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WALL STREET TO WORLDWIDE: THE IMPACT OF US TRADE WARS ON GLOBAL STOCK MARKET PERFORMANCE

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ABSTRACT

In the last ten years, the revival of protectionist trade policies—especially those initiated by the United States—has altered the landscape of global financial markets. This research explores the influence of U.S.-led trade conflicts, particularly those directed at China and the European Union, on stock market fluctuations across major global indices. Through a combination of empirical research and theoretical modelling, we highlight the channels through which uncertainty related to trade policies, tariffs, and retaliatory actions lead to increased market volatility. Our results indicate that announcements and escalations of trade wars act as significant triggers for spikes in volatility, with especially marked effects observed in emerging markets, economies reliant on exports, and sectors dependent on global supply chains like technology and manufacturing.

The study reveals a spill over effect beginning at Wall Street: when U.S. stocks react intensely to developments in trade wars, correlated volatility spreads to European, Asian, and Latin American markets. By employing GARCH-based models and event study techniques, we find that not only do U.S. policy measures prompt immediate recalibrations of risk around the world, but the expectation of policy changes also drives pre-emptive actions by investors. Additionally, the asymmetry in how markets respond is significant—while negative trade news tends to produce markedly higher volatility than favourable developments, market recovery speeds differ based on the level of regional exposure to U.S. trade activities.

Our research highlights the influence of financial interconnectedness and media-driven perceptions in intensifying these effects. Algorithmic trading and rapid data exchanges also play a role in the swift transmission of shocks. We further investigate how institutional responses, such as central bank interventions and government financial support, can alleviate volatility in impacted areas, though with a lagged effect.

The study concludes by stressing the critical importance for global investors, regulatory bodies, and policymakers to keep a close watch on U.S. trade policy as a systemic risk factor. Given that global

financial systems remain intricately linked, localized policy moves in the United States increasingly have worldwide implications. The escalating unpredictability of trade negotiations thus poses not only an economic hurdle but also a significant concern for financial stability.

This research adds to the expanding body of literature on geopolitical risks and financial markets by offering a thorough, cross-border examination of volatility induced by trade. The findings underscore that in an era of economic interdependence, volatility on Wall Street does not remain localized—it resonates on a global scale.

KEYWORDS: Stock Market, Trade war, US-China relations, tariffs, financial economics, market volatility, monetary policy, global trade, geopolitical risk, financial markets

INTRODUCTION

In a world where economies are more interconnected than ever, the economic strategies of leading nations have far-reaching impacts. The United States, in particular, plays a significant role, with Wall Street often acting as a barometer for global market sentiment. In the last twenty years, trade disputes initiated by the U.S.—notably those that began during the Trump administration—have highlighted the instability and systemic risks that protectionist policies can introduce into the global financial system. Although these measures are designed to address perceived trade discrepancies or shield local businesses, they have incited retaliatory tariffs, disrupted international supply chains, and increased geopolitical tensions.

This research examines the effects of U.S. trade wars on stock market activity not just within the United States, but in financial centres around the world. Stock markets have reacted in various ways to the fluctuations of trade discussions, tariff declarations, and retaliatory actions. Beyond short-term market responses, such developments have also influenced investor confidence, capital movements, and long-term forecasts for economic growth.

Grasping the effects of U.S. trade conflicts on worldwide stock performance is essential for policymakers, as well as investors, analysts, and corporate strategists navigating a landscape characterized by economic nationalism and changing trade dynamics. This study seeks to evaluate the ways in which shocks from U.S. trade policies affect global equity markets, illuminating patterns of contagion, resilience, and sector-specific vulnerabilities within a multipolar economic framework.

REVIEW OF LITERATURE:

Ting Yang (2025) in his article "Volatility characteristics of stock markets during the US-China trade war" investigates how the US-China trade war has influenced the volatility within the stock markets of both nations by analysing the ARCH and GARCH effects across four significant indices: the Dow Jones Industrial Average (DJI), the Nasdaq Composite Index (IXIC), the Shanghai Composite Index (SSEC), and the Shenzhen Stock Exchange Composite Index (SZI). In the context of the US stock market, both the DJI and IXIC demonstrate a rise in the ARCH effect following the trade war, with

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the ARCH coefficient for IXIC increasing from 0.192 in the first period to 0.248 in the second period. This escalation signifies a heightened sensitivity to market disturbances and more noticeable volatility clustering amid geopolitical strains.

Sudarshan P (2025) in his article "The Impact of Trade Wars on the USA and China in Financial Economics" analyses that in the United States, sectors like agriculture and technology faced increased expenses and diminished export demand, whereas China saw a deceleration in its export-led growth and faced enhanced pressure to foster domestic consumption and pursue independent innovation. Consequently, financial markets in both countries reacted with increased volatility, reallocation of risk, and adjustments in capital flows.

Shankar Jyoti Doley (2023) in his article "The US-China Trade War and its Implications" examined that problems such as unfair trade practices and the theft of intellectual property rights—including copyright, trademarks, and patents—between 2016 and 2017 became central issues that sparked the full-scale trade war between the US and China in 2018. The trade war has affected the global economy significantly, leading to a decline in manufacturing worldwide and a direct reduction in international trade volumes. Overall GDP growth across the globe was anticipated to slow, with the US showing a post-trade war GDP decline of 2.1% and China reporting a low growth rate of 6%.

Iryna Pozovna, **Wojciech Duranowski**, **Olga Pankiv**, **Iryna Kalenyuk**, **Serhii Fomenko** (2025) in their article "Transformation of Stock Market Threats into Investment Opportunities: Modelling the Dependence of the Indian and Vietnamese Stock Markets on the US–China Trade War" analysed the impact of tariffs, sanctions, and restrictions on the economic relationship between the two countries and the overall configuration of global supply chains was analyzed. Special focus was placed on how third countries, notably India and Vietnam, reacted positively to the situation by enhancing production capacities and drawing in foreign investments and technology. These nations exhibited remarkable flexibility and adaptability, creating attractive conditions for business relocation, which provided a strategic edge amidst geo-economic uncertainty.

Chunding Li, Chuangwei Lin, Chuantian He in their article "Economic Impacts of the Possible China-US Trade War" demonstrated that while the US could benefit from implementing unilateral sanctions against China, it would incur losses if China retaliated. In a scenario of mutual trade conflict, China stands to suffer more than the US. Furthermore, introducing non-tariff barriers to the trade war would exacerbate negative impacts, disproportionately affecting China in comparison to the US. Mexico's participation in the trade war with the US would intensify adverse effects and relatively harm the US more.

Segun Obasun (2025) in his article "Bull in a China Shop: U.S. Hegemonic Overreach in a Multipolar World" examined through case studies-such as Huawei, TikTok, IMF austerity programs, and cultural interventions by USAID- the research explores the implications for multinational corporations and national sovereignty. The study concludes by suggesting adaptive strategies for global enterprises and policymakers to effectively navigate this intricate and ideologically charged global landscape. It argues that without a transition towards diplomatic caution and honouring sovereignty, American overreach may continue to weaken the very global dominance it aspires to maintain.

Calvin Cheng, Firdaos Rosli, Dwintha Maya Kartika (2019) in their article "The US-China Trade War: Is Malaysia benefiting from "diversions" in US import demand?" examined that the data upto July 2019 suggests that Malaysia's regional competitors, including Taiwan, Japan, Vietnam, and South Korea, have largely benefited from shifts in US import preferences. The findings suggest that policymakers in Malaysia should adopt a more proactive approach to mitigate the dangers of escalating trade protectionism by pursuing rapid unilateral reforms and strengthening regional integration with areas outside the US.

Pablo D. Fajgelbaum, Amit K. Khandelwal (2022) in their article "The Economic Impacts of the US–China Trade War" states that Variety-level export prices to China, compared to other markets, did not decline due to retaliatory tariffs, indicating that US producers can adapt flexibly to different destinations. Furthermore, export prices may rise alongside import tariffs, which could enhance welfare. As domestic demand shifts from imports to locally produced goods, export supply becomes limited, making domestic products scarcer on the international market and consequently more costly.

Yuhan Zhang (2018) in his article "The US–China Trade War" suggests that to address trade imbalances and prevent future conflicts, China needs to enhance its economic reforms. In the short term, it should avoid further devaluation of the renminbi (RMB) and consider increasing its interest rates. The US might also need to mitigate capital account surpluses by promoting foreign central banks to gather a synthetic currency instead of relying solely on the US dollar.

Mary Amiti, Sang Hoon Kong, David Weinstein (2020) in their article "The Effect of the U.S.-China Trade War on U.S. Investment" states that the use of brief event windows surrounding trade policy announcements enables us to determine both the overall effect of an announcement and the varying impact on affected firms, allowing us to break down the result into the "common effect" (i.e., the portion explainable by general factors) and the differential effect (the portion explainable by the unique behavior of treated firms). Analyzing the U.S.-China trade war announcements from 2018 and 2019 reveals that tariff announcements from the US and China decreased U.S. aggregate equity prices in a sample of nearly 3,000 listed firms by 6.0 percentage points, leading to a $1.7 trillion drop in market value for those firms.

Sebastien Goulard (2020) in his article "The Impact of the US–China Trade War on the European Union" This analysis will review European policies towards both the USA and China during the trade war, exploring the repercussions of the U.S.-China trade war on European exchanges and examining the potential market shifts it may have caused.

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C. Zehri, L.S. Ammar, W.A.B. Youssef (2025) in their article "Geopolitical Risks and Global Capital Flows" employed an autoregressive distributed lag model in conjunction with panel data and impulse response analyses, we assess the uneven effects of geopolitical risk on debt, equity, and portfolio flows while taking into account global factors (such as oil price volatility and U.S. monetary policy) along with domestic economic conditions. The findings indicate that prolonged geopolitical risk results in increased debt and portfolio inflows.

Minhao Gu, Hui Wang, Yanming Zhang, Ziyue Wang (2025) in their article "The Impact of Operational Leanness and Resilience on Managing Geopolitical Risks" highlights the distinct roles of operational efficiency and resilience in alleviating the risks of disruption, along with their constraints from a contingent perspective. The study notes that the investment restrictions imposed by the U.S. negatively impacted the shareholder value of specific industries in China; additionally, a negative correlation was found between operational efficiency and cumulative abnormal returns, while a positive relationship was observed between operational resilience and cumulative abnormal returns.

Imran Hussain Shah (2025) in his article "US's Trade Wars and their Impact on Global Equity Markets: A GARCH Approach" stated that the trade war initiated by Trump has illustrated that economic nationalism and unpredictability in policy introduce systemic risks to financial stability. To manage these risks effectively in the future, proactive risk management, transparency in institutions, and international collaboration are crucial. Investors should incorporate geopolitical risk considerations into their portfolio strategies, especially during times of increased political tensions. The considerable volatility seen in Chinese and European markets after U.S. trade measures suggests that asset allocation strategies need to factor in regional sensitivity to trade policy disruptions.

Jingjun Zhao, Calcum G Turvey (2025) in their article "Federal Farm Credit Bonds and the 'Flight to Safety' in Turbulent Times" develops an integrated empirical framework has been developed to separate policy-related effects from sector-specific risks in bond pricing. Financial Condition Benchmarks (FCBs) function not only as efficient indicators of how monetary policy is transmitted but also as tools that reflect broader economic linkages involving monetary policy, investor sentiment, and market conditions specific to sectors (such as agriculture).

COMPARISON SINCE 2018

US tariffs have risen more than 17 times compared to the levels prior to the US-China tariff conflict that began in 2018. Overall, the increase of 34.2 percentage points in the average US tariff on imports from China during the latter part of Trump's presidency is over twice the total increase of 16.2 percentage points on US imports from China during the entirety of Trump's first term from January 20, 2017, to January 20, 2021.

Throughout the Biden administration, which lasted from January 20, 2021, to January 20, 2025, US-China tariffs remained relatively unchanged, with notable exceptions being the tariff hikes in September 2024 and January 2025 that raised the average US tariff on Chinese imports from 19.3

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percent to 20.7 percent. (The types of products affected remained largely the same; the US approach primarily involved raising tariff rates on products that were already subject to tariffs.)

In the initial Trump administration, the phase one agreement between the US and China, implemented on February 14, 2020, set up new tariffs on imports from China. As of February 2020, the average US tariff on Chinese exports was 19.3 percent, marking a more than six-fold increase since January 2018. These tariffs applied to 66.6 percent of US imports from China, equating to approximately $335 billion in trade (based on 2017 import figures).

At the same time, the average Chinese tariff on US exports starting in February 2020 was at a high of 21 percent, up from 8.0 percent before the trade conflict began. China's retaliatory tariffs covered 58.3 percent of imports from the United States, valued at roughly $90 billion (based on 2017 import levels). On February 17, 2020, the Chinese government initiated a process allowing Chinese companies to seek temporary exemptions from these retaliatory tariffs. However, China failed to fulfill the commitment outlined in the legal agreement signed on January 15, 2020, to purchase an additional $200 billion worth of US goods and services over the years 2020 and 2021.

Additionally, it's worth noting that China's average tariffs on imports from other countries fell from 8.0 percent in early 2018 to 6.5 percent by early 2022, where they have largely remained since. Conversely, the United States raised its average tariffs on imports from the rest of the world from 2.2 percent in January 2018 to 14.5 percent today.

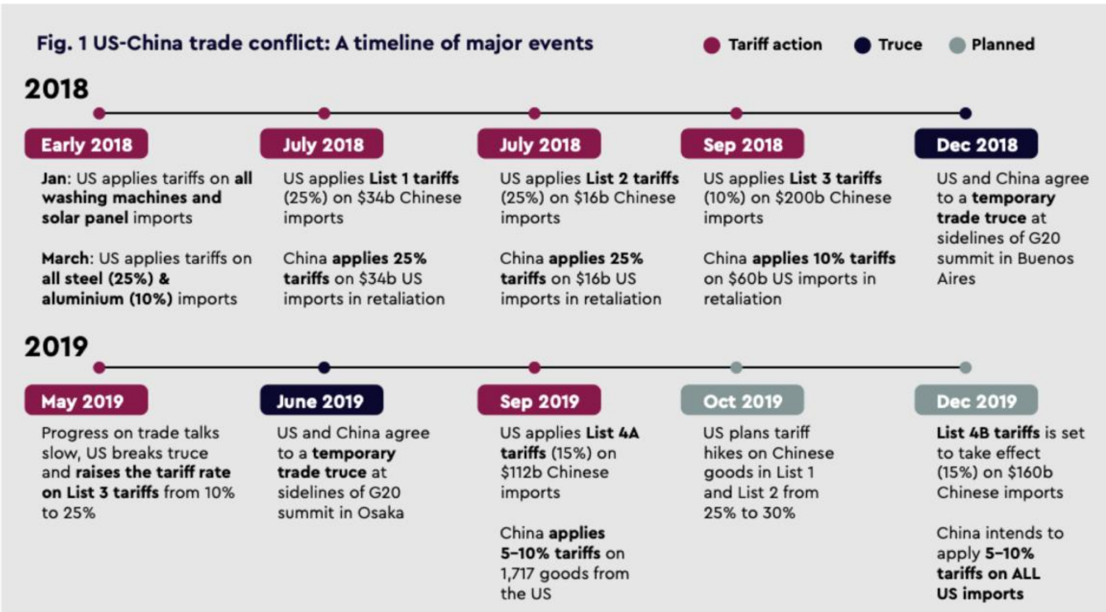
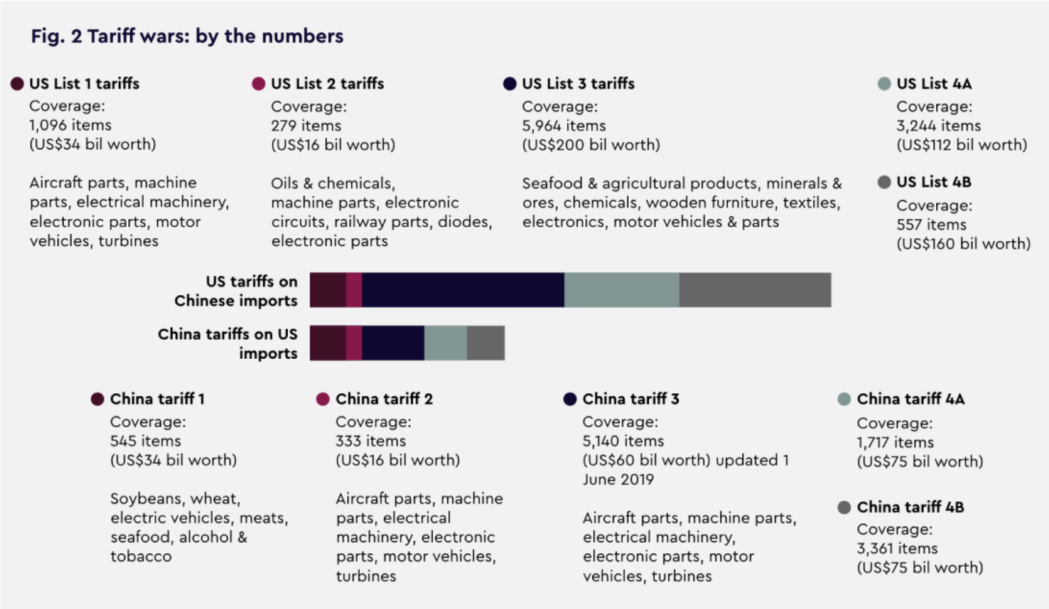
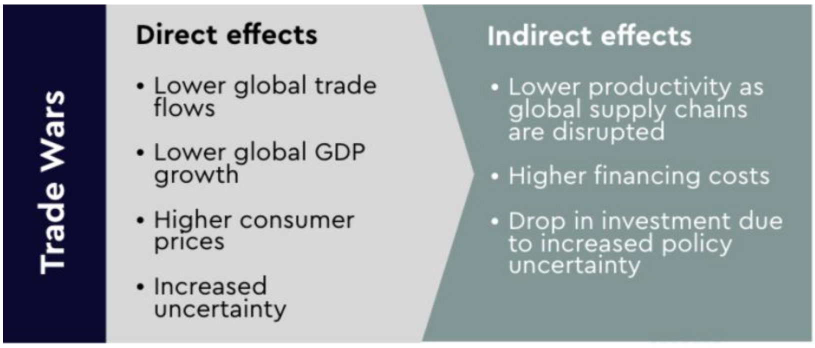


Fig. 1 US-China trade conflict: A timeline of major events

Source: Calvin Cheng, Firdaos Rosli, Dwintha Maya Kartika (2019)



Source: Calvin Cheng, Firdaos Rosli, Dwintha Maya Kartika (2019)



Source: Calvin Cheng, Firdaos Rosli, Dwintha Maya Kartika (2019).

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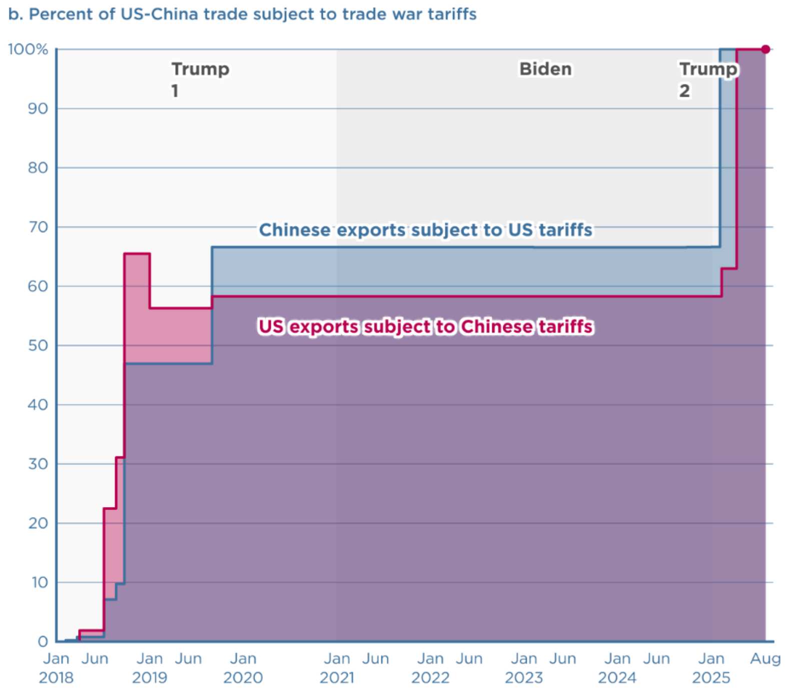

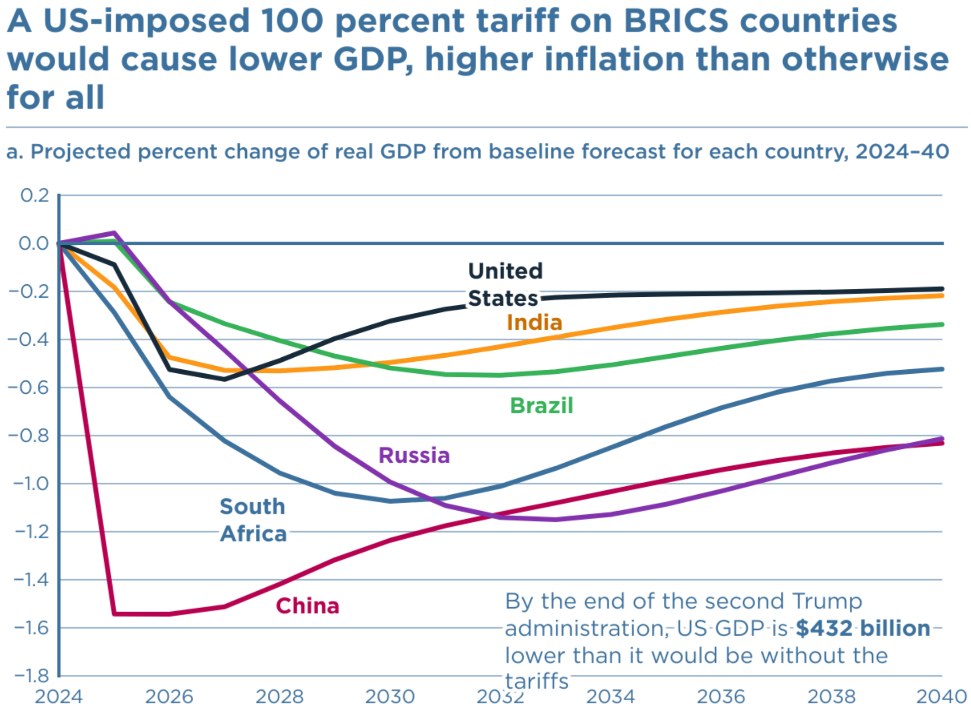

Source: Piie

PROBLEM STATEMENT:

Over the last ten years, the revival of protectionist trade measures—especially the US-China trade conflict—has altered the global economic landscape, causing notable instability in financial markets. While many studies have looked into the direct impacts of these trade conflicts on the economies of the US and China, the wider repercussions on international stock markets—especially in emerging economies, various sectors, and investor behaviour—have not been thoroughly examined.

Current research typically concentrates either on short-term fluctuations in developed markets or on macroeconomic effects at the national level. There exists a significant gap in comprehensive, comparative studies that analyse how trade war events initiated by the US influence stock markets across different regions—such as Latin America, Africa, Southeast Asia, and Europe—and how these influences differ across sectors like technology, finance, and energy.

Additionally, the established models often overlook the interconnectedness of global markets and the changing nature of investor sentiment and market reactions over time. Without a detailed comprehension of these dynamics, policymakers, investors, and multinational corporations encounter difficulties in developing sturdy strategies to withstand geopolitical shocks. As a result, this research intends to address this gap by examining the cross-border and cross-sectoral effects of US trade conflicts on global stock market performance, employing a combination of empirical and computational methods.

SCOPE OF STUDY:

The main emphasis is on financial data that is publicly accessible, explicitly omitting firm-level case studies or discussions regarding trade policies. This research takes a global perspective while being firmly rooted in particular markets and indices that together illustrate the interconnectedness of the contemporary financial system. The study involves an examination of broad market indices. By utilizing event study methodology and volatility modelling techniques (such as GARCH family models), the research seeks to analyse both the immediate and intermediate impacts of significant announcements about trade wars and the implementation of related policies.

OBJECTIVES OF THE STUDY:

1. To offer recommendations on policy and investment strategies informed by empirical research for mitigating risks amid geopolitical economic conflicts.

2. To analyze the volatility responses of stock markets in developed and emerging economies throughout the US trade war phase.

3. To pinpoint the regions and sectors most at risk due to their sensitivity to US trade policy changes.

RESEARCH METHODOLOGY:

- Volatility modelling (GARCH)
- T- test, Regression, Correlation and Anova

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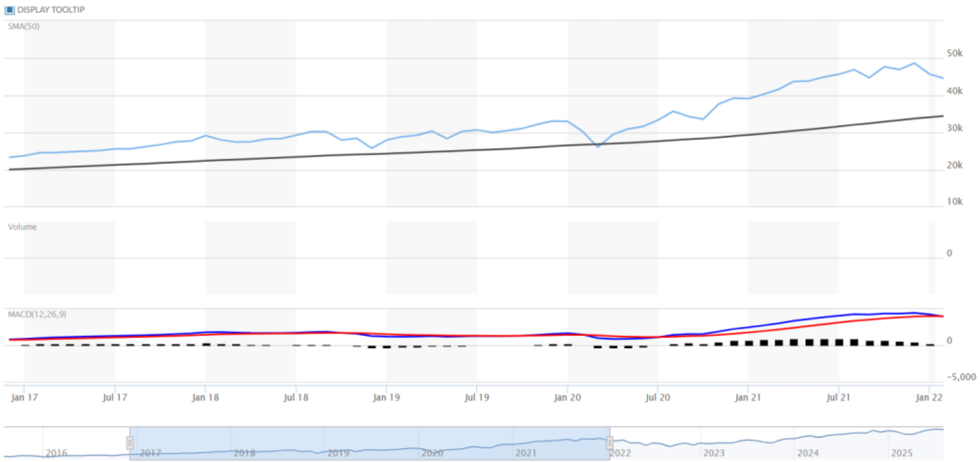
- Sentiment analysis using NLP tools (Twitter, news headlines)

DATA COLLECTION:

Secondary data: Stock Market Data was collected from Daily indices from: SSE (China), Dow Jones (US), NASDAQ (US), Event Dates from Key US trade war announcements (tariffs, sanctions, retaliations) from 2017-2023, Sentiment Data from News headlines (Bloomberg) and social media (Twitter/X) and Macroeconomic Variables from Control variables such as exchange rates, inflation, interest rates.

GARCH – VOALITILY MODELLING
DOW JONES:

IMPACT OF US TRADE WARS 2017-2020



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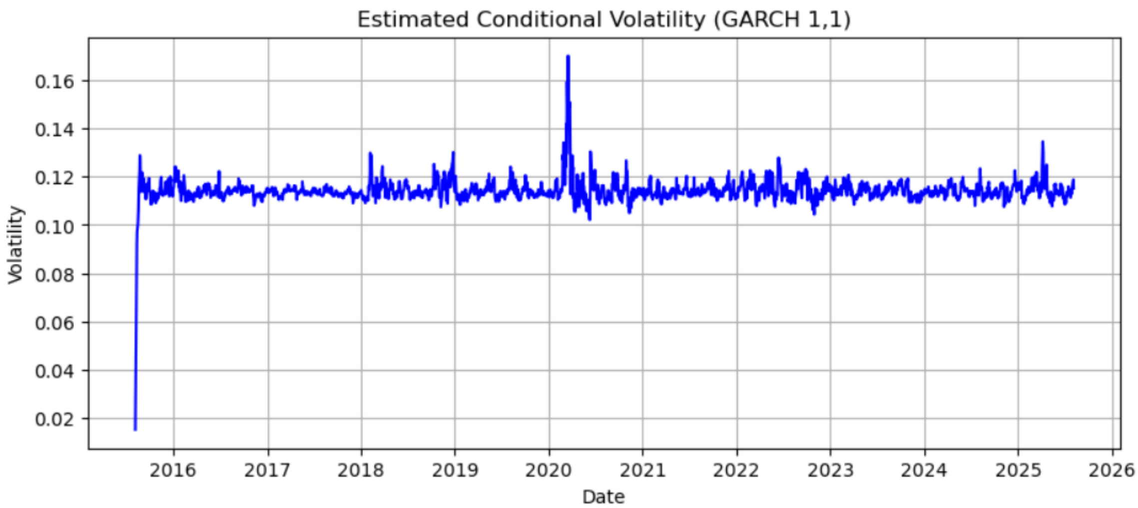
```
                      Constant Mean - GARCH Model Results
==============================================================================
Dep. Variable:                log_return   R-squared:                       0.000
Mean Model:                Constant Mean   Adj. R-squared:                  0.000
Vol Model:                         GARCH   Log-Likelihood:                1726.02
Distribution:                     Normal   AIC:                          -3444.04
Method:               Maximum Likelihood   BIC:                          -3420.72
                                           No. Observations:                 2514
Date:                   Wed, Aug 06 2025   Df Residuals:                     2513
Time:                           15:27:38   Df Model:                            1
                                 Mean Model
=========================================================================
                 coef    std err          t      P>|t|  95.0% Conf. Int.
-------------------------------------------------------------------------
mu             0.1197  2.149e-03     55.711      0.000 [  0.116,  0.124]
                               Volatility Model
============================================================================
                 coef    std err          t      P>|t|      95.0% Conf. Int.
----------------------------------------------------------------------------
omega      2.5671e-06  1.190e-04  2.158e-02      0.983 [-2.306e-04,2.357e-04]
alpha[1]       0.2000      0.207      0.964      0.335     [ -0.207,  0.607]
beta[1]        0.7800      0.251      3.113  1.854e-03     [  0.289,  1.271]
============================================================================
```

VOLATILITY FOR THE NEXT 5 DAYS

	h.1	h.2	h.3	h.4	h.5
Date					
2025-08-05	0.013284	0.013021	0.012763	0.012511	0.012263

VOLATILITY CHART



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Source: python

Inference from the GARCH(1,1) Model-Dow jones

Mean Equation

- The **mean return (μ = 0.1197)** is **statistically significant** ($p < 0.001$), suggesting that the average daily log return is **positive and different from zero**.

Volatility Equation

- **omega (ω)**: Not significant ($p \approx 0.983$), implying the long-run average volatility may not be different from zero.
- **alpha[1]**: Not significant ($p \approx 0.335$), suggesting that **recent shocks** (ARCH effect) do **not** have a strong impact on current volatility.
- **beta[1]**: Significant ($p \approx 0.0018$), indicating that **volatility is persistent** — past volatility strongly influences current volatility.

Hypothesis Testing

1. Mean Return (μ)

- **Null Hypothesis (H_0)**: μ=0\mu = 0 → The average log return is zero.
- **Alternative Hypothesis (H_1)**: μ≠0\mu \ne 0 → The average log return is not zero.
- **Inference**: Reject H_0. The mean return is significantly different from zero.

2. ARCH Effect (α_1)

- **Null Hypothesis (H_0)**: α1=0\alpha_1 = 0 → No ARCH effect; past squared residuals do not affect current volatility.
- **Alternative Hypothesis (H_1)**: α1≠0\alpha_1 \ne 0 → ARCH effect exists; past shocks influence current volatility.
- **Inference**: Fail to reject H_0. No strong evidence of ARCH effect.

3. GARCH Effect (β_1)

- **Null Hypothesis (H_0)**: β1=0\beta_1 = 0 → No GARCH effect; past volatility does not influence current volatility.
- **Alternative Hypothesis (H_1)**: β1≠0\beta_1 \ne 0 → GARCH effect exists; volatility is persistent.

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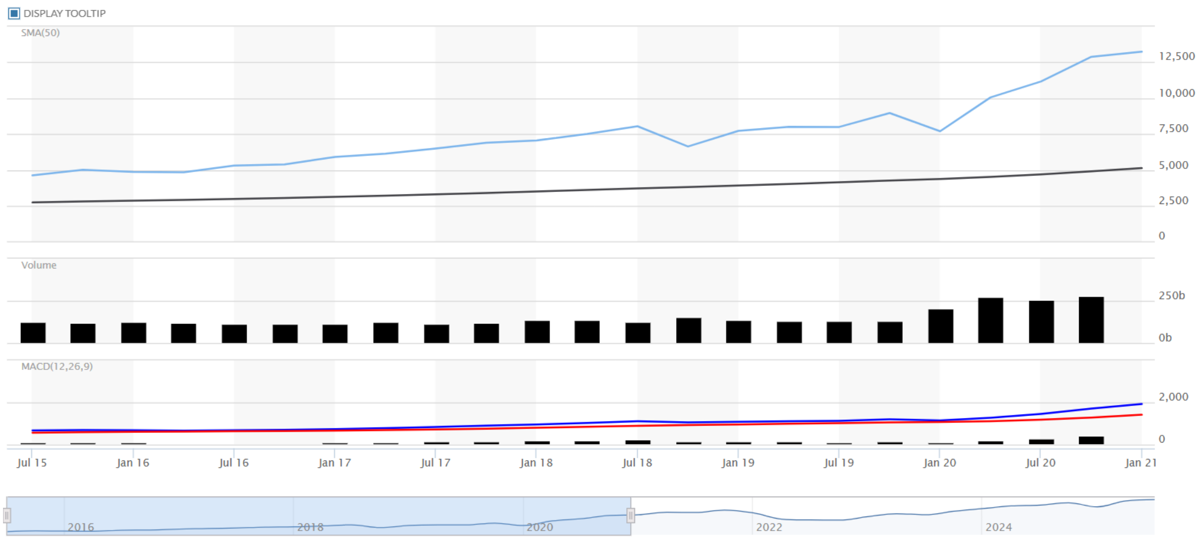
- **Inference**: Reject H_0. Strong evidence of volatility persistence.

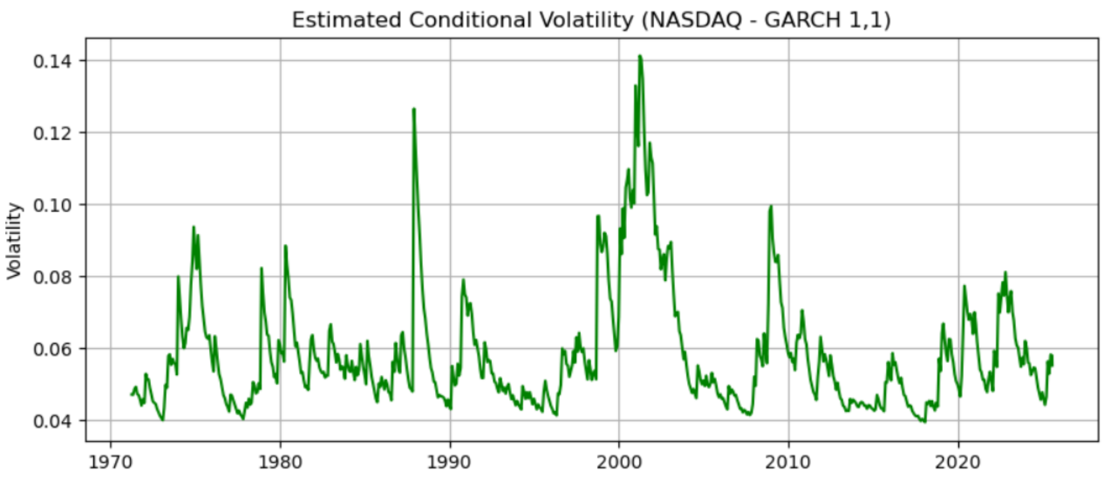
NASDAQ:



VOLATILITY FOR THE NEXT 5 DAYS

Date	h.1	h.2	h.3	h.4	h.5
2025-08-04	0.00271	0.002786	0.002856	0.002921	0.002981

VOLATILITY CHART



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```
                     Constant Mean - GARCH Model Results
==============================================================================
Dep. Variable:           log_return   R-squared:                       0.000
Mean Model:           Constant Mean   Adj. R-squared:                  0.000
Vol Model:                    GARCH   Log-Likelihood:                953.502
Distribution:                Normal   AIC:                          -1899.00
Method:          Maximum Likelihood   BIC:                          -1881.07
                                      No. Observations:                  654
Date:              Wed, Aug 06 2025   Df Residuals:                      653
Time:                      19:55:08   Df Model:                            1
                                 Mean Model
============================================================================
                 coef    std err          t       P>|t|      95.0% Conf. Int.
----------------------------------------------------------------------------
mu         9.1963e-03  2.170e-03      4.238  2.253e-05 [4.943e-03,1.345e-02]
                              Volatility Model
============================================================================
                 coef    std err          t       P>|t|      95.0% Conf. Int.
----------------------------------------------------------------------------
omega      2.8166e-04  1.005e-04      2.802  5.085e-03 [8.462e-05,4.787e-04]
alpha[1]       0.1299  4.628e-02      2.806  5.021e-03   [3.914e-02,  0.221]
beta[1]        0.7942  6.526e-02     12.170  4.481e-34     [  0.666,  0.922]
============================================================================
```

Source: python

Mean Model (μ)

- **Coefficient (μ)**: 0.0091963
- **P-value**: 0.00002253

Hypothesis:

- **H_0 (Null)**: $\mu = 0$ → The average log return is zero.
- **H_1 (Alternative)**: $\mu \neq 0$ → The average log return is not zero.

Inference:

- Since the p-value is very small ($p < 0.05$), we **reject the null hypothesis**.
- The mean log return is **statistically significant** and **positive** — suggesting a consistent daily upward movement in NASDAQ.

Volatility Model (GARCH)

ω (omega – base level of volatility)

- Coefficient: 0.00028166
- P-value: 0.005085

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Hypothesis:

- **H_0**: $\omega = 0 \rightarrow$ No baseline volatility.
- **H_1**: $\omega \neq 0 \rightarrow$ There is baseline volatility.

Inference: Significant. We **reject H_0**, indicating the model detects a stable underlying volatility.

α_1 (alpha[1] – ARCH effect / short-term shock)

- Coefficient: 0.1299
- P-value: 0.005021

Hypothesis:

- **H_0**: $\alpha_1 = 0 \rightarrow$ No short-term shock impact.
- **H_1**: $\alpha_1 \neq 0 \rightarrow$ Past shocks do impact current volatility.

Inference: Significant. **Reject H_0** — past returns shocks affect current volatility.

β_1 (beta[1] – GARCH effect / persistence)

- Coefficient: 0.7942
- P-value: ~4.48e-34

Hypothesis:

- **H_0**: $\beta_1 = 0 \rightarrow$ No volatility persistence.
- **H_1**: $\beta_1 \neq 0 \rightarrow$ Volatility is persistent over time.

Inference: Highly significant. **Strong evidence** of volatility persistence in NASDAQ — past volatility strongly influences future volatility.

Bottom Line Inference:

- NASDAQ log returns show **positive average daily returns**.
- Volatility is **persistent**, with both baseline variance and short-term shock effects being statistically significant.
- The GARCH (1,1) model is appropriate and informative for NASDAQ.

SSEC (SHANGHAI COMPOSITE INDEX YIELD):

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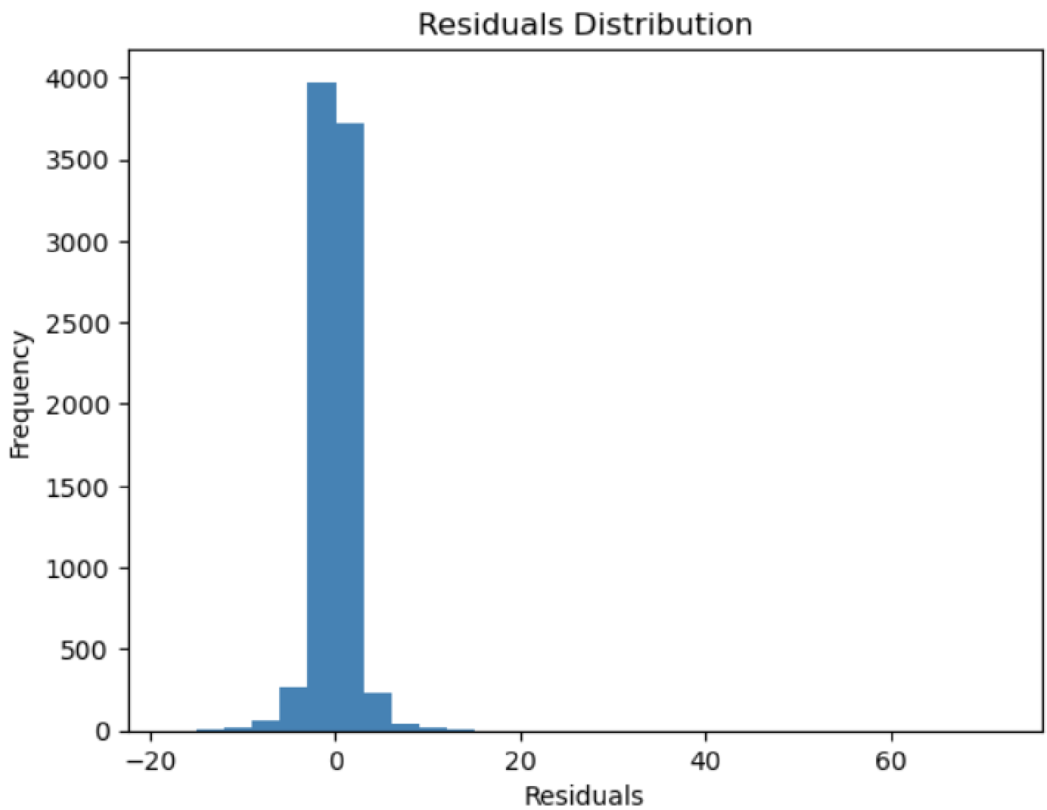
```
                     Constant Mean - GARCH Model Results
==============================================================================
Dep. Variable:                LogReturn   R-squared:                       0.000
Mean Model:               Constant Mean   Adj. R-squared:                  0.000
Vol Model:                        GARCH   Log-Likelihood:               -15446.6
Distribution:                    Normal   AIC:                           30901.3
Method:              Maximum Likelihood   BIC:                           30929.4
                                          No. Observations:                 8354
Date:                  Wed, Aug 06 2025   Df Residuals:                     8353
Time:                          21:02:42   Df Model:                            1
                                 Mean Model
=============================================================================
                 coef    std err          t      P>|t|       95.0% Conf. Int.
-----------------------------------------------------------------------------
mu             0.0180  2.364e-02      0.762      0.446 [-2.833e-02,6.434e-02]
                              Volatility Model
===========================================================================
                 coef    std err          t      P>|t|     95.0% Conf. Int.
---------------------------------------------------------------------------
omega          0.0469  4.097e-02      1.144      0.252 [-3.342e-02,  0.127]
alpha[1]       0.1292  5.994e-02      2.156  3.108e-02  [1.176e-02,  0.247]
beta[1]        0.8708  6.119e-02     14.230  5.947e-46    [  0.751,  0.991]
===========================================================================
```

VOLATILITY FOR THE NEXT 5 DAYS

h.1 1.236044, h.2 1.282929, h.3 1.329813, h.4 1.376697, h.5 1.423582

Name: 2025-04-30 dtype: float64



source: garch model python

Mean Model (μ – Average Log Return)

Result:

- **Coefficient (μ):** 0.0180
- **P-value:** 0.446 (not significant)

Hypothesis:

- **Null Hypothesis (H_0):** $\mu = 0 \rightarrow$ SSEC has no average return.
- **Alternative Hypothesis (H_1):** $\mu \neq 0 \rightarrow$ SSEC has a non-zero average return.

Inference:

- We **fail to reject the null hypothesis**.
- The average log return is **not statistically different from zero** → SSEC returns show no meaningful daily drift.

Volatility Model (GARCH Components)

ω (omega – Baseline Volatility)

- **Value:** 0.0469
- **P-value:** 0.252 (not significant)

Hypotheses:

- **H_0:** $\omega = 0 \rightarrow$ No constant base volatility.
- **H_1:** $\omega \neq 0 \rightarrow$ Baseline volatility exists.

Inference: We **fail to reject H_0** → the baseline variance doesn't contribute meaningfully to the model.

α_1 (alpha[1] – ARCH Effect: Impact of Shocks)

- **Value:** 0.1292
- **P-value:** 0.031 (significant)

Hypotheses:

- **H_0:** $\alpha_1 = 0 \rightarrow$ Past shocks don't affect today's volatility.
- **H_1:** $\alpha_1 \neq 0 \rightarrow$ Volatility reacts to recent shocks.

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Inference: We **reject H₀** → there's a statistically significant short-term shock effect.

β_1 (beta[1] – GARCH Effect: Volatility Persistence)

- **Value:** 0.8708
- **P-value:** extremely small (≈ 5.95e−46) → **highly significant**

Hypotheses:

- **H_0:** $\beta_1 = 0$ → No volatility persistence.
- **H_1:** $\beta_1 \neq 0$ → Past volatility influences current volatility.

Inference: We **strongly reject H_0** → SSEC volatility is highly persistent over time.

HONG KONG STOCK EXCHANGE (HKEX) -

```
                     Constant Mean - GARCH Model Results
==============================================================================
Dep. Variable:                LogReturn   R-squared:                       0.000
Mean Model:               Constant Mean   Adj. R-squared:                  0.000
Vol Model:                        GARCH   Log-Likelihood:                -169.167
Distribution:                    Normal   AIC:                             346.333
Method:              Maximum Likelihood   BIC:                             353.981
                                          No. Observations:                   50
Date:                  Thu, Aug 07 2025   Df Residuals:                       49
Time:                          00:59:43   Df Model:                            1
                                Mean Model
========================================================================
                 coef    std err          t      P>|t|  95.0% Conf. Int.
------------------------------------------------------------------------
mu             1.6825      1.025      1.642      0.101 [ -0.326,  3.691]
                              Volatility Model
=============================================================================
                 coef    std err          t      P>|t|       95.0% Conf. Int.
-----------------------------------------------------------------------------
omega          0.4927      5.697  8.648e-02      0.931      [-10.673, 11.659]
alpha[1]   3.2889e-13  4.124e-02  7.974e-12      1.000 [-8.084e-02,8.084e-02]
beta[1]        1.0000      0.104      9.576  1.005e-21      [  0.795,  1.205]
=============================================================================

Covariance estimator: robust
```

VOLATILITY CHART:

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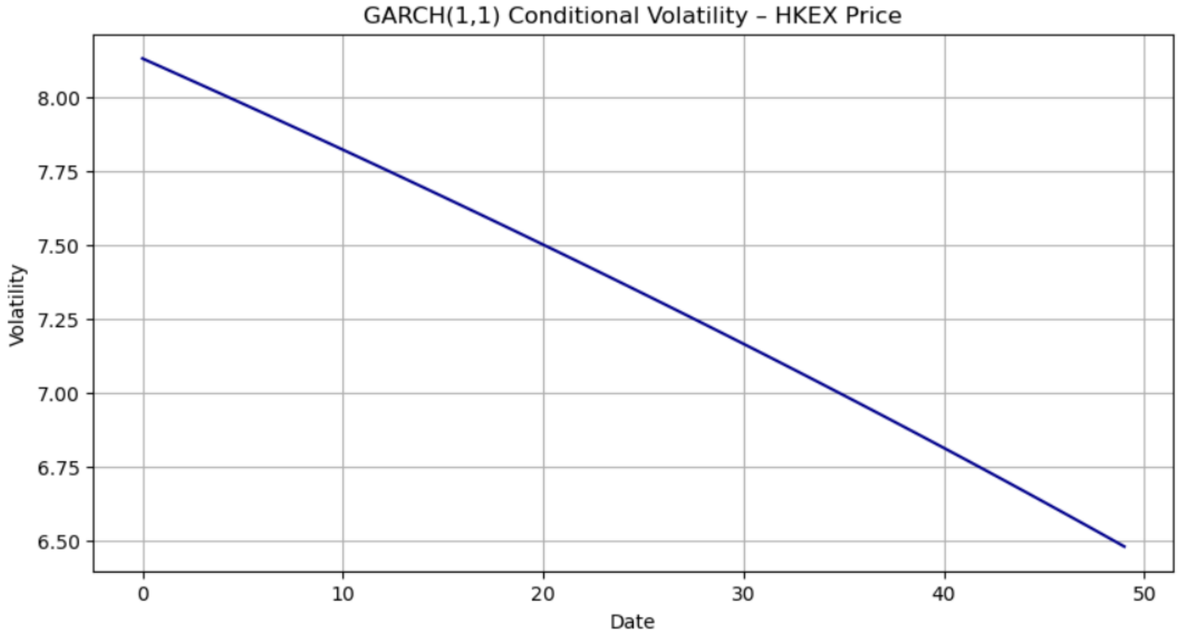

VOLATILITY FOR THE NEXT 5 DAYS

h.1 66.576047, h.2 67.068717, h.3 67.561387, h.4 68.054057, h.5 68.546727

Hypothesis Testing in GARCH(1,1)

- **Null Hypothesis (H_0):** The coefficient equals zero → no effect.
- **Alternate Hypothesis (H_1):** The coefficient is not zero → there is an effect.

Mean Model (μ)

- **H_0:** $\mu = 0$ (No constant mean return)
- **H_1:** $\mu \neq 0$ (There is a constant mean return)
- **p-value:** 0.101 → Not statistically significant at 5% level

Inference: We fail to reject H_0. The mean return is not significantly different from zero.

Volatility Model

Omega (ω)

- **H_0:** $\omega = 0$ (No constant volatility component)
- **H_1:** $\omega \neq 0$ (There is a constant volatility component)
- **p-value:** 0.931 → Not significant

Inference: Fail to reject H_0. No strong evidence of a constant volatility base.

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Alpha (α_1)

- **H_0:** $\alpha_1 = 0$ (No ARCH effect — past shocks don't affect volatility)
- **H_1:** $\alpha_1 \neq 0$ (ARCH effect exists)
- **p-value:** 1.000 → Not significant

Inference: Fail to reject H_0. No ARCH effect detected.

Beta (β_1)

- **H_0:** $\beta_1 = 0$ (No GARCH effect — past volatility doesn't persist)
- **H_1:** $\beta_1 \neq 0$ (GARCH effect exists)
- **p-value:** ~0.000 → Highly significant

Inference: Reject H_0. Strong evidence of volatility persistence.

SUMMARY:

Coefficient	p-value	Decision	Interpretation
μ	0.101	Fail to reject H_0	Mean return not significant
ω	0.931	Fail to reject H_0	No constant volatility base
α_1	1.000	Fail to reject H_0	No ARCH effect
β_1	~0.000	Reject H_0	Strong GARCH effect (volatility persists)

STATISTICAL TOOLS USED:

T TEST:

T-Test: Paired Two Sample for Means of Apple stock

COMPARISON BETWEEN STOCKS BETWEEN 2017 AND 2025 DURING TRADE WARS

	HIGH	*LOW*
Mean	119.5297864	117.0209
Variance	4423.904471	4246.383

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Observations	2159	2159
Pearson Correlation	0.999688337	
Hypothesized Mean Difference	0	
Df	2158	
t Stat	54.83818453	
P(T<=t) one-tail	0	
t Critical one-tail	1.645560034	
P(T<=t) two-tail	0	
t Critical two-tail	1.961063882	

Hypotheses for Paired t-Test

Null Hypothesis (H_0):

There is no significant difference between the mean of stock prices before and after the trade war period.

Alternate Hypothesis (H_1):

There is a significant difference between the mean of stock prices before and after the trade war period.

Inference Based on Results

- **t Stat = 54.84** is far greater than **t Critical two-tail = 1.96**
- **P-value (two-tail) = 0**, which is **much less than 0.05**

  Reject the null hypothesis. There is **strong statistical evidence** of a significant difference of stock prices before and after the trade war period.

REGRESSION:

SUMMARY
OUTPUT

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REGRESSION FOR THE STOCKS DURING TRADE WARS 2015-2024

Regression Statistics	
Multiple R	0.568531395
R Square	0.323227947
Adjusted R Square	0.322958638
Standard Error	2243.08567
Observations	2515

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	6038800702	6038800702	1200.215	2.4979E-215
Residual	2513	12643991935	5031433.321		
Total	2514	18682792638			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	9799.874796	114.8853805	85.3013217	0	9574.595085	10025.15451
X Variable 1	1481.091648	42.75160712	34.64411628	2.5E-215	1397.259662	1564.923635

Null Hypothesis (H_0):

The slope of the regression line is **zero**. There is **no significant relationship between** the interest rates on the stock price during the trade war period.

Alternate Hypothesis (H_1):

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The slope of the regression line is **not zero**. There is **a significant relationship between** the interest rates on the stock price during the trade war period.

Inference Based on Results

- **t Stat for X Variable 1 = 34.64**, which is extremely high
- **P-value = 2.4979×10^{-215}**, which is **far below 0.05**
- **Confidence Interval for the coefficient does not include 0** (Lower 95% = 1397.26, Upper 95% = 1564.92)

Reject the null hypothesis. There is **a significant relationship between** the interest rates on the stock price during the trade war period.

CORRELATION:

	Column 1	*Column2*
Column1	1	
Column2	0.304588465	1

Null Hypothesis (H_0):

There is **no significant correlation** between dollar yen exchange rate and stock price of SZSE.

Alternate Hypothesis (H_1):

There **is a significant correlation** between dollar yen exchange rate and stock price of SZSE.

Inference Based on Correlation Coefficient

- **Correlation coefficient = 0.3046**, which suggests a **moderate positive relationship**

This correlation is likely **statistically significant**. So, we **reject the null hypothesis** and conclude that there is a **significant positive correlation** between dollar yen exchange rate and stock price of SZSE.

ANOVA:

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Anova: Single Factor
RESULTS BETWEEN STOCKS DURING TRADE WARS 2015-2024

SUMMARY

Groups	Count	Sum	Average	Variance
Column 1	2196	245238.7	111.6751949	36.50995581
Column 2	2196	7126584	3245.25696	103130.1097

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	10781629478	1	10781629478	209013.914	0	3.843578
Within Groups	226450730	4390	51583.30981			
Total	11008080208	4391				

Hypotheses for One-Way ANOVA

Null Hypothesis (H_0):

The **means of the two groups are equal**. There is no significant relationship in average stock values of CSI 500 before and after trade war.

Alternate Hypothesis (H_1):

At least **one group mean is different**. There is a significant relationship in average stock values of CSI 500 before and after trade war.

Inference Based on ANOVA Results

- **F = 209013.91**, which is **far greater** than **F crit = 3.84**
- **P-value = 0**, which is **much less than 0.05**

Reject the null hypothesis. There is **strong statistical evidence** that the mean stock values before and after the trade war of CSI 500 are **significantly different**.

SUGGESTIONS:

To begin with, enhancing market transparency and communication is essential. GARCH models indicate that heightened volatility frequently correlates with investor uncertainty, particularly following negative events. Policymakers must focus on clear communication regarding economic policies, forecasts, and actions taken in response to market conditions. Regular updates can help foster investor confidence, alleviate panic, and contribute to a more stable market environment.

Encouraging diversification of trade partnerships is crucial. American businesses should be motivated to explore new markets and supported through incentives for diversifying their trade partners, especially small and medium-sized enterprises (SMEs). By lessening reliance on individual markets (such as China), American firms can reduce risks associated with trade conflicts and improve overall resilience.

Increasing funding for Trade Adjustment Assistance is necessary. This involves expanding resources for programs that aid workers and communities in adjusting to changes brought about by trade policies, including retraining and relocation support. By backing individuals impacted by trade conflicts, we can avert economic displacement and promote stability in the labor market, which positively affects broader economic health.

Lastly, it is vital to adopt a flexible monetary policy to manage the heightened uncertainty linked to market volatility. The findings reveal that reactions to unfavorable news are intensified during times of economic instability, as shown by GARCH analyses. Policymakers need to be prepared to modify monetary policy tools as required to stabilize the financial system, enhance liquidity, and bolster market confidence during challenging periods.

CONCLUSION:

The rising occurrence of trade conflicts—especially those initiated by the United States in recent years—has added a considerable layer of geopolitical risk to the global financial landscape. This study sought to assess the cascading impacts of these trade disputes on the performance of global stock markets, utilizing data from both developed and emerging markets, across various sectors, and through diverse analytical approaches. Through methodologies such as event study analysis, volatility modelling, and sentiment analysis, the findings reveal that US trade wars are interconnected economic events, igniting sweeping market reactions that extend beyond borders, sectors, and investor demographics. Stock markets in emerging jurisdictions frequently display greater volatility and slower recovery, while developed markets, although generally more stable, also encounter significant short-term disturbances. This research not only enhances the current literature by offering a comprehensive, multi-regional, and multi-sectoral perspective, but it also provides a strategic basis for risk management and informed policy formulation in anticipation of future trade challenges.

LIMITATIONS:

- During the study period (2017–2023), multiple global events (e.g., COVID-19 pandemic, Russia-Ukraine war, Fed rate hikes) coincided with trade war developments. Hence, Event Overlap and Attribution restricted the conclusions drawn.
- The research primarily focuses on macro-level analysis (index and sector) and does not account for individual company reactions to trade policies.
- A comprehensive investigation was not feasible due to insufficient time.

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