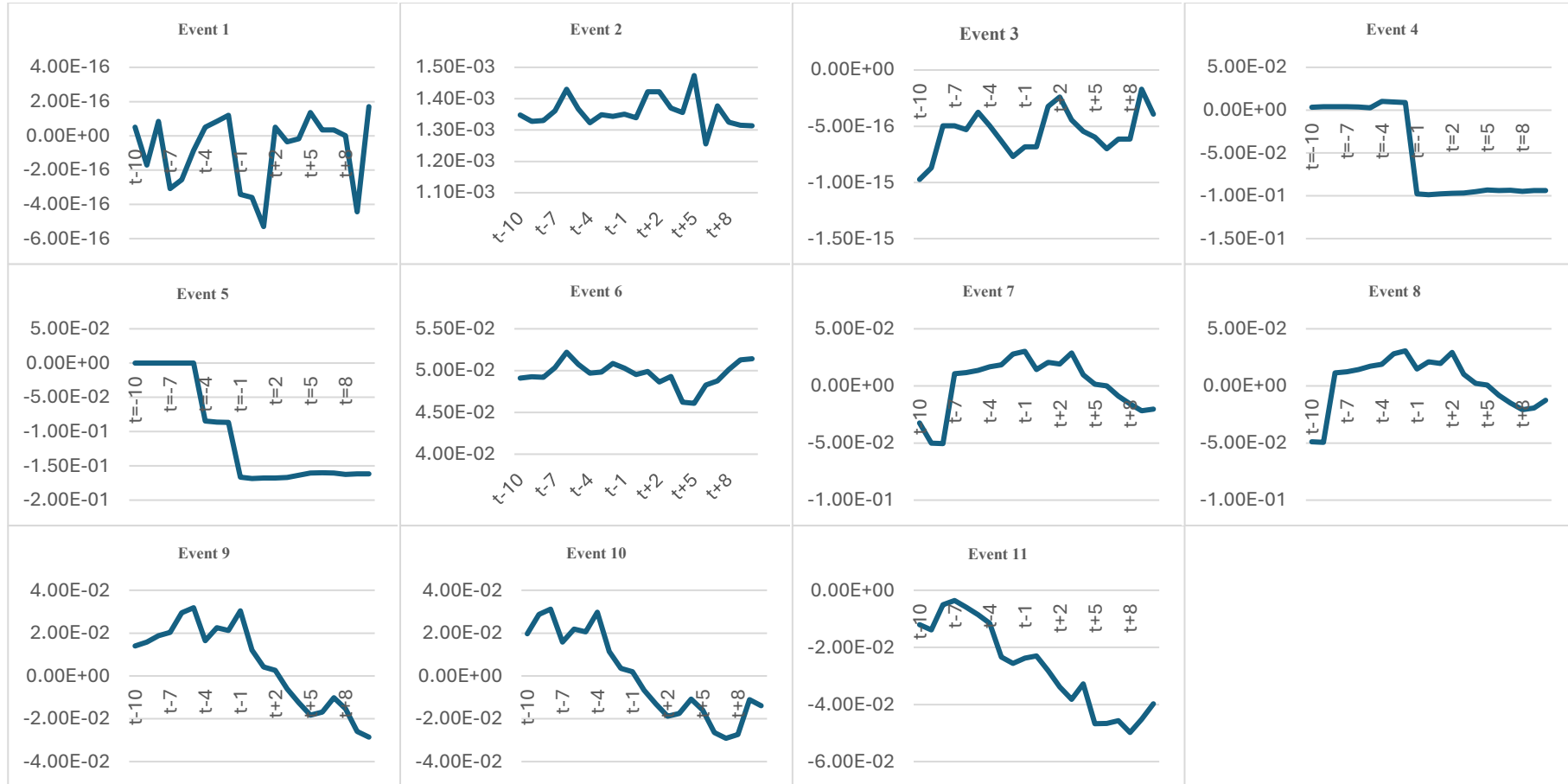


Figure 3 *East Asia and Pacific countries'* Average Abnormal Returns (AAR)

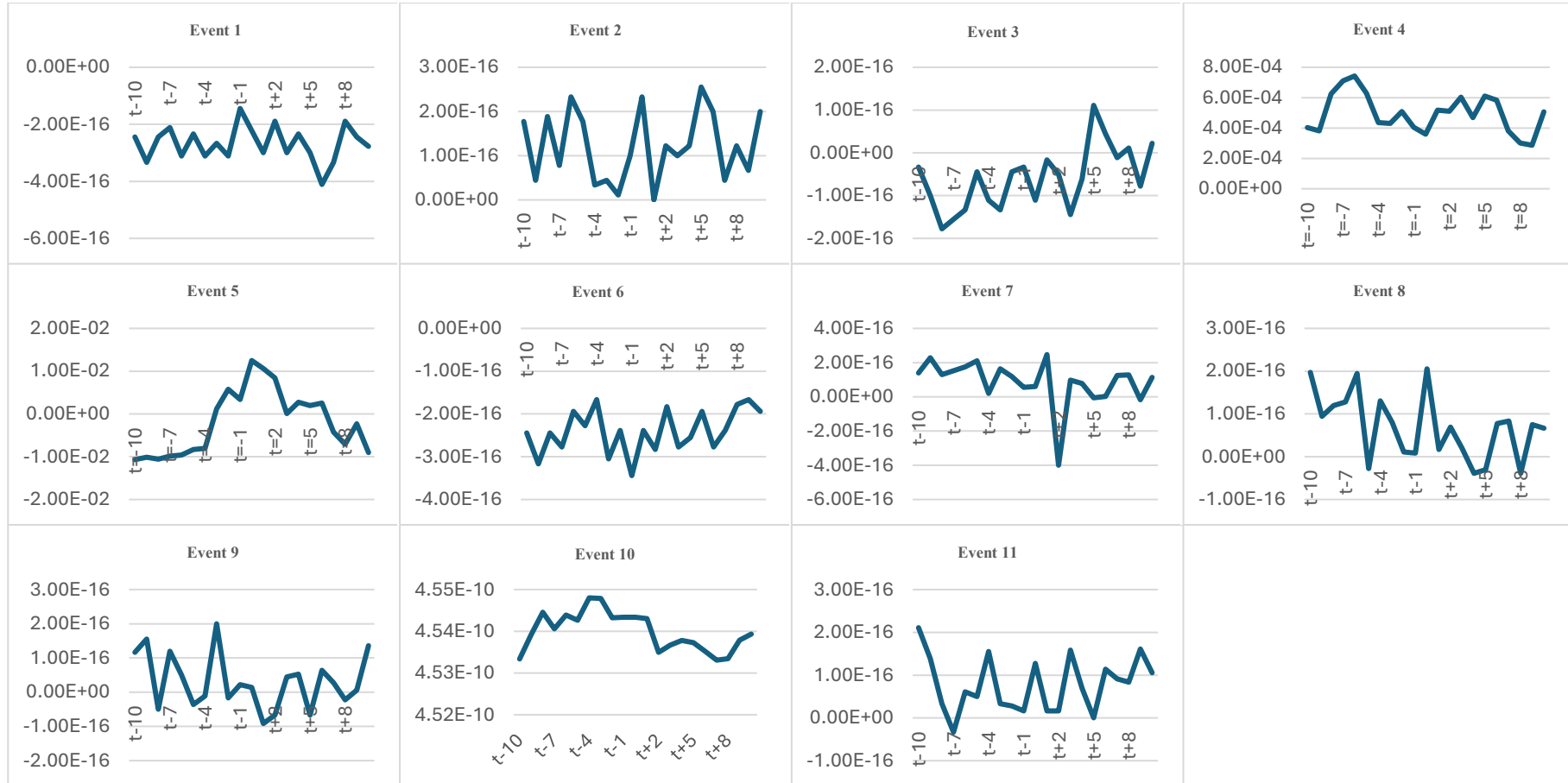


Figure 4 *Europe and Central Asia countries' Average Abnormal Returns (AAR)*

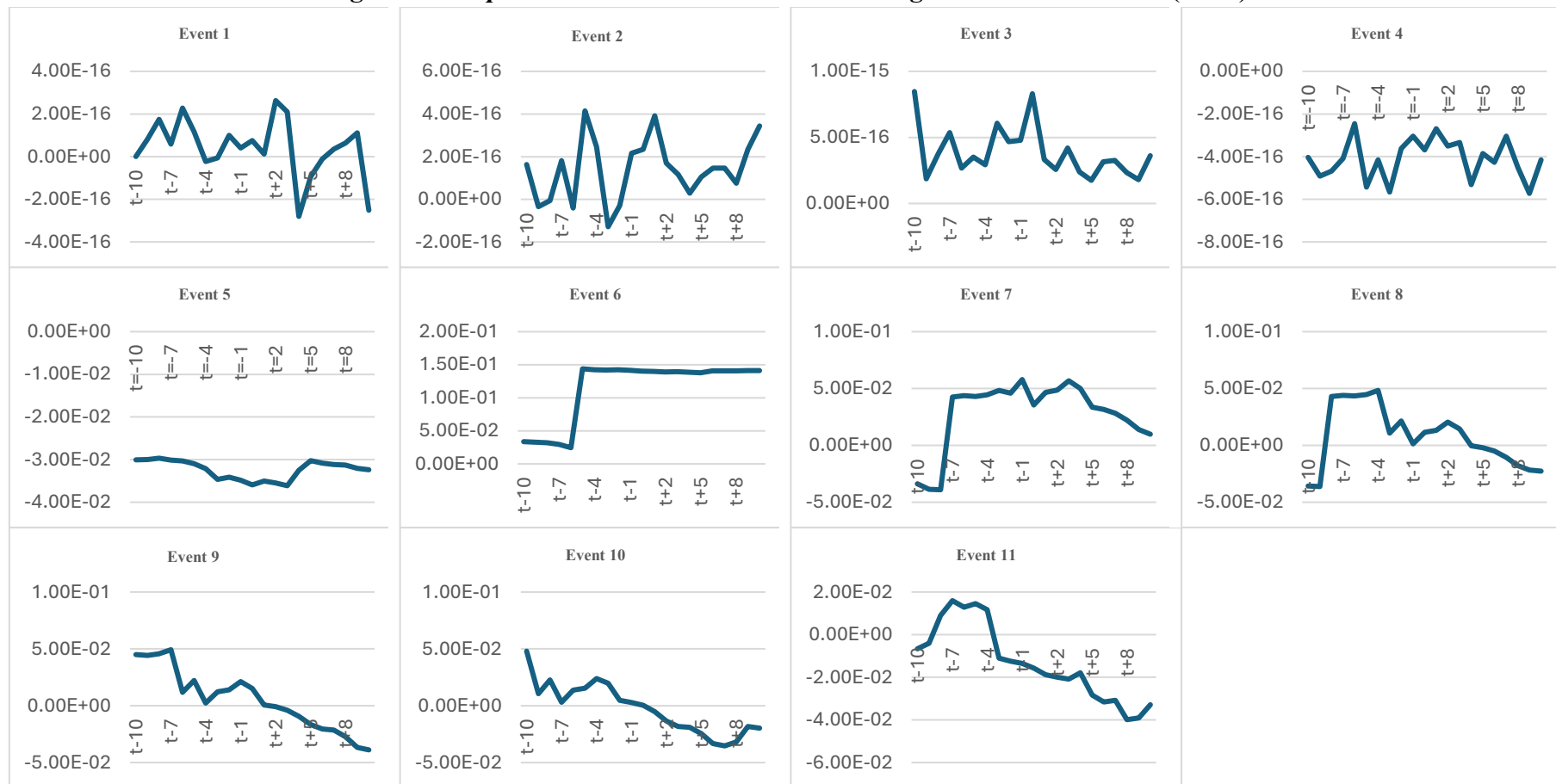
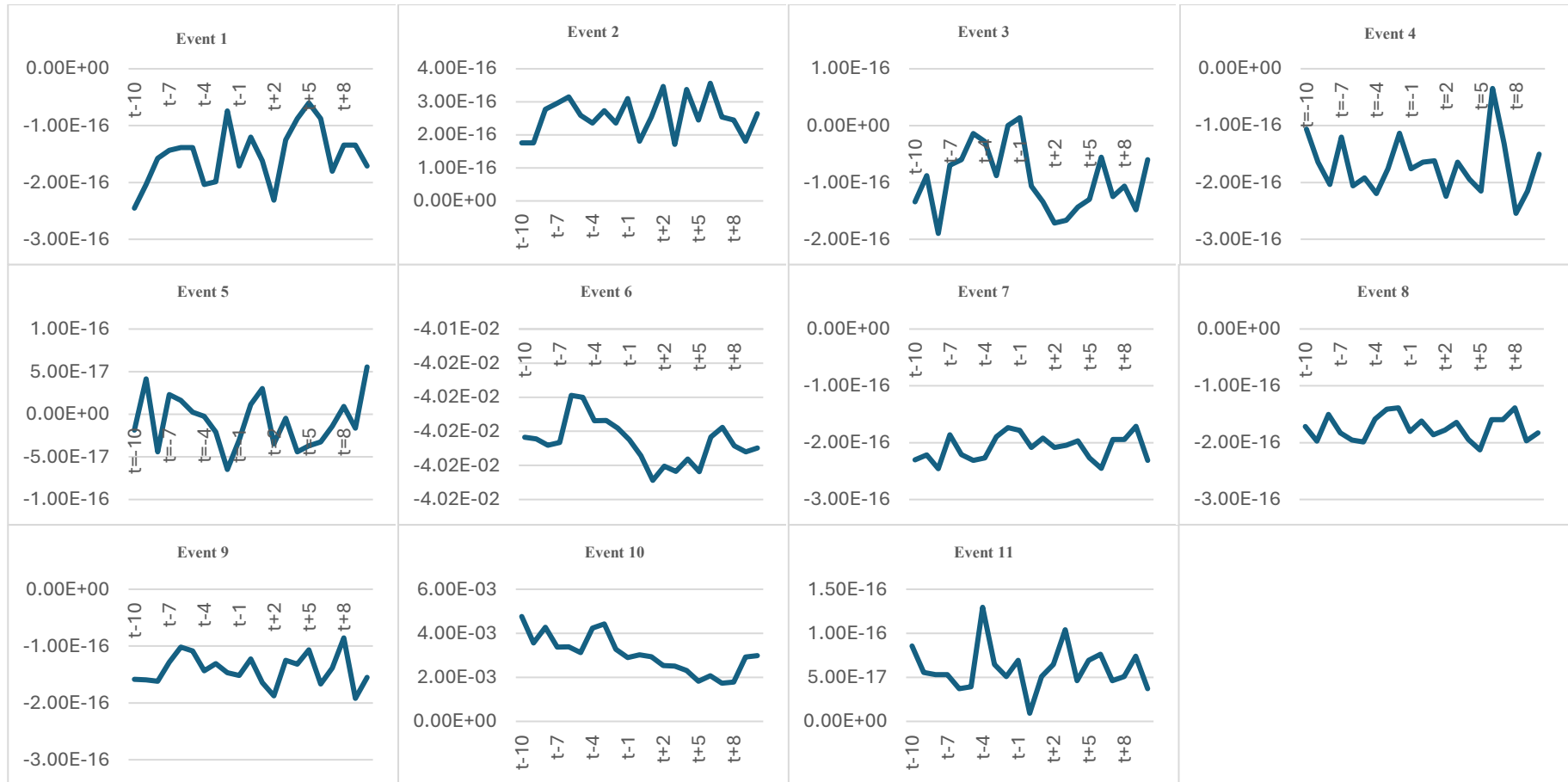


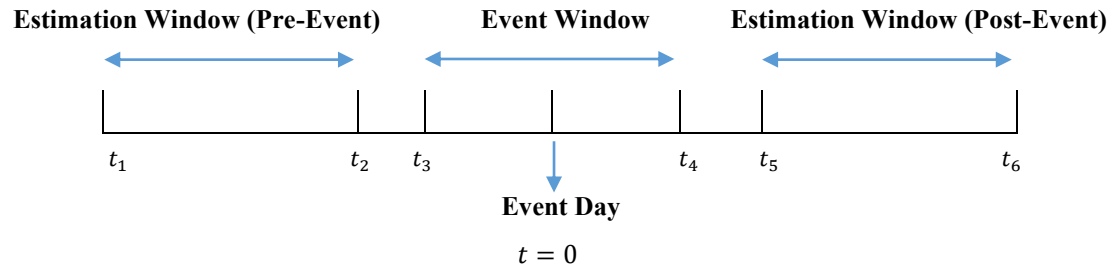
Figure 5 *Other Eurozone countries'* Average Abnormal Returns (AAR)



Appendix A.

The procedure is illustrated in Figure 1. The event date ($t = 0$) marks the announcement. The event window spans from day t_{-10} to t_{+10} , while the estimation window is set from t_{-130} to t_{-11} . A post-event data window (t_{+11} to t_{+130}) is also defined for robustness. CDS spreads during the estimation period are used to construct a prediction model. The actual CDS returns during the event window are then compared with the model's predictions to compute abnormal returns and cumulative abnormal returns (CARs). Abnormal returns are calculated as the difference between actual returns and expected returns, assuming no event occurred.

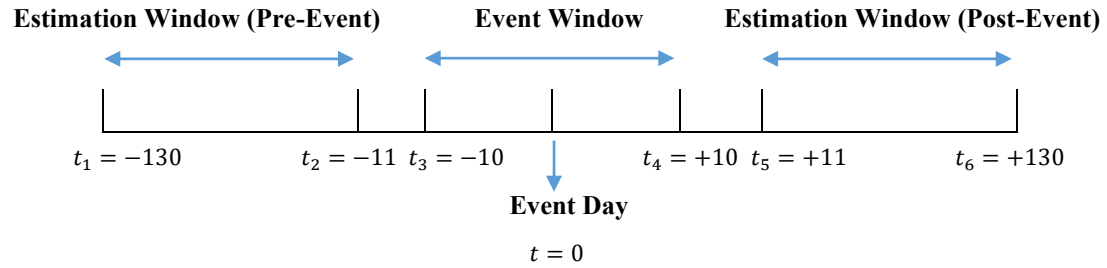
Figure 1. Timeline of Event Study Method



Appendix B.

To capture potential information leakage and delayed reactions, the event window spans 21 days, from 10 days before to 10 days after the event (t_{-10} to t_{+10}). This window allows for sufficient time to observe the market's response both before and after the announcement.

Figure 2. Estimation and Event Window Structure



The event study examines whether statistically significant abnormal returns arise on the event day ($t = 0$) or within the surrounding window. The observation window spans from t_{-130} to t_{+10} , covering both the estimation and immediate post-event period. The presence of abnormal returns is tested using t-tests, with particular focus on identifying whether specific policy announcements led to measurable shifts in CDS spreads, thereby confirming the existence of announcement effects in sovereign risk pricing.