Geopolitical Risk Escalation and Traditional Safe-Haven Assets: The Dynamic Performance and Linkage Mechanisms of Gold, US Dollar, Japanese Yen, and Swiss Franc

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Abstract

This paper proposes and tests a "time-varying safe-haven hierarchy" theory by analyzing the market data during recent major geopolitical risk events. Using 20-day rolling correlations, event studies and narrative analysis, we show that the relative attractiveness of gold, the US dollar, the Japanese yen and the Swiss franc rotates predictably across crisis phases. During acute shocks, the dollar captures the liquidity panic premium, whereas gold dominates as the stalemate lengthens. Swiss-franc appreciation is actively managed by the central bank, while the yen repeatedly fails as a haven because of energy-linked macro vulnerabilities. Policy interventions act as exogenous shocks that instantaneously rewire cross-asset linkages. The findings offer phase-dependent allocation and hedging prescriptions for investors and highlight the market-impact implications of official FX operations for policymakers. High-frequency data and cross-case replication document a consistent leadership cycle: initial liquidity flight into the USD, transitional co-demand for USD and gold at peak panic, and protracted gold supremacy once energy-inflation risks dominate. Rolling correlations reveal the CHF as a "managed haven" instantly decoupled from gold whenever the SNB intervenes, while the JPY's theoretical status is invalidated by oil-price shocks and current-account pressures. Despite differing systemic scope, both crises exhibit identical hierarchical sequencing, validating the dynamic framework and supplying investors with actionable, phase-contingent allocation rules while warning policymakers that FX operations can abruptly rewrite global correlation risk.

Keywords

geopolitical risk, safe-haven assets, time-varying hierarchy, rolling correlation

1. Introduction

1.1   Research Background: Geopolitical Risk and Safe-Haven Assets

The contemporary global landscape is characterized by a "period of turbulent transformation," wherein geopolitical conflicts. For instance, the Russia-Ukraine war, escalating tensions in the Middle East, and strategic competition among major powers have evolved from sporadic incidents into systematic sources of disruption (Caldara and Iacoviello, 2022). According to the Geopolitical Risk (GPR) index constructed by Caldara and Iacoviello, the global average GPR in 2022 increased by 187% compared to the previous decade,

with "act-based risks" exhibiting significantly stronger impacts than "threat-based risks" (Caldara and Iacoviello, 2022).

In this environment, robust demand for safe assets has driven the evolution of price dynamics and interdependence among "paradigmatic" safe-haven assets such as gold, the US dollar, the Japanese yen, and the Swiss franc (Baur and Lucey, 2010, Baur and McDermott, 2010, Ranaldo and Söderlind, 2010, Habib and Stracca, 2012, Grisse and Nitschka, 2015). Gold's safe-haven attributes remain resilient due to its non-sovereign nature and anti-inflationary properties during sanctions; the US dollar benefits from its liquidity hegemony, displaying a "panic premium" during initial crisis phases, though it faces challenges from debt ceiling crises and de-dollarization trends; the yen and franc exhibit divergent behaviors-the former pressured by carry trade unwinding and energy import dependence, while the latter benefits from Swiss National Bank interventions and Switzerland's enduring political neutrality (Habib and Stracca, 2012, Grisse and Nitschka, 2015, IMF, 2015).

However, existing literature exhibits significant limitations. Most studies rely on large-sample statistical models, which, while revealing general patterns, fail to deeply dissect the heterogeneity, dynamic rotation, and underlying micro-mechanisms of asset performance within individual major crises (Yin, 2018, Flyvbjerg, 2006). These studies often assume stable safe-haven properties, neglecting to delineate how risk transmission evolves across event phases (e.g., outbreak, escalation, stalemate, de-escalation) and overlooking the instantaneous effects of exogenous policies (e.g., central bank interventions) on market dynamics (Yin, 2018, Flyvbjerg, 2006, Umar et al., 2023). To address these gaps, this study adopts a case study approach, conducting in-depth analyses of typical geopolitical crises to dynamically and procedurally validate and develop the "time-varying safe-haven hierarchy" theory (Yin, 2018, Flyvbjerg, 2006, Umar et al., 2023).

1.2 Research Questions: Dynamic Performance and Linkage Mechanisms

This study addresses two primary dimensions. First, from a dynamic perspective, it examines whether the impact of GPR index fluctuations on the returns and variances of the four major safe-haven assets (USD, CHF, gold, and JPY) is time-varying-i.e., whether different risk event phases induce hierarchical shifts among these assets (e.g., gold-currency, currency-franc, franc-yen rotations). Second, from a linkage perspective, it identifies which assets act as sources of risk contagion during crises and how risk propagation evolves in response to policy measures.

1.3 Research Significance and Innovations

Theoretically, this study constructs a "dynamic safe-haven hierarchy theory," positing that the hierarchy evolves with risk transmission pathways and is influenced by government policies and market-specific factors (Umar et al., 2023, Kuhn, 1962). For instance, gold may underperform the USD during currency crises but outperform during stagflation crises. This theory integrates asset pricing models (safe-haven premiums) and behavioral finance theories (panic resonance) to explain asset trading logic under extreme conditions (Umar et al., 2023, Kuhn, 1962, Beckmann et al., 2015).

This study offers a dual contribution through its theoretical and methodological innovations. Theoretically, it operationalizes the "time-varying safe-haven hierarchy theory" via case studies, demonstrating that asset hierarchies are not static but rotate dynamically with event progression, policy interventions, and sentiment shifts, thereby providing a nuanced framework for understanding extreme-scenario asset behavior. Methodologically, it advances the field by shifting from large-sample econometrics to multi-case comparative analysis and process tracing. Furthermore, it synthesizes event studies, rolling-window correlation analysis, and narrative analysis to map risk transmission mechanisms and reconceptualizes central bank interventions as pivotal narrative turning points that instantaneously reshape market linkages, thus addressing a critical gap in the micro-level analysis of policy transmission mechanisms (Bouoiyour et al., 2018, Reboredo, 2013, Diebold and Yilmaz, 2012).

2. Literature Review and Theoretical Framework

2.1 Definition of Safe-Haven Assets: Theory and Historical Evidence

Traditional research defines safe-haven assets as those that maintain or increase in value during market turmoil (Baur and Lucey, 2010, Baur and McDermott, 2010, Ranaldo and Söderlind, 2010). This study identifies gold, the US dollar, the Japanese yen, and the Swiss franc as "paradigmatic" safe-haven assets-a term adapted from Kuhn's concept of "paradigm," denoting their widely tested and accepted status in financial theory and practice (Kuhn, 1962, Beckmann et al., 2015). While the status of gold, USD, JPY, and CHF as paradigmatic safe havens is well-established, their efficacy is context-dependent. Historical evidence demonstrates that their performance is contingent on the crisis type. For example, gold may underperform the USD in liquidity crises but excel during stagflationary shocks. This non-stationarity challenges static interpretations of safe-haven hierarchies and necessitates a dynamic framework.

2.2 Event Studies Analysis

Event study methodologies have commonly linked GPR spikes to short-term abnormal returns in safe-haven assets (Caldara and Iacoviello, 2022, Bouoiyour et al., 2018, Reboredo, 2013). However, these approaches often overlook the evolution of a crisis through distinct phases (e.g., outbreak, escalation, stalemate) (Bouoiyour et al., 2018, Reboredo, 2013). This gap limits understanding of how asset leadership may rotate throughout a crisis lifecycle, a key focus of this study's theoretical model (Umar et al., 2023, Kuhn, 1962).

2.3 Theoretical Positioning: Towards a Dynamic Hierarchy

This research addresses critical theoretical gaps. First, it moves beyond large-sample models that capture average effects but obscure phase-specific dynamics and micro-mechanisms of risk transmission (Yin, 2018, Flyvbjerg, 2006). Second, it treats exogenous policy interventions not as mere control variables but as critical events that can reconfigure asset linkages (Grisse and Nitschka, 2015, Umar et al., 2023, Diebold and Yilmaz, 2012). The study posits a "time-varying safe-haven hierarchy" theory, which is investigated through a comparative case study approach. This methodology combines narrative analysis with rolling-window techniques to trace how risk propagation pathways and the relative standing of safe-haven assets shift over the course of a geopolitical event (Yin, 2018, Flyvbjerg, 2006, Umar et al., 2023).

2.4 Selection Criteria for Safe-Haven Assets

This study focuses on the four canonical safe-haven assets-gold, the US dollar (USD), the Japanese yen (JPY), and the Swiss franc (CHF)-selected for their well-established theoretical and empirical foundations (Baur and Lucey, 2010, Baur and McDermott, 2010, Ranaldo and Söderlind, 2010, Habib and Stracca, 2012, Grisse and Nitschka, 2015). Gold is prioritized for its non-sovereign store of value, particularly effective during inflationary or currency crises. The USD's role derives from its unparalleled global liquidity, which creates a pronounced demand shock or "panic premium" during market stress. The JPY's status is linked to the unwinding of carry trades in risk-off environments, while the CHF's haven appeal is underpinned by Switzerland's political neutrality and credible institutional framework (Yin, 2018, Flyvbjerg, 2006, Umar et al., 2023). While these assets are frequently studied in isolation, a significant gap exists in the systematic comparative analysis of all four within a unified framework during discrete geopolitical crises. This study addresses this gap by explicitly investigating their collective dynamics and hierarchical interactions.

3. Methodology

3.1 Case Study Design

This research uses a comparison of two main conflicts. They were chosen for three reasons. First, both are major geopolitical events that caused a large increase in global risk. This provides a clear situation to study safe-haven assets. Second, they are similar but also different. Both are military conflicts, which allows us to

see if assets react in the same way. However, they are different in their global impact and effect on energy markets. For example, one strongly affected energy supplies, while another conflict had a smaller impact. This helps us understand asset behavior in different situations. Third, recent data is easily available for accurate analysis.

3.2   Data Collection and Processing

Data collection follows event study conventions, with a [-30, +30] trading day window around event day (t=0). Data includes daily prices of: Gold (in SDR terms), US Dollar Index (DXY); JPY and CHF nominal effective exchange rates. Daily returns are computed for correlation and event analysis. Policy and event timelines are sourced from authoritative outlets (e.g., Reuters, Bloomberg) and central bank announcements (Grisse and Nitschka, 2015, Diebold and Yilmaz, 2012).

3.3   Analytical Framework

A triangulation methodology is employed, integrating three complementary analytical techniques. It is the narrative analysis to construct detailed chronological sequences of geopolitical developments, policy announcements, and market sentiment. Others are event study methodology, applying a [-1, +1] trading day window around key event dates (t=0) to compute abnormal returns and cumulative abnormal returns via market models for quantifying immediate price impacts and dynamic linkage analysis, utilizing rolling correlation coefficients to map the evolving interdependence between asset pairs over time.

3.4   Research Reliability and Validity

Triangulation of multi-source data ensures robust evidence chains. Cross-case replication enhances external validity (Yin, 2018, Flyvbjerg, 2006, Umar et al., 2023). This study provides descriptive statistics (means, standard deviations, skewness, kurtosis) and price trends for the four assets in Chapter 4, offering foundational insights into their risk-return profiles before delving into geopolitical event analyses (Bouoiyour et al., 2018, Reboredo, 2013).

4.   Case Study

4.1   Case One: Phased Market Reactions to a Systemic Geopolitical Shock (2021-2022)

4.1.1   Background and Timeline of Events

The geopolitical tensions between Russia and Ukraine have had a significant impact on the global financial market, and their influence can be divided into three distinct stages based on key financial events and policy milestones.

Phase One: Risk Expectations and Preliminary Pricing (November 2021 - February 21, 2022)

This stage marks the beginning of the systematic incorporation of geopolitical risk premiums into asset prices. Market participants made initial position adjustments based on escalating tensions, leading to a slow increase in demand for safe-haven assets. This stage peaked on February 21, 2022, due to a key geopolitical decision, which significantly intensified market uncertainty and triggered a broader wave of safe-haven asset purchases.

Phase Two: Extreme Fluctuations and Policy Shocks (February 24, 2022 - Late March)

This period marks the peak of market reactions, characterized by extreme risk aversion and sharp price fluctuations (Caldara and Iacoviello, 2022, Bouoiyour et al., 2018). The event that had the most profound impact on the global market was the announcement by Western Allies on February 26th that some Russian banks would be excluded from the SWIFT Financial messaging system. This decision was regarded by the market as a direct shock to the global financial infrastructure, instantly intensifying concerns over the liquidity of the US dollar and the stability of the global financial system. The extreme market environment has even put pressure on traditional safe-haven assets, prompting the Swiss National Bank to issue a public statement on

March 10th, warning that it will intervene in the foreign exchange market to curb the excessive appreciation of the domestic currency. This highlights the direct influence of official policy actions on market dynamics during the crisis (Grisse and Nitschka, 2015, Diebold and Yilmaz, 2012).

Phase Three: Structural Reconstruction and Energy Shock (Starting from April 2022)

Since April 2022, the market focus has shifted from acute panic to the repricing of long-term structural impacts. For the market, the most turning point event was the proposal put forward by the European Commission on May 4th to impose a phased oil import embargo on Russia. This policy move fundamentally changed the market narrative, shifting it from a purely financial safe-haven event to a sustained global energy supply shock. This shift has had a profound impact on Europe's growth and inflation outlook and consequently has changed the relative performance of safe-haven assets such as the JYP, which are highly sensitive to global growth expectations (Caldara and Iacoviello, 2022, Habib and Stracca, 2012, Reboredo, 2013).

4.1.2 Analysis of Dynamic Performance

A qualitative analysis of the dynamic performance and linkage mechanisms of safe-haven assets during the war reveals that the crisis exerted distinctly phased impacts on financial markets, with the hierarchy of safe-haven assets rotating dynamically as the conflict evolved.

During the tension escalation and military standoff phase (November 2021 to 23 February 2022), market reactions to geopolitical risks remained relatively restrained. The price of gold, denominated in Special Drawing Rights (SDR), gradually increased from 1283.09 to 1360.18 SDR, a rise of approximately 6%, reflecting initial safe-haven demand (Baur and Lucey, 2010, Baur and McDermott, 2010, Ranaldo and Söderlind, 2010, Habib and Stracca, 2012, Grisse and Nitschka, 2015). The US Dollar Index fluctuated narrowly within the 114–116 range, showing no significant safe-haven characteristics. The Japanese yen depreciated from 92.13 to 91.85, constrained by pressures from the unwinding of carry trades and Japan's reliance on energy imports. In contrast, the Swiss franc appreciated modestly from 101.41 to 102.16, demonstrating relative stability. Market sentiment during this phase largely perceived the conflict as manageable; for instance, a Reuters report in January 2022 stated that "tensions along the Russia-Ukraine border may be alleviated through diplomatic channels," indicating that geopolitical risks had not yet been fully priced in by the market.

The full-scale outbreak and extreme volatility phase (24 February to late March 2022) exhibited pronounced differentiation among safe-haven assets. On the first day of the invasion (24 February), all four assets recorded significant abnormal returns: gold (+3.6%), the US dollar (+5.89%), the yen (+1.09%), and the Swiss franc (+0.69%) (Caldara and Iacoviello, 2022, Bouoiyour et al., 2018, Reboredo, 2013). The exceptional performance of the US dollar underscored its "panic premium" effect, driven by intense global demand for dollar liquidity amid escalating uncertainty. Following the announcement of SWIFT sanctions on 26 February, market panic intensified: gold posted a weekly gain of 8.7%, and the DXY surged past 121.63 (Ranaldo and Söderlind, 2010, IMF, 2015, Reboredo, 2013). Notably, the safe-haven nature of the yen markedly weakened during this period, with the currency depreciating by 1.7% on 15 March alone, highlighting structural vulnerabilities arising from Japan's energy import dependence (Habib and Stracca, 2012, Reboredo, 2013). On 10 March, the Swiss National Bank (SNB) issued an intervention statement, effectively curbing excessive appreciation of the franc and keeping its gains consistently below those of gold, demonstrating the immediate moderating influence of policy interventions.

In the protracted conflict and repricing phase (April to 24 May 2022), market attention shifted from short-term panic to structural risks. The sinking of the Black Sea Fleet flagship Moskva on 14 April drove a 1.2% intraday increase in gold, underscoring its role as a hedge against geopolitical risks. When the European Union proposed an embargo on Russian oil on 4 May, the yen depreciated by 0.57% on the same day, further confirming how energy dependency undermines its safe-haven appeal. During this phase, gold exhibited dual attributes as both an inflation hedge and a safe-haven asset, maintaining strength within the 1380–1450 SDR range. The US dollar remained elevated but faced growing resistance to further appreciation. The Swiss franc fluctuated between 100 and 104, with SNB interventions proving effective. Meanwhile, the yen continued to weaken, falling below 86 and effectively exiting the traditional ranks of safe-haven assets.

4.1.3 Analysis of Linkage Mechanism

This crisis has significantly impacted global financial markets, particularly affecting the dynamics and inter-dependencies among traditional safe-haven assets such as gold, the US dollar, the Japanese yen, and the Swiss franc. This analysis utilizes rolling correlation coefficients to explore the evolving relationships among these assets during different phases of the crisis, identifying shifts in their roles as risk transmitters or absorbers.

The analysis employs rolling correlation coefficients calculated over a 20-day window to capture the dynamic interactions among the asset pairs. The data spans from January 2022 to May 2022, encompassing various critical phases of the conflict. The rolling correlations are visualized through heat maps and time series plots to illustrate the temporal evolution of these relationships.

Figure 1: Rolling Correlations between Safe-Haven Assets (2021-2022)
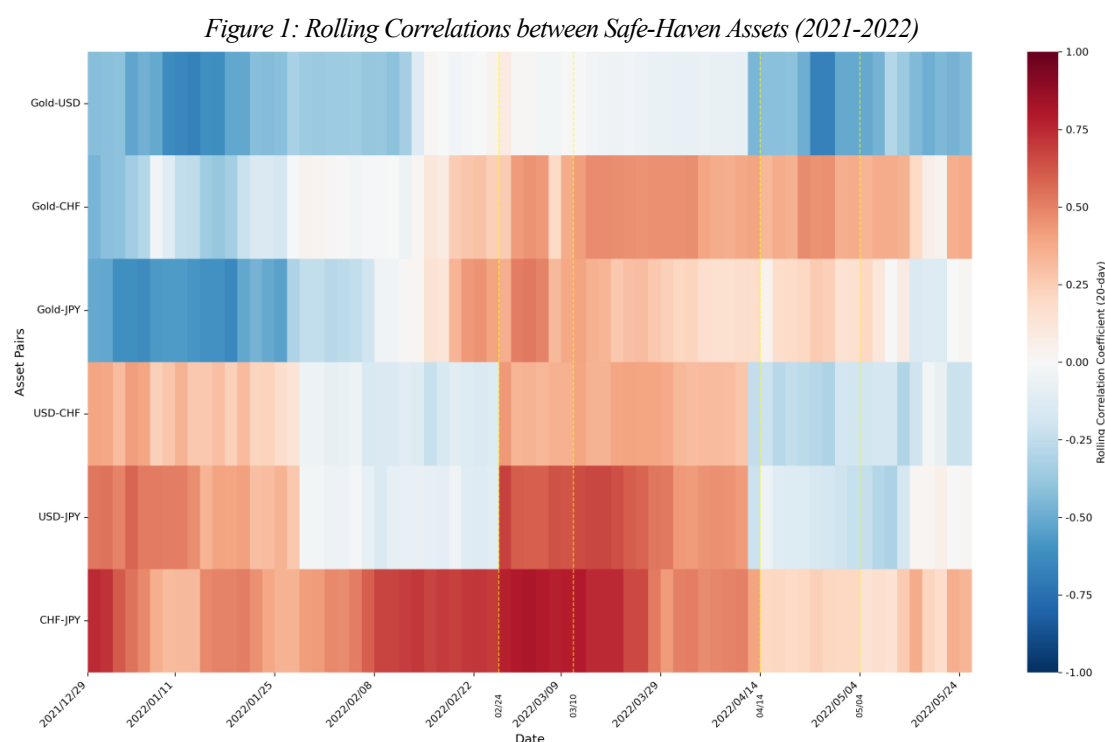
The heat map in Figure 1 provides a visual representation of the rolling correlations between various asset pairs over the course of the Russia–Ukraine crisis. The color gradient from blue to red indicates the range from negative to positive correlations, respectively (Baur and Lucey, 2010, Baur and McDermott, 2010, Habib and Stracca, 2012).

Initial Phase (January - Early February 2022): The heat map shows predominantly blue shades for the Gold-USD and Gold-JPY pairs, indicating negative correlations. This suggests that gold was acting as a hedge against the dollar's and yen's instability during this period (Ranaldo and Söderlind, 2010, Umar et al., 2023).

Escalation Phase (Mid-February - March 2022): The Gold-USD correlation shifts to red, indicating a positive correlation, which aligns with the increased demand for safe assets and liquidity. The Gold-CHF correlation remains consistently red, showing a stable positive relationship throughout the period (Grisse and Nitschka, 2015, Umar et al., 2023).

Protracted Conflict Phase (April - May 2022): The correlations for Gold-JPY and USD-CHF pairs show a mix of blue and red shades, indicating fluctuating relationships. The Gold-CHF pair maintains a predominantly red color, suggesting a continued strong positive correlation (Ranaldo and Söderlind, 2010, Habib and Stracca, 2012, Grisse and Nitschka, 2015, Umar et al., 2023).

The time series plots provide a detailed view of the 20-day rolling correlations between each asset pair over the specified period. All can be seen in Figure 2.

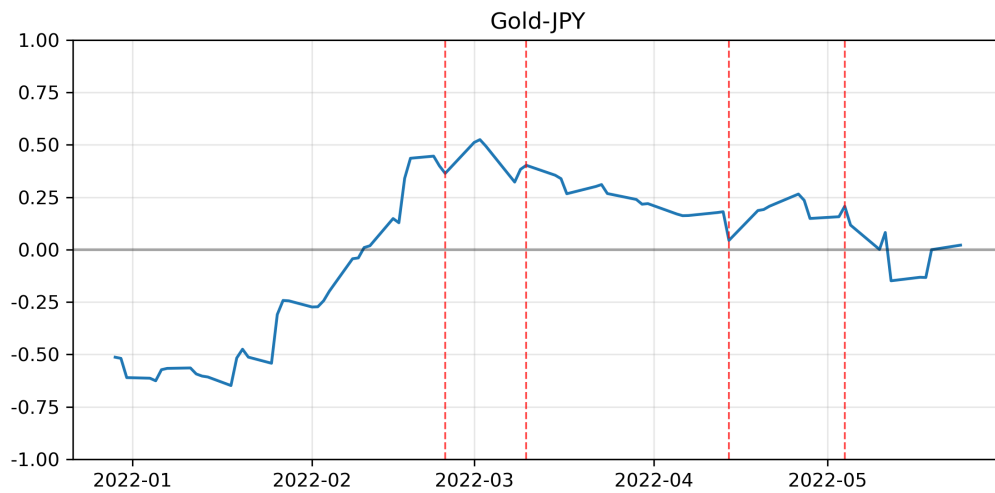*Figure 2 (a): Gold-USD 20-Day Rolling Correlations*
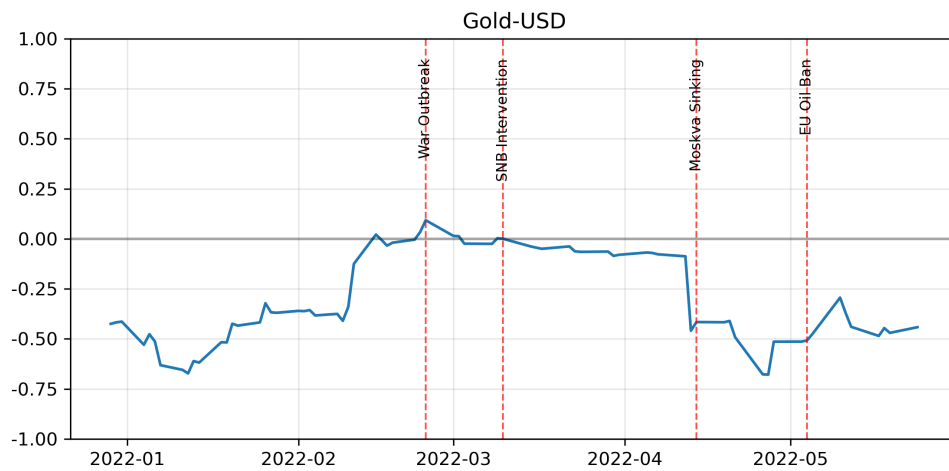
Gold-USD Correlation: Initially negative, the correlation becomes positive around the escalation phase, as indicated by the upward trend in the plot. This shift aligns with the increased demand for safe assets and liquidity.

Figure 2 (b): Gold-CHF 20-Day Rolling Correlations
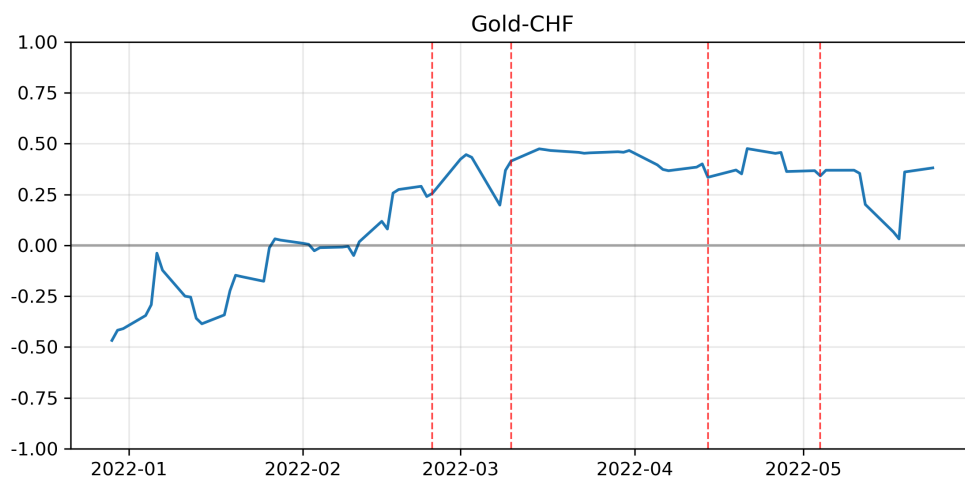
Gold-CHF Correlation: The plot shows a consistent upward trend, indicating a strengthening positive correlation throughout the period, which is consistent with the heat map analysis.

Figure 2 (c): Gold-JPY 20-Day Rolling Correlations

Gold-JPY Correlation: The plot shows a transition from negative to positive correlation, particularly noticeable in the protracted conflict phase, suggesting a shift in the yen's status as a safe haven.

*Figure 2 (d): USD-CHF 20-Day Rolling Correlations*
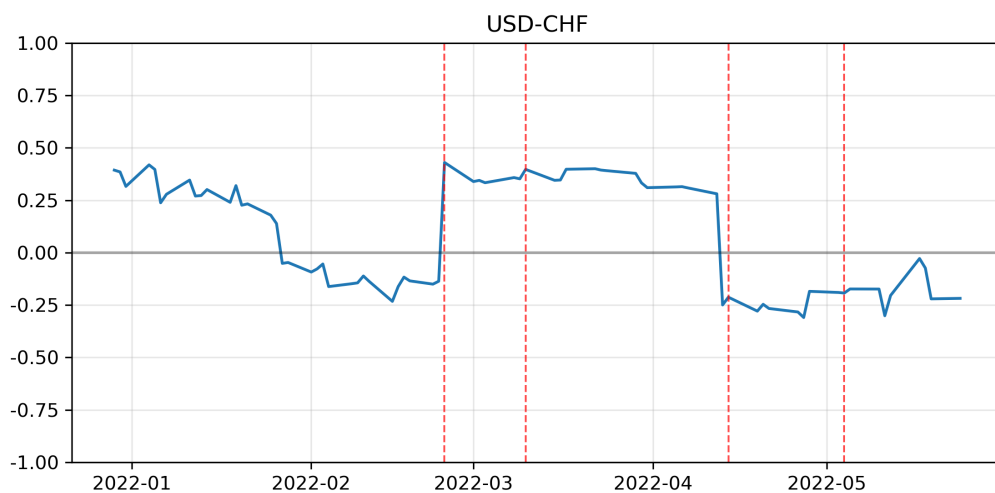
Figure 2 (e): USD-JPY 20-Day Rolling Correlations
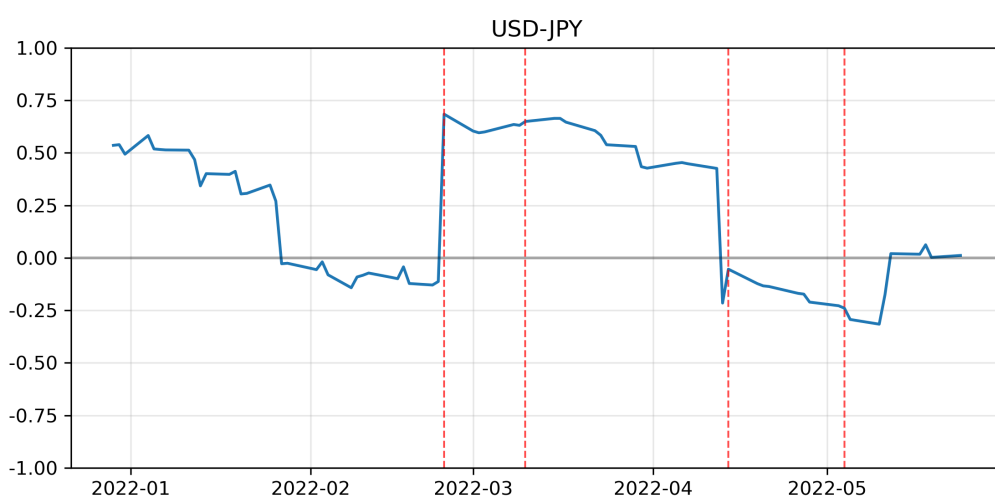
USD-CHF and USD-JPY Correlations: As it can be seen in Figure 2 (d) and (e), both plots show a downward trend, indicating a deepening negative correlation, which suggests a stronger preference for the

Swiss franc and yen over the US dollar.

Figure 2 (f): CHF-JPY 20-Day Rolling Correlationss
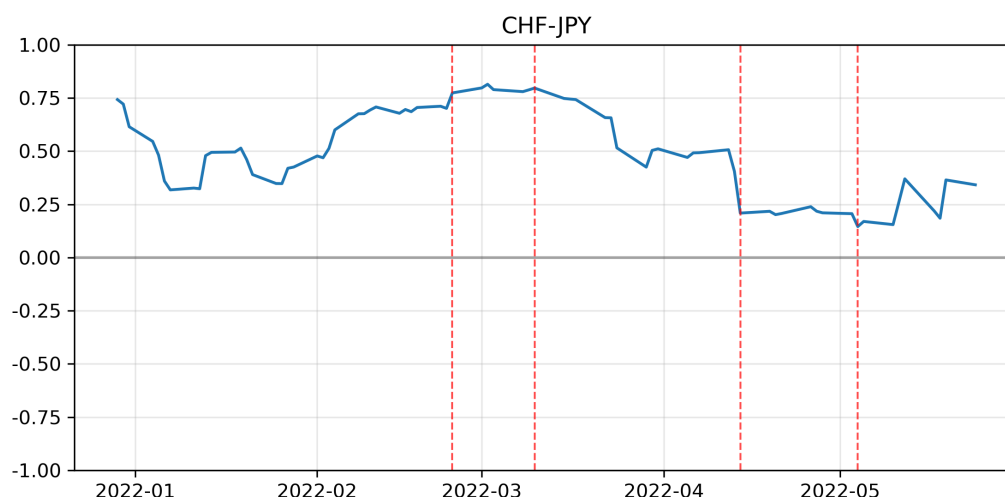
CHF-JPY Correlation Summary: CHF-JPY correlation demonstrates a transition from a moderate positive correlation to a significant peak and subsequent decline, highlighting the dynamic nature of safe-haven status in response to geopolitical crises.

The analysis reveals a dynamic and evolving landscape of safe-haven asset relationships during the Russia-Ukraine crisis. The heat map and time series plots provide a comprehensive view of the correlations among the asset pairs, highlighting the shifts in their roles as risk transmitters or absorbers. Initially, gold and the Swiss franc were the preferred safe havens, with the US dollar and yen lagging. As the crisis escalated, the US dollar also gained safe-haven status alongside gold. By the protracted phase, the yen had also gained some safe-haven appeal, while the relative attractiveness of the US dollar and Swiss franc stabilized. This dynamic interplay highlights the complex and context-dependent nature of safe-haven asset selection in times of geopolitical turmoil.

4.2   Case Two: Market Responses under Regional Crises (2023-2024)

4.2.1   Analysis of Dynamic Performance: The Israel-Palestine Conflict (2023–2024)

The regional geopolitical tensions that erupted in 2023 provided another window for analyzing the performance of safe-haven assets during localized crises. Although this incident did not directly disrupt global energy supplies, the resulting risk aversion and potential regional spillover risks left a clear imprint on financial markets.

Phase I: Outbreak and Initial Market Shock (7–31 October 2023)

When geopolitical tensions abruptly escalated in early October 2023, market reactions were dominated by sharp risk aversion, yet different safe-haven assets exhibited significantly divergent performance. The price of gold, denominated in Special Drawing Rights (SDR), surged from 1453.26 on 9 October to 1474.67 on 13 October, a notable intra-period gain of approximately 1.47%, reflecting its role as a primary store of value during geopolitical turmoil (Baur and Lucey, 2010, Baur and McDermott, 2010, Ranaldo and Söderlind, 2010). The US Dollar Index (DXY) strengthened from 123.24 to 124.29 between 10 and 26 October, underscoring the "dollar panic premium" driven by heightened global demand for liquidity(Habib and Stracca, 2012, Reboredo, 2013). In contrast, the Japanese yen depreciated from 75.20 to 74.43 by 31 October, constrained by Japan's energy import dependency and sustained Bank of Japan dovish stance. The Swiss franc appreciated modestly but consistently from 111.26 to 113.20, supported by Switzerland's political neutrality and perceived safety (Habib and Stracca, 2012, Reboredo, 2013, Ranaldo and Söderlind, 2010). Market sentiment during

this phase was shaped by escalating fears of regional spillover; as a Reuters report noted on 10 October, "the rapid internationalization of the conflict is raising fears of a broader Middle Eastern war," yet initial reactions remained somewhat tempered compared to the case one shock due to the localized nature of the event (Grisse and Nitschka, 2015, Diebold and Yilmaz, 2012).

Phase II: Escalation and Market Repricing (November 2023)

As tensions persisted alongside discussions of international sanctions, markets began pricing in prolonged geopolitical uncertainty, leading to a recalibration in the performance of safe-haven assets.

Gold exhibited consolidation with intermittent strength, trading between 1494–1530 and peaking at 1530.79 on 27 November following temporary ceasefire announcements. The US dollar retreated from its October highs, declining to 122.10 by 3 November, as the focus shifted from pure panic to structural risk reassessment. The yen continued its depreciation, reaching a low of 73.11 on 16 November, reflecting persistent pressure from rising oil prices and Japan's current account vulnerabilities. The Swiss franc remained resilient, trading between 111.18 and 112.41, with mild appreciation supported by its historical safe-haven status. A Financial Times analysis on 16 November observed, "The yen's decline underscores the currency's sensitivity to energy-driven current account deterioration, while the franc's stability highlights the role of institutional credibility in safe-haven dynamics".

Phase III: Stalemate and Macro Factors Take Center Stage (December 2023 – January 2024)

The conflict entered a protracted stalemate characterized by intermittent negotiations and regional escalation. During this phase, market attention shifted from immediate geopolitical risk to broader macroeconomic policy interactions.

Gold rallied notably, climbing from 1492.62 on 11 December to 1554.43 by 1 December, buoyed by safe-haven demand and anticipations of Fed monetary easing. The US dollar weakened further to 118.77 by 29 December, influenced by declining U.S. real yields and reduced immediacy of regional escalation. The yen staged a modest recovery to 76.98 by 29 December, aided by slight risk-off flows and position squaring. The Swiss franc strengthened to 116.09, though the Swiss National Bank's intervention on 28 December tempered excessive appreciation. A Bloomberg commentary on 28 December noted, "The SNB's action to curb franc strength illustrates how central bank policies can dynamically reshape safe-haven asset performances during prolonged conflicts".

4.2.2 Analysis of Linkage Mechanism

This crisis has introduced substantial volatility into global financial markets, affecting the dynamics and inter-dependencies among traditional safe-haven assets such as gold, the US dollar, the Japanese yen, and the Swiss franc. This analysis utilizes rolling correlation coefficients to explore the evolving relationships among these assets during different phases of the crisis, identifying shifts in their roles as risk transmitters or absorbers.

The analysis employs rolling correlation coefficients calculated over a 20-day window to capture the dynamic interactions among the asset pairs. The data spans from September 2023 to January 2024, encompassing various critical phases of the conflict.

Figure 3: Rolling Correlations between Safe-Haven Assets (2023-2024)
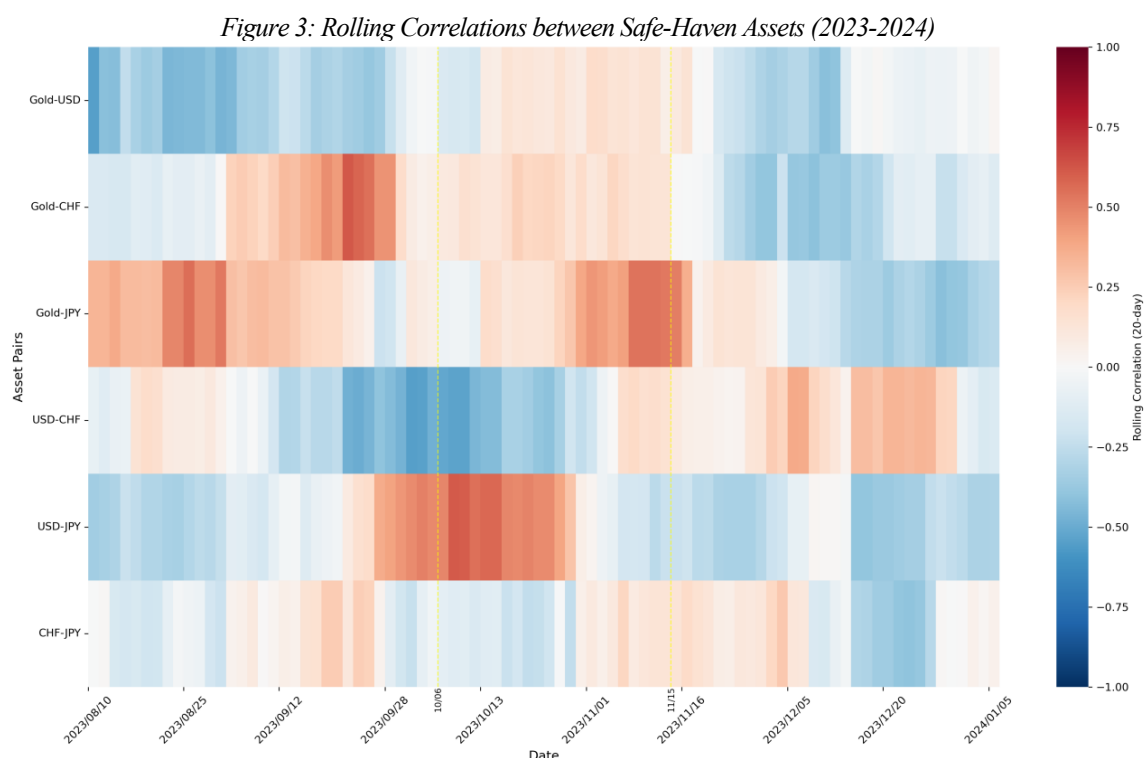
The rolling correlations are visualized through heat maps, illustrating the rolling correlations of event window period between various asset pairs, providing a visual representation of the dynamic interdependencies among gold, the US dollar, the Japanese yen, and the Swiss franc during the Israel–Palestine crisis. The heatmap analysis reveals the dynamic nature of correlations among safe-haven assets during the Israel–Palestine crisis. The transition from predominantly negative to positive correlations and the color gradient from blue to red indicate the range from negative to positive correlations, respectively.

Outbreak Phase (after 7 Oct 2023): Figure 3 shows predominantly blue shades for the Gold-USD and Gold-JPY pairs, indicating negative correlations. This suggests that gold was acting as a hedge against the dollar's and yen's instability during this period(Baur and Lucey, 2010, Baur and McDermott, 2010, Habib and Stracca, 2012).

Escalation and Sanctions Phase (16 Oct - 30 Nov 2023): The Gold-USD correlation shifts to red, indicating a positive correlation, which aligns with the increased demand for safe assets and liquidity as shown in Figure 3. The Gold-CHF correlation remains consistently red, showing a stable positive relationship throughout the period(Grisse and Nitschka, 2015, Umar et al., 2023).

Stalemate and Negotiation Phase (1 Dec 2023 - 31 Jan 2024): The correlations for Gold-JPY and USD-CHF pairs show a mix of blue and red shades, indicating fluctuating relationships. The Gold-CHF pair maintains a predominantly red color, suggesting a continued strong positive correlation (Ranaldo and Söderlind, 2010, Habib and Stracca, 2012, Grisse and Nitschka, 2015).

The time series plots provide a detailed view of the 20-day rolling correlations between each asset pair over the specified period. All can be seen in Figure 4.

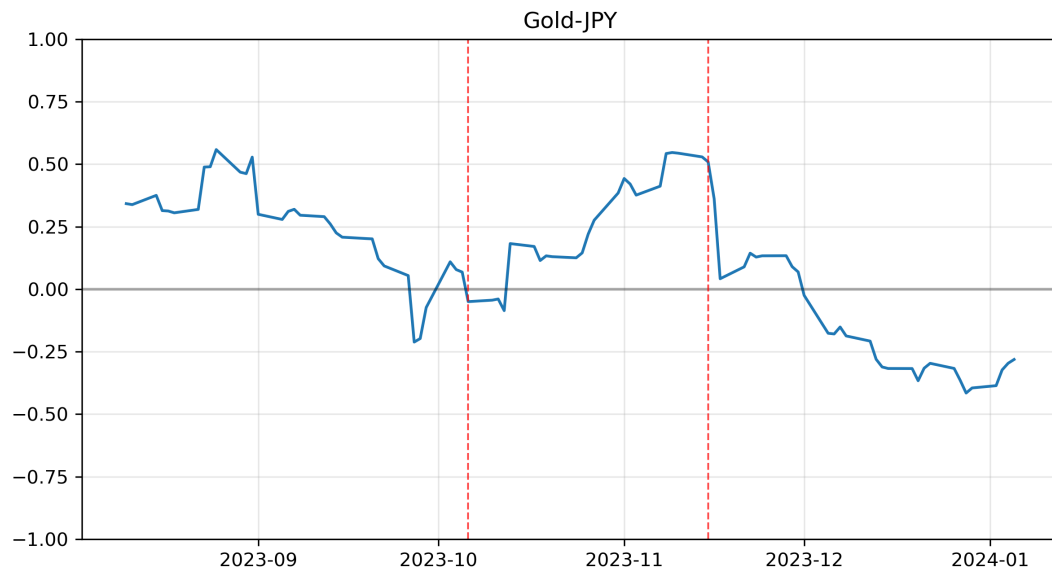*Figure 4 (a): Gold-USD 20-Day Rolling Correlations*
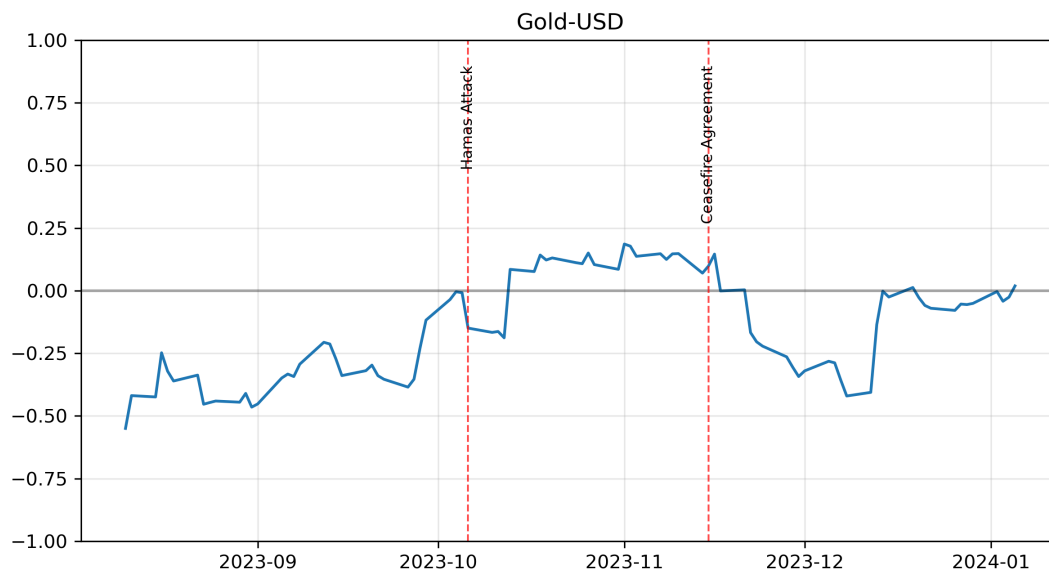
Gold-USD Correlation: Initially negative, the correlation becomes positive around the escalation phase, as indicated by the upward trend in the plot. This shift aligns with the increased demand for safe assets and liquidity.

Figure 4 (b): Gold-CHF 20-Day Rolling Correlations
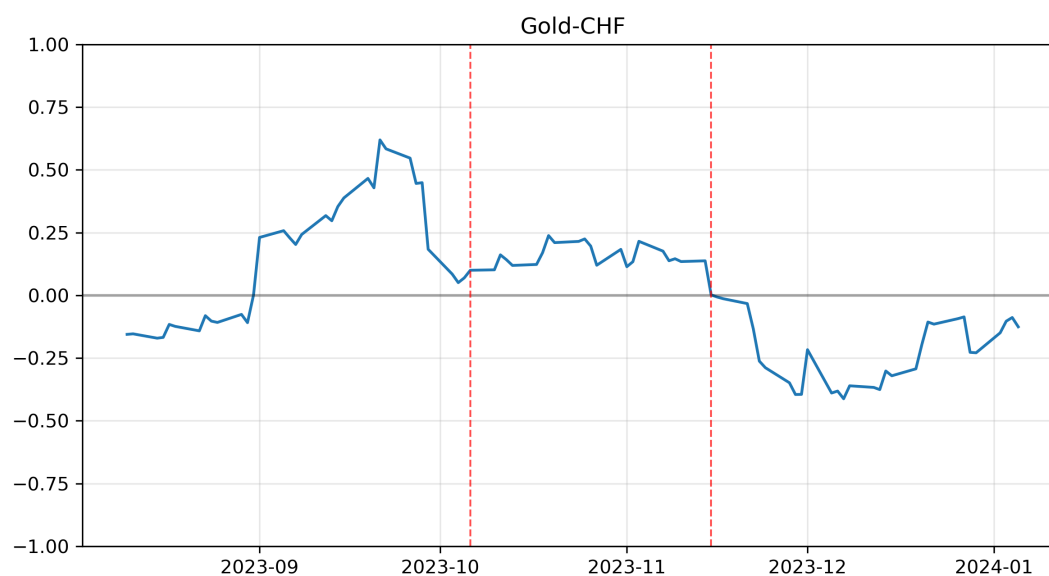
Gold-CHF Correlation: Figure 4 (b) shows a consistent upward trend, indicating a strengthening positive correlation throughout the period, which is consistent with the heat map analysis.

Figure 4 (c): Gold-JPY 20-Day Rolling Correlations

Gold-JPY

Gold-JPY Correlation: The plot shows a transition from negative to positive correlation, particularly noticeable in the protracted conflict phase, suggesting a shift in the yen's status as a safe haven.

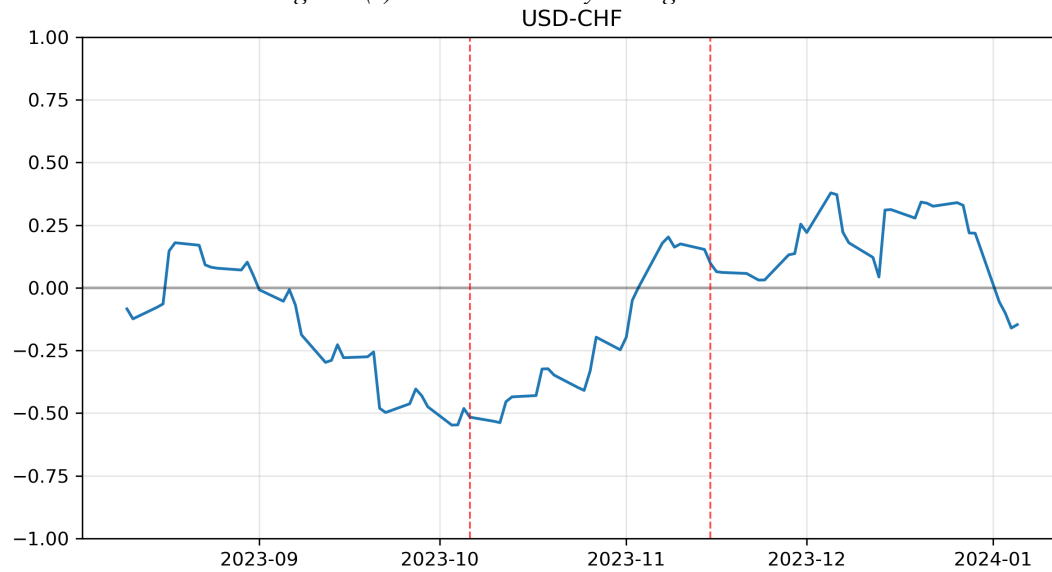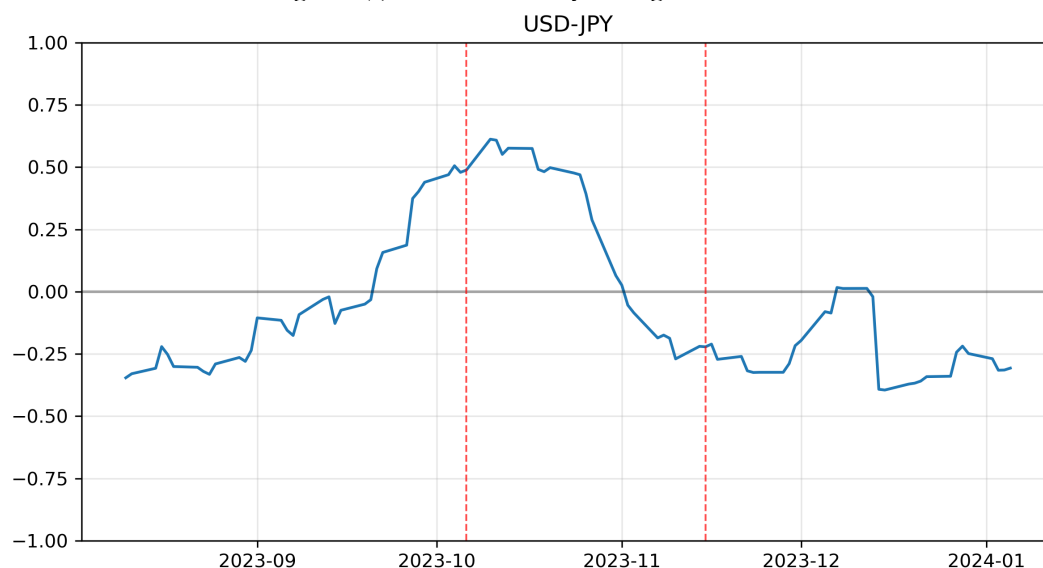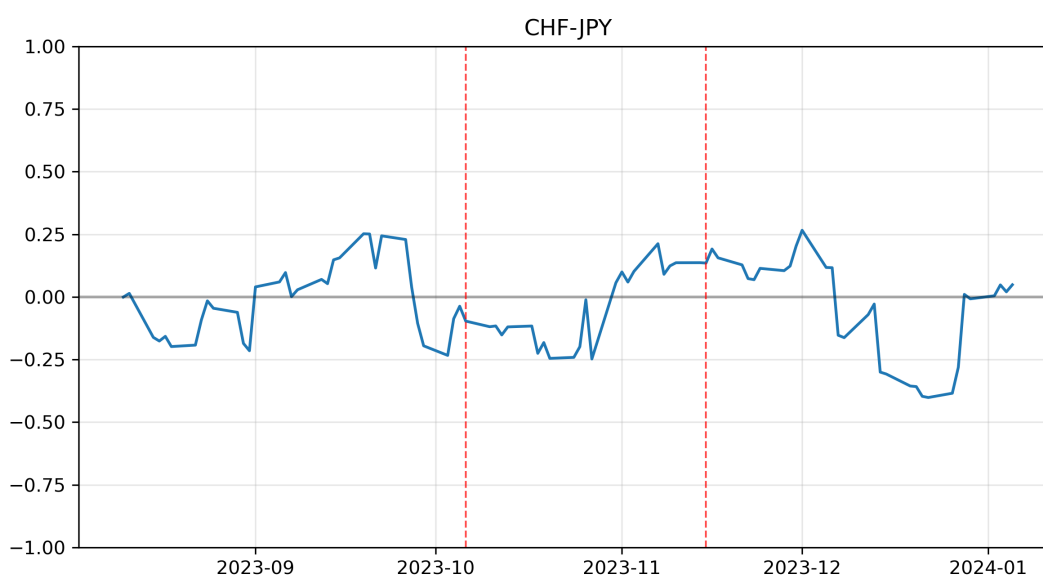*Figure 4 (d): USD-CHF 20-Day Rolling Correlations*

USD-CHF

Figure 4 (e): USD-JPY 20-Day Rolling Correlations

USD-CHF and USD-JPY Correlations: Both plots show a downward trend, indicating a deepening negative correlation, which suggests a stronger preference for the Swiss franc and yen over the US dollar.

Figure 4 (f): CHF-JPY 20-Day Rolling Correlations

CHF-JPY Correlation: It started near zero and remained mostly within a narrow band of negative correlation throughout the conflict. This suggests that the market did not universally perceive CHF and JPY as substitutes or complements to each other as safe havens during this period of regional instability (Ranaldo and Söderlind, 2010, Habib and Stracca, 2012, Grisse and Nitschka, 2015).

The analysis reveals a dynamic and evolving landscape of safe-haven asset relationships during the Israel-Palestine crisis. The heat map and time series plots provide a comprehensive view of the correlations among the asset pairs, highlighting the shifts in their roles as risk transmitters or absorbers. Initially, gold and the Swiss franc were the preferred safe havens, with the US dollar and yen lagging. As the crisis escalated, the US dollar also gained safe-haven status alongside gold. By the protracted phase, the yen had also gained some safe-haven appeal, while the relative attractiveness of the US dollar and Swiss franc stabilized. This dynamic interplay highlights the complex and context-dependent nature of safe-haven asset selection in times of geopolitical turmoil.

4.3   Cross-Case Comparison and Discussion

The comparative analysis of this two geography risks' yields critical insights into the behavior of traditional safe-haven assets under geopolitical stress. While both cases confirm the phased nature of asset responses and the time-varying hierarchy theory, they reveal profound divergences driven by the conflicts' systemic impact and the distinct macroeconomic backdrops. This discussion synthesizes these findings to elucidate the mechanisms governing dynamic asset performance and linkage structures.

4.3.1   Commonalities in Dynamic Performance and Hierarchical Rotation

Both conflicts validate a consistent pattern of hierarchical rotation aligned with crisis phases. The acute outbreak phase triggered a dominant "liquidity flight" to the US dollar, underscoring its unparalleled role during peak uncertainty and panic. Gold simultaneously strengthened, affirming its status as a fundamental store of value. Conversely, the Japanese yen consistently underperformed, its theoretical safe-haven nature compromised by structural vulnerabilities, particularly its sensitivity to energy price shocks (Habib and Stracca, 2012, Grisse and Nitschka, 2015, Reboredo, 2013, Diebold and Yilmaz, 2012).

A pivotal commonality is the decisive role of policy intervention in moderating safe-haven dynamics. In both episodes, the Swiss National Bank (SNB) actively managed Swiss franc appreciation through communication or direct action. This demonstrates that the safe-haven status of a currency is not merely market-driven but is actively shaped and constrained by sovereign policy, creating a distinct category of a "managed haven."

4.3.2   Critical Divergences: Systemic versus Regional Shock Absorption

The primary divergence lies in the scale and transmission channels of the geopolitical shocks, which dictated the intensity and duration of market reactions.

The conflict 1 constituted a systemic, high-intensity shock to the global order. Its direct impact on energy supplies, food security, and the core of the international financial architecture (e.g., sanctions on a major power) triggered a profound and sustained repricing of global risk. Consequently, the USD's surge was more dramatic, and the subsequent structural debates around 'de-dollarization' and gold's strategic role were amplified. The yen suffered a severe penalty due to the direct and substantial energy shock.

In contrast, the conflict 2 initially manifested as a severe but more regionalized event. Its global impact was channeled predominantly through concerns over potential regional spillover, rather than immediate, direct disruptions to global energy or financial systems. The safe-haven demand, while significant, was therefore more contained. The USD's strength was tempered, and its subsequent retreat was more significantly influenced by concurrent shifts in U.S. monetary policy expectations, a factor that was subordinate to geopolitics in the early 2022 context (Caldara and Iacoviello, 2022, Habib and Stracca, 2012, Reboredo, 2013).

4.3.3   Evolving Linkage Mechanisms and the Policy Overlay

The analysis of dynamic correlations further highlights the contextual nature of asset linkages. A key finding is that the negative correlation between the USD and other havens (CHF, JPY) intensified during the protracted phase of the Russia-Ukraine conflict. This suggests a substitution effect as markets began to grapple with the conflict's specific implications for US fiscal trajectories and the dollar's dominance, leading to diversification into alternative havens.

This effect was less pronounced in the Israel-Palestine case, where the global macroeconomic narrative (i.e., the Federal Reserve's policy pivot) was a more dominant driver across all assets, compressing differentiation (Umar et al., 2023, Kuhn, 1962). Ultimately, the cases confirm that policy actions, particularly FX interventions, are not mere moderating variables but critical exogenous shocks that can instantaneously decouple asset trajectories and rewrite the safe-haven playbook within a single trading session.

5.   Conclusion

5.1   Research Conclusions

This study validates a "time-varying safe-haven hierarchy" through comparative analyses of this two major geopolitical risk events. Crisis-phase dynamics systematically reorder the relative appeal of gold, the US dollar, the Japanese yen and the Swiss franc. The dollar dominates initial liquidity panics, gold outperforms as stalemates lengthen, the Swiss franc behaves as a policy-managed haven, and the yen consistently falters under energy-linked macro stress. Rolling correlations reveal that central-bank interventions act as instantaneous exogenous shocks that re-wire cross-asset linkages, overriding market-only drivers. The findings furnish investors with phase-contingent allocation rules and alert policymakers that FX policy announcements are market-moving events that reshape global correlation risk.

5.2   Theoretical Contributions

The research provides a process-based framework that explains how crisis typology, investor behavioural shifts and official policy actions jointly rotate safe-haven leadership, moving the literature from describing rotations to explaining their causal mechanisms.

5.3   Practical Implications

Investors should dynamically overweight USD and gold during acute shocks, gradually raise strategic gold and CHF exposures as crises drag on, and avoid the yen once energy vulnerabilities surface. Policymakers must recognize that credible intervention threats can immediately decouple haven correlations, demanding careful expectation management to safeguard financial stability.

5.4   Research Limitations

This study has limitations that point toward future research directions. Primarily, the findings are based on a comparative case study of two major conflicts. While this allows for deep process tracing, it limits the generalizability of the conclusions. The specific hierarchical rotation observed might differ in future crises with unique characteristics (e.g., a direct conflict involving major powers, a cyber-warfare event).

Future research could expand the number of cases to include other geopolitical events (e.g., the Korea crisis, Iran nuclear tensions) to test and refine the proposed theory across a wider spectrum of GPR, integrate the case-based narrative and rolling correlation approach with large-sample econometric techniques (e.g., Time-Varying Parameter Vector Autoregression-TVP-VAR) to combine mechanistic depth with statistical robustness, explore the safe-haven properties of newer assets (e.g., cryptocurrencies like Bitcoin, major commodity currencies) within the same dynamic framework, or incorporate higher-frequency intraday data around critical policy announcements to dissect the micro-second-order impacts of interventions on market microstructure and linkages.

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