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The Impact of Recent US Tariff Hikes on the Stock Market

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Abstract

Since early 2018, the U.S. government's tariff hike policy has triggered multiple rounds of global trade tension, with profound implications for financial markets. This paper investigates the impact of U.S. tariff policy on global stock markets between 2017 and 2025, focusing on S&P 500, CSI 300, and STOXX 50 indices. Using event study methodology and panel regression analysis, this work examines both short-term market reactions and long-term transmission mechanisms. The model incorporates macro control variables (U.S. bond yields, dollar index, and VIX), as well as industry-level trade sensitivity metrics. Results indicate that tariff announcements and implementations significantly depress market returns, especially in China's A-share market, which shows heightened sensitivity to policy uncertainty. Over the medium to long term, tariffs influence market expectations via earnings forecasts, export dependence, and volatility sentiment. Industries with high trade exposure suffer sustained valuation discounts, even after controlling for fundamentals. Moreover, fluctuations in VIX and the dollar index amplify policy-induced risks across markets. This paper demonstrates that tariffs serve not only as trade instruments but also as key exogenous shocks to global capital markets. The findings offer important insights for investors managing risk under geopolitical uncertainty and for policymakers aiming to balance protectionism with financial stability.

Keywords

Tariff Policy; Trade War; Stock Market Reaction; Event Study; Panel Regression; Macroeconomic Variables; Risk Transmission.

1. Introduction

Since Section 301 of the Trade Act came into effect in 1974, the "toolbox" of the United States to impose tariffs on imports has been refurbished from time to time, but it was not until the Trump administration signed a memorandum on the tariff increase of $50 billion of commodities on China in March 2018 that tariffs became a "high-frequency variable" that really impacted the global capital market. "High-frequency variables". Prior to that, US tariff barriers were relatively modest, with the average most-favoured-nation (MFN) rate hovering consistently in the 2%-4% range from 1990-2017, and markets were more focused on Fed interest rates, oil prices and even the tech cycle. When the tariff war escalated abruptly in 2018, the S&P 500 index fell by a maximum of 3.2% in a single day, while the CSI 300 and the STOXX 50 also fell in tandem, displaying the characteristics of "financial-like shocks" [1]. Under Trump 2.0 and the Biden administration, tariffs have been upgraded to target strategic industries such as electric vehicles and photovoltaics, with the peak rate of tariffs once expected to rise to 60 per cent against China, and in extreme cases, even more than 100 per cent [2]. Against the backdrop of highly deepened nested global supply chains and cross-border capital flows, tariff hikes not only push up corporate costs through the trade channel, but also transmit rapidly to the stock market through risk premiums, which in turn affects the wealth effect of residents,

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corporate financing, and macro confidence. In particular, during the phased increase of "reciprocal tariffs" in April 2025, the major indices in Asia and Europe fell simultaneously, and the demand for gold as a safe-haven surged, which is a rare "global-style policy shock" since the Smoot-Hawley Tariff Act in the 1930s. "[3].

Established research has accumulated a wealth of results around the relationship between tariffs and financial markets, but three major gaps remain. First, a large body of literature focuses on the impact of fixed tariffs or long-term agreements on macro variables, ignoring the immediate and sustained effects of sudden tariff events in the "announcement-implementation-escalation" chain; second, the existing samples are mostly confined to developed economies or a single market (e.g., the U.S. stock market, the A-share market, the U.S. stock market, and the A-share market). Second, the existing samples are mostly limited to developed economies or a single market, and there is a lack of systematic comparison of the heterogeneous responses of U.S. stocks, A-shares and European stocks in terms of trading systems, investor structure and market openness[4]; third, although the methodology has seen the emergence of measurement tools such as the event study methodology, double-difference scores, and propensity score matching, the noise of high-frequency data, the interference of macro-resonance factors and the differences in the time zones of the cross-markets still pose challenges to the identification of these differences. To address the above gaps, academics have recently tried to dismantle the policy-industry-share price transmission chain at the micro level: tariffs are expected to push up the volatility of export-dependent firms, and tariff escalation triggers an acceleration of the cost of "going overseas" for private firms, and the cost of "going abroad" is accelerated through the US dollar's movement. 2025, and global risk appetite contraction through USD strength and VIX spike[2-5].

In this study, we construct a two-stage comparative perspective of "base period - intense period", and make three innovations in theory and empirical evidence. First, the event study method is combined with dynamic panel regression to capture the cumulative excess return (CAR) on the day the tariffs are announced and to assess the medium- and long-term effects of tariff delays, tariff rate hikes and retaliatory tariffs; second, we introduce a sample of U.S., A-share, and European stocks, and portray heterogeneous shock paths through the interaction term between industry export dependence and market structure factors, and conduct robustness tests with PSM- DID; third, we introduce a sample of U.S., A-share, and European stocks to test for heterogeneous shock paths with PSM- DID; fourth, we use a two-stage comparative perspective. DID for robustness testing; the "low tariff-high globalisation" period before 2018 is used as a control to quantify the process of tariff policy evolving from a "peripheral issue" to a "dominant risk source". The study quantifies the evolution of tariff policy from a "marginal issue" to a "dominant risk source", providing empirical evidence to identify new drivers of the global financial cycle. The findings are expected to inform investors in constructing dynamic risk management models, companies in optimising supply chain resilience, and governments in striking a balance between protectionism and market stability. The linkage between sentiment analysis of policy texts and high-frequency stock market responses can help regulators calibrate policy communication windows in a timely manner and reduce irrational volatility triggered by information asymmetry.

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2. Incidents and description

Table 1. Collation of all major tariff events

Incident number	Date of event	Event Name	Policy Stage	Escalation or not	Whether targeting China	Major Industries Involved
E1	2018/3/1	Announcement of tariffs on steel and aluminium products	Announced	No	No	Steel, aluminium, basic raw materials
E2	2018/3/8	Formal signing of steel and aluminium tariff order	Implemented	Yes	No	Steel, aluminium, manufacturing
E3	2018/4/3	US announces tariffs on $50bn of goods from China	Announced	Yes	Yes	Machinery, electrical equipment, transport
E4	2018/6/15	US announces $200bn tax hike on China goods	Announced	Yes	Yes	Consumer goods, industrial goods, mechanical and electrical products
E5	2018/7/6	U.S. tariffs on first $34 billion of Chinese products	Implementation	Yes	Yes	Auto parts, chemicals, machinery and equipment
E6	2019/5/10	U.S. to raise tariff rates from 10% to 25% (Batch 3)	Escalation implementation	Yes	Yes	Communications, electronics, apparel and toys
E7	2019/8/23	China and the United States announced a new round of tariff countermeasures against each other	Announced	Yes	Yes	Broad multi-industry coverage
E8	2020/1/15	First phase of trade agreement signed	Announced	No	Yes	Partial tariff elimination, easing phase
E9	2024/5/14	Biden announces tariffs on China's electric cars, photovoltaics	Announcement	Yes	Yes	Electric Vehicles, Batteries, Clean Energy

In order to assess the short-term impact of the US tariff increase policy on major stock markets, this paper adopts the Market Model in Event Study Methodology as a benchmark model to estimate the Normal Return of stocks without event disturbances and further derive the Excess Return (Abnormal Return, AR) and Cumulative Abnormal Return (CAR) in case of an event. Abnormal Return (AR) and Cumulative Abnormal Return (CAR) when the event occurs. The basic form of the market model is shown below:

$$R_{i,t}=\alpha_i+\beta_i R_{m,t}+\varepsilon_{i,t} \quad (1)$$

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Where:

$R_{i,t}$: the actual return of thei th market on thet th day;

$R_{m,t}$: the global market benchmark return;

$\alpha_i\beta_i$: Parameters obtained through regression over the estimation period;

$\varepsilon_{i,t}$: the excess return, i.e. the abnormal part of the return, is used to estimate the impact of event shocks.

After estimating the normal return, the excess return (AR) can be calculated for each trading day within the event window:

$$AR_{i,t}=R_{i,t}-(\hat{\alpha}_i+\hat{\beta}_i R_{m,t}) \quad (2)$$

On this basis, the cumulative excess return (CAR) within a time window$[\tau_1,\tau_2]$ is calculated:

$$CAR_{i,[\tau_1,\tau_2]}=\sum_{t=\tau_1}^{\tau_2} A\,R_{i,t} \quad (3)$$

The Estimation Period and Event Window are set as follows:

Estimation Window is set from 150 days prior to the event date to 20 days prior to the event date, i.e. [-150,-20], which is used to estimate the parameters$\hat{\alpha}_i$ and$\hat{\beta}_i$.

The Event Window includes several settings such as [-5,+5], [-3,+3], [0,+3], [0,+5], etc. to capture the market reaction over different lengths.

In this section, one benchmark reference and three typical tariff hike events are selected to compare the CAR performance of three major U.S., Chinese, and European stock markets under event windows [-5,+5] or [-3,+3].

Table 2. cumulative excess returns by market CAR ([-5,+5]) for E0 (6-7 April 2017 US-China meeting at the Hay Lake Estate)

Index	CAR (%)
S&P 500	0.85
	(1.12)
CSI 300	1.43
	(1.88)
STOXX 50	0.62
	(0.95)

This table presents the cumulative excess returns of the three major markets during the [-5,+5] window before and after the 6-7 April 2017 meeting at the US-China "Haihu Manor". This event was a high-profile diplomatic engagement, but it was not accompanied by any substantive economic confrontation policies, and is therefore seen as a typical "peacetime" reference event before the outbreak of a tariff war. In terms of results, all three major stock indices show positive CARs, with the S&P 500 at +0.85%, the CSI 300 at +1.43% and the STOXX 50 at +0.62%. While none of the t-values reached the traditional level of significance, the slightly stronger outperformance of CSI 300 over the other markets reflects the boost to Chinese market sentiment from the direct US-China interaction. Overall, all three major markets reacted moderately to the event, suggesting that risk premiums did not rise significantly during a period of a more stable policy environment when markets had positive expectations of US-China

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interactions. This contrasts with the successive trade friction events from 2018 onwards, when CARs were significantly negative during most event windows. The setting of this benchmark event helps to strengthen the basis of causal identification in the event studies and panel regressions later on, highlighting the explanatory power of the policy variables in the changes in the market structure of the "pre-war and post-war" period.

Table 3. E2 (8 March 2018 Steel and Aluminium Tariff Signing) Cumulative Excess Returns by Market CAR ([-5,+5])

Index	CAR (%)
S&P 500	-2.15**
	(-2.79)
CSI 300	-4.37***
	(-3.92)
STOXX 50	1.88*
	(-2.10)

On 8 March 2018, US President Donald Trump signed an order announcing tariffs on steel (25%) & aluminium (10%) products, officially kicking off the US-China trade friction. The data in Table 3 shows that the event had a significant negative impact on all major global markets under the [-5, +5] window, with the CSI 300 CAR at -4.37%, indicating that the Chinese market was highly sensitive and reacted sharply to the news; the S&P 500 CAR at -2.15%, indicating that investors expressed clear concerns about the US industrial chain being hit by the cost of steel and aluminium; while the European The STOXX 50 CAR was -1.88%, indicating that European markets were also wary of the unilateral trade action, but the reaction was relatively mild. This event confirms the "cross-border panic spillover" effect of unilateral tariffs on global markets, especially hitting China's export-dependent companies and manufacturing sectors the hardest. The US market, although the initiator, fell as well, as domestic firms faced the dual uncertainty of rising costs and retaliatory tariffs. This phase also served as a risk anchor for subsequent "tariff war" volatility, reinforcing investors' risk-pricing expectations about the stability of global supply chains.

Table 4. Event E4 (15 June 2018 Announcement of $200bn tariff hike on China) CAR ([-5,+5])

Index	CAR (%)
S&P 500	-1.75*
	(-2.02)
CSI 300	-5.83***
	(-5.20)
STOXX 50	-2.10**
	(-2.66)

On 15 June 2018, the US government further escalated the trade friction by announcing tariffs on $200 billion of Chinese goods. According to Table 4, the CSI 300 Index CAR was -5.83%, showing that the Chinese market holds a significantly pessimistic expectation of the escalating trade war, especially hitting export-oriented sectors and outward-oriented manufacturing industries severely. The S&P 500 CAR was -1.75%, not as bad as the Chinese market, but still demonstrating US investor concerns about future corporate cost increases, supply chain constraints, and macroeconomic downside risks. Europe's STOXX 50 Index also recorded a CAR of -2.10%, showing the sensitivity of the European market to the "second-order shock"

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mechanism of the US-China conflict, especially as European exporters may face secondary impacts such as a drop in global demand and a slowdown in international investment. The event further strengthened the market for the U.S. and China tariff war "protracted" expectations, investors began to adjust asset portfolios and risk exposure, risk aversion heated up. From an economic behavioural perspective, the event reinforced risk expectations about the "unpredictability" of government policy actions and triggered a repricing of macro variables such as inflation, exchange rates and the global manufacturing cycle.

Table 5. Event E9 (14 May 2024 Biden announces new round of tariffs on China) CAR ([-3,+3])

Index	CAR (%)
S&P 500	-0.92
	(-1.65)
CSI 300	-2.91***
	(-3.12)
STOXX 50	1.25*
	(-2.02)

On 14 May 2024, the US Biden administration announced another round of high tariffs on China's strategic green industries such as electric vehicles, batteries and photovoltaic modules, marking a new round of escalation in US-China trade tensions. According to the results in Table 5, during the [-3, +3] event window, the CSI 300 Index CAR was -2.91%, showing the Chinese market's strong concern about the impact on "strategic industries", especially the new energy automobile and clean energy sectors, which generally plummeted; this reflects that the tariff hike has gone beyond the traditional manufacturing sector and directly targeted the emerging industry chain, with implications for China's future. This reflects that the tax hike has gone beyond the traditional manufacturing sector and is directly targeting the emerging industry chain, which will have a structural impact on China's future industrial competitiveness. The S&P 500 CAR was -0.92%, indicating that the US market views this round of tax hikes as more of a "political gesture" or election cycle operation, and is more cautious in assessing the substantive economic impact; this may also reflect that the US industrial chain has been affected to a relatively low degree, or that investors anticipate that the space for the implementation of this policy is limited. The European STOXX 50 CAR is -1.25%, indicating that the European market is also aware that the global green energy industry chain will enter a new round of competition and policy reconstruction, especially European car companies and photovoltaic companies will be indirectly affected by China's countermeasures. This incident represents the structural escalation of the US-China trade friction in the field of "science and technology, green and security", and the market response has shifted from the initial "supply chain fluctuation" to the "medium- and long-term industrial strategy game". The market response has shifted from initial "supply chain fluctuation" to "medium and long-term industrial strategy game", and the risk pricing mechanism has become more complicated and long-term.

3. Empirical Analysis

3.1. Model Setting

In order to systematically analyse the impact of the recent US tariff policy on major global stock markets, this paper constructs the following three-level empirical models - the basic event regression model, the mediation mechanism model and the heterogeneity double-difference model. Each model takes into account market differences, time effects and industry structure

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in variable setting and estimation methods, and tries to comprehensively present the short-term and medium- to long-term transmission mechanisms of policy shocks. The base model is used to test whether the tariff policy has a significant impact on stock market returns. The fixed effects panel regression model is set up as follows:

$$Return_{i,t}=\alpha_i+\beta_1\cdot TariffDummy_t+\beta_2\cdot\Delta BondYield_t+\beta_3\cdot\Delta DollarIndex_t+\beta_4\cdot VIX_t+\varepsilon_{i,t} \quad (4)$$

$Return_{i,t}$: denotes the standardised return of thei th market ont ;

$TariffDummy_t$: is a dummy variable for tariff policy, which is set to 1 on the event date and 0 for the rest;

$\Delta BondYield_t$ $\Delta DollarIndex_t$ and VIX_t : represent the macro control variables, the change in the U.S. 10-year Treasury yield, the change in the U.S. dollar index, and the volatility index, respectively;

α_i : are market fixed effects;

$\varepsilon_{i,t}$: as a disturbance term.

The model aims to assess whether tariff policy events have a systematic impact on stock market returns and quantify its direction and magnitude.

In order to further identify the transmission path of the policy impact, this paper adopts staged mediation effect modelling to explore whether market risk premiums and corporate earnings expectations play a mediating role. The setup is as follows:

First stage:

$$Mediator_{i,t}=\gamma_0+\gamma_1\cdot TariffDummy_t+\gamma_2\cdot X_t+u_{i,t} \quad (5)$$

Second stage:

$$Return_{i,t}=\theta_0+\theta_1\cdot TariffDummy_t+\theta_2\cdot Mediator_{i,t}+\theta_3\cdot X_t+\eta_{i,t} \quad (6)$$

Where$\varepsilon_{i,t}$ represents the mediating variables andX_t includes the control variables. Ifγ_1 andθ_2 are significant, it means there is a significant mediation path.

In order to reveal the differences in the degree of exposure to shocks in different industries, this paper sets up the following Difference-in-Differences model (Difference-in-Differences):

$$Return_{i,t}=\delta_0+\delta_1\cdot TariffDummy_t+\delta_2\cdot TariffExp_i+\delta_3\cdot(TariffDummy_t\times TariffExp_i)+\delta_4\cdot X_t+\mu_{i,t} \quad (7)$$

Where $TariffDummy_t$ is the industry Tariff Exposure Index, measured by the U.S. import dependence on China or tariff coverage ratio. The coefficient of the interaction termδ_3 , if significant, indicates that industry sensitivity has a moderating effect in policy transmission.

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Table 6. Definition of Variables

Variable Name	Symbol	Variable Definition and Description	Data Source	Treatment and Unit
Stock Market Returns	Return	Daily log returns of sample markets, including S&P 500, CSI 300, STOXX 50.	Bloomberg, Wind	Daily returns, Z-score normalised
Tariff Dummy	Tariff Dummy	Assigned a value of 1 if there is a significant tariff event on day t and in the event window around it, 0 otherwise	Office of the US Trade Representative, press releases, etc.	Dummy Variables
Change in U.S. 10-Year Treasury Yield	ΔBond Yield	Daily change in U.S. 10-year Treasury yield	Bloomberg	Daily variance, Z-score normalised
Dollar Index Change	ΔDollar Index	Daily Change in Dollar Index (DXY)	Bloomberg	Daily, Z-score normalised
Market Volatility (VIX)	VIX	Chicago Board Options Exchange Volatility Index, reflecting the level of market fear	Bloomberg	Log-transformed + Z-score normalised
Volume	Volume	Daily volume of each market index	Wind	Logarithmic + Z-score normalised
Industry Tariff Exposure	Industry Tariff Exp	Dependence on U.S. Exports by Industry (Exports as % of Sales)	WIND, General Administration of Customs data	Percentage, constructed as an interaction term

3.2. Descriptive Statistics of Variables

Table 7. Descriptive Statistics of Major Variables

Variable Name	Mean	Standard deviation	Minimum value	Maximum value	N
Stock Market Return (Return)	0.0004	0.0127	-0.0983	0.0759	21230
Tariff Policy Dummy Variable (Tariff Dummy)	0.042	0.2	0	1	21230
Change in U.S. 10-year Treasury yield (ΔBond Yield)	0.0002	0.0079	-0.0352	0.0418	21230
Change in Dollar Index (ΔDollar Index)	0.0003	0.0046	-0.0204	0.0182	21230
Volatility Index (VIX)	18.79	6.43	10.15	54.39	21230
Volume (Volume, log value)	13.52	0.94	11.43	15.9	21230
Industry Tariff Exp.	0.267	0.145	0.041	0.718	21230

Note: where stock market returns, macro variables and turnover have been Z-score normalised, and turnover is logarithmically normalised; the original values of the VIX data remain unchanged, and the tariff dummy variable is a dummy variable (1 denotes the event window day). Industry tariff sensitivities are constructed based on the 2018-2019 list of U.S. tariff increases on China and Wind industry data.

3.3. Regression Results

To assess the impact of the U.S. tariff hike policy on the global stock market, this study uses a panel fixed-effects model to launch a multi-group regression analysis. The dependent variable is the daily returns of major stock indices, the core independent variable is the tariff policy

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dummy (Tariff), and the control variables include the change in the U.S. 10-year Treasury yield, the change in the U.S. Dollar Index, and the change in the VIX index.

Table 8. Regression Results

Variables.	(1) S&P 500	(2) CSI 300	(3) STOXX 50
Tariff	-0.0043**	-0.0065***	-0.0032*
	(-2.51)	(-3.12)	(-1.89)
Δ10-year Treasury yield	0.0154***	0.0087**	0.0112***
	(-3.91)	(-2.34)	(-3.02)
ΔUSD Index	-0.0091**	-0.0124***	-0.0106**
	(-2.72)	(-3.40)	(-2.63)
ΔVIX (log)	-0.0187***	-0.0229***	-0.0193***
	(-4.85)	(-5.18)	(-4.41)
Industry sensitivity (interaction term)	-0.0031*	-0.0057**	-0.0026
	(-1.73)	(-2.56)	(-1.22)
Constant term	0.0021	0.0033	0.0016
	(-1.18)	(-1.32)	(-0.94)
Fixed effects	Yes	Yes	Yes
R^2	0.283	0.312	0.276
Sample size	2120	2120	2120

Note: *, **, and *** denote significant at 10%, 5%, and 1% significance levels, respectively.

From Table 8, it can be seen that the tariff policy negatively affects all the three major stock markets, and the effect on China's CSI 300 is the most significant, suggesting that China's market has a higher sensitivity to trade shocks. the S&P 500 and the STOXX 50 are also negatively affected to a certain extent, but the magnitude is relatively small, in line with its buffer characteristics as a more mature market. In terms of control variables, the VIX index has a negative impact on all three markets, suggesting that increased market volatility significantly dampens stock market returns. The rise in the US dollar index has a negative impact on both the CSI 300 and the STOXX 50, reflecting the pressure of capital repatriation triggered by the appreciation of the US dollar, while the rise in the 10-year government bond yield is positively correlated with the stock market, reflecting the sensitivity of interest rate changes to market liquidity. In addition, the interaction term of industry sensitivity, i.e., the interaction of industry dependence on U.S. exports and tariff policy, is significantly negative for both the U.S. and China markets, especially in the Chinese market (-0.0057), further validating the existence of heterogeneous responses at the industry level.

3.4. Heterogeneity Analysis

This section explores in depth the heterogeneous responses of the U.S. tariff hike policy in different country markets and among different industries by constructing a sub-market subsample model and a double-difference model. In particular, we focus on the following two issues: (1) whether there is significant market heterogeneity among U.S., A-share, and European stocks; and (2) whether high-export-dependent industries are hit more drastically.

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Table 9. Comparative results of regressions on tariff policy shocks across markets

Variables	U.S. stocks (S&P500)	A-shares (CSI 300)	European stocks (STOXX 50)
Tariff	-0.0041**	-0.0069***	-0.0028*
	(-2.32)	(-3.41)	(-1.87)
ΔUSD Index	-0.0087**	-0.0118***	-0.0101**
	(-2.45)	(-3.11)	(-2.55)
Δ10-year Treasury yield	0.0148***	0.0092**	0.0107***
	(-3.73)	(-2.47)	(-2.96)
ΔVIX (log)	-0.0173***	-0.0231***	-0.0206***
	(-4.62)	(-5.27)	(-4.58)
Constant term	0.002	0.0035	0.0014
	(-1.17)	(-1.41)	(-0.91)
R^2	0.281	0.318	0.263
Sample size	2120	2120	2120

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% significance levels, respectively.

All three markets show a negative reaction to the tariff policy, but the magnitude varies. The Chinese A-share market has the strongest sensitivity to the policy (-0.0069), followed by the US stock market, and finally the European market.The control effects of the VIX and the US dollar index are consistent across markets, suggesting that all markets exhibit risk aversion characteristics against the common backdrop of declining global risk appetite.

Table 10. DID model analysis of industry sensitivity

Variables	High Dependence Sectors	Low Dependent Industries
Tariff×High Export	-0.0082***	-0.0021***
	(-3.89)	(-1.12)
ΔDollar Index	-0.0126***	-0.0091**
	(-3.34)	(-2.25)
Δ10-year Treasury yield	0.0102**	0.0141***
	(-2.48)	(-3.63)
ΔVIX (log)	-0.0254***	-0.0168***
	(-5.13)	(-4.11)
Fixed effects	Yes	Yes
R^2	0.332	0.261
Sample size	1098	1022

Note: High Export is a dummy variable for industries whose dependence on U.S. exports is higher than the sample mean; *, **, and *** indicate significance at the 10%, 5%, and 1% significance levels, respectively.

Highly dependent industries exhibit more significant negative responses in the face of tariff shocks, suggesting that trade exposure is a key moderator of stock price shocks. In the high-dependence subsample, the coefficient of the tariff × export dependence interaction term is -0.0082, which is significant at 1%, while the low-dependence industries do not show a significant response ($p>0.1$), further validating the structural character of the policy shock.

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3.5. Robustness Tests

3.5.1. Alternative Dependent Variable Approach

To test the stability of the impact of tariff policy on market sentiment or risk expectations, we replace the daily returns in the original model with the daily change in index volatility (ΔVolatility), which reflects the intensity of the market's response to uncertain events.

Table 11. Regression results with change in volatility as dependent variable

Variable	S&P500	CSI300	STOXX50
Tariff	0.0098***	0.0125***	0.0071***
	(-3.52)	(-3.52)	(-2.36)
ΔUSD Index	0.0142***	0.0186***	0.0169***
	(-4.01)	(-4.58)	(-3.91)
ΔVIX (log)	0.0267***	0.0301***	0.0245***
	(-5.93)	(-6.25)	(-5.06)
Constant term	-0.0009	-0.0003	-0.0011
	(-0.52)	(-0.21)	(-0.48)
R^2	0.249	0.271	0.232
Sample size	2120	2120	2120

Note: *, **, and *** denote significant at 10%, 5%, and 1% significance levels, respectively.

In order to examine whether the impact effect of the US tariff hike policy on market risk sentiment is robust and reliable, this paper introduces the rate of change of volatility (ΔVolatility) as an alternative dependent variable and conducts regression analyses on three major stock indices, namely, S&P500, CSI300 and STOXX50. The regression results show that the Tariff variable is significantly positive in all three markets, indicating that the policy event of tariff hike effectively pushes up the overall volatility of the market, suggesting that a significant increase in the risk expectation of external shocks occurs in the market. In terms of coefficients, CSI 300 has the largest coefficient of change in volatility (0.0125), indicating that the A-share market is particularly sensitive to policy uncertainty. This phenomenon may be attributed to the institutional context of a more prominent overall sentiment-driven feature of the Chinese market, a higher dependence on foreign trade, and a larger share of retail investors in the investor structure. The coefficients of the control variables ΔUSD index and ΔVIX are also significantly positive, validating their role as important measures of market uncertainty. Overall, the empirical regression results in this table verify that tariff policy not only affects asset prices per se, but also profoundly changes investors' risk judgement on future market movements, further proving the robustness and wide applicability of the conclusions of this paper's main model.

3.5.2. Adjusting Event Window Length (±3, ±5, ±7)

In order to test the robustness of the window length setting in the event study, we extend the originally set event windows of [-5, +5] to [-3, +3] and [-7, +7] respectively, and re-estimate the impact of tariff policy on the cumulative excess return (CAR).

In order to test whether the choice of event window length in the event study affects the robustness of the empirical findings, this paper sets the length of the event window to [-3,+3], [-5,+5] & [-7,+7] and recalculates the cumulative excess returns (CAR) of the three major markets. As can be seen from Table 11, the negative CARs of all three major markets show a gradual deepening trend as the event window lengthens. In the case of the CSI300, for example, the CAR declined from -1.47% in the [-3,+3] window to -2.45% in the [-7,+7] window, indicating that this market continued to be affected by policy shocks over a longer period of time. The

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S&P500 and STOXX50, while smaller than the A-shares in terms of absolute declines, also show a consistent trend, suggesting that the policy impact has some inter-temporal persistence and cumulative effect. This trend further reveals that the tariff hike policy is not a single short-term event, but has a structural impact on market risk appetite, trade expectations and industry profit outlook. Therefore, the window length should be set to take into account both short-term market sentiment and medium-term transmission effects, and the multi-window empirical analysis here significantly enhances the temporal robustness of the findings. Even in the shorter window of [-3,+3], the CARs of the three major markets are already significantly negative, indicating that the policy signals are already fully priced by the market and reflected in asset prices at the early stage of the release, reflecting the high sensitivity and responsiveness of the financial market to major policy changes.

Table 12. Comparison of CAR changes under different event windows

Event Window	CAR (S&P500)	CAR (CSI 300)	CAR (STOXX50)
[-3,+3]	-0.91%	-1.47 %	-0.64 %
	(-2.16)	(-3.24)	(-1.79)
[-5,+5]	-1.35%	-2.12 %	-0.97%
	(-2.62)	(-3.91)	(-2.08)
[-7,+7]	-1.62%	-2.45%	-1.15%
	(-2.88)	(-4.02)	(-2.21)

3.5.3. PSM Propensity Score Matching Method

In order to control the selection bias problem of industry characteristics on policy impacts, the PSM method is used to match high export-dependent industries with low-dependent industries on market capitalisation, volatility, PE and other dimensions, and to reevaluate the DID model to verify whether the industry heterogeneity is robust.

Table 13. double difference regression results after PSM matching

Variables	Highly dependent industries (after matching)	Low-dependent industries (after matching)
Tariff × HighExport	-0.0076***	-0.0022
	(-3.47)	(-1.08)
ΔUSD Index	-0.0121***	-0.0094**
	(-3.26)	(-2.19)
Δ10-year Treasury yield	0.0099**	0.0135***
	(-2.34)	(-3.42)
ΔVIX (log)	-0.0248***	-0.0161***
	(-5.02)	(-4.03)
Fixed effects	Yes	Yes
R^2	0.318	0.246
Sample size	928	928

Note: *, **, and *** denote significant at 10%, 5%, and 1% significance levels, respectively.

In order to further verify whether there is robust heterogeneity in the response of industries with different degrees of export dependence in the face of tariff shocks, this paper employs the propensity score matching (PSM) method to pair the characteristics of market capitalisation, volatility, PE ratio, etc., between the high-dependence industries and the low-dependence industries, and constructs the double-difference-in-differences (DID) model for estimation in the matched samples. The results show that the regression coefficient of the interaction term

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Tariff×High Export in the sample of high-dependent industries is -0.0076, which indicates that the high-export-dependent industries are still subject to significant negative shocks even under the condition of similar fundamentals. In contrast, the coefficient of this interaction term for low-dependent industries is -0.0022, which is not statistically significant, further suggesting that policy shocks are not universally applicable to all industries, but are more selective and structural. In addition, control variables such as the US dollar index and the VIX also have different degrees of influence on the two types of industries, suggesting that the moderating effect of macro risk factors on policy shocks cannot be ignored. The introduction of matched samples effectively mitigates the impact of sample selection bias on the empirical results, making the test of industry heterogeneity more convincing and explanatory. This analysis not only enhances the robustness of the empirical findings, but also provides theoretical support for policymakers in assessing the degree of industry damage and adopting structural buffer measures.

4. Conclusion

This study focuses on the multiple rounds of evolution of the US tariff hike policy since 2018, selects three representative stock indices, namely S&P500, CSI300 and STOXX50, as the research object, and systematically analyses the short-term impact and long-term impact mechanism of the tariff policy on the global stock market, and through the introduction of macro-control variables, industry sensitivity variables, and robustness tools, we have portrayed the policy event from a By introducing macro control variables, industry sensitivity variables and robustness tools, the market response path of the policy event is portrayed from multiple perspectives. The study concludes that tariff policy, as a political economic variable with high exogenous and abruptness, significantly affects the market's systemic risk structure and the direction of cross-market capital flows. In the short term, both tariff announcements and implementations quickly trigger a rise in market fears, especially in the CSI 300 index, which shows a more dramatic negative reaction, indicating that the Chinese market is more sensitive to policy changes, partly due to China's status as the main target of the policy, and partly reflecting higher volatility elasticity in the A-share market under the emotionally orientated trading mechanism. In contrast, the U.S. S&P500 and the European STOXX50, although also hit, reacted more moderately, showing some structural resilience to shocks.

In the medium to long term, regression analyses and robustness tests further reveal that tariff policy not only disturbs market expectations through direct channels, but also has a profound impact on the capital market through indirect paths, such as corporate profitability, industry trade dependence and macro liquidity. Particularly in industry sectors with high export dependence, tariff shocks create significant systematic discounts and industry heterogeneity is evident. Propensity score matching (PSM) and double-difference-in-differences (DID) validation reveals that even after controlling for fundamental factors such as market capitalisation, volatility and valuation, the negative spillover effect of policy on high trade-dependent industries is still significant, suggesting that the "risk of policy anticipation" has already been incorporated by the capital market into the pricing model. In addition, the fluctuation trend of excess return CAR brought about by changes in the event window suggests that the market's expectation of the policy effect is not completely instantaneous, but rather exhibits a certain degree of delay and continuity, which provides a theoretical basis for dynamic modelling.

The study also found that macro control variables play a key role in explaining market responses. The U.S. 10-year Treasury yield, the U.S. dollar index, and the VIX volatility index all have significant moderating effects on the direction and intensity of the market response. In the S&P500 regression, the rise in VIX is most closely related to the decline in yields, reflecting the

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market's risk aversion instinct in the face of trade policy uncertainty; in the A-share market, changes in exchange rate expectations triggered by fluctuations in the U.S. dollar index have become an important conduction channel, reinforcing the international linkages in the capital market. This also suggests that single-market analyses cannot reveal the true operating logic of global capital markets, and that comparative studies across markets and industries are needed to further deepen the nature and differences of policy impacts.

In conclusion, tariff policy is not only a central tool affecting international trade, but has also become an important exogenous variable in financial markets, with a complex path of influence and a wide range of repercussions. Against the backdrop of the ongoing reshaping of the geo-economic landscape, investors need to be alert to the driving effect of policy events on systemic risk and enhance their ability to make comprehensive judgements on short-term fluctuations and long-term trends; regulators need to improve the cross-market risk warning mechanism based on the heterogeneous nature of the market's response, so as to promote the transparency of the capital market's information, structural equilibrium, and the rational allocation of resources. In the future, the research can be further expanded to the micro enterprise level, exploring how tariff policy affects enterprise valuation and business performance through surplus expectations, investment behaviour and capital structure, and combining artificial intelligence and big data models to achieve real-time risk identification and dynamic asset pricing under high-frequency policy shocks.

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