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A Study on the Dynamic Impact of Trade Policy Uncertainty on China's Financial Markets — An Empirical Analysis Based on Multiple Breakpoint VAR Models

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Abstract. Based on monthly data spanning June 2015 to June 2025, this paper constructs a VAR model that includes the stock market (SSE Composite Index return), foreign exchange market (RMB exchange rate movement), trade policy uncertainty (TPU), U.S. Federal Funds Rate and China's GDP growth rate to systematically examine the dynamic impact of trade policy uncertainty on China's financial market in the context of the U.S.-China trade friction mechanism. The study employs multiple breakpoint analyses (signing of the first-stage agreement in January 2020) and robustness tests and synthesizes the Granger causality test, impulse response analysis and variance decomposition. Research reveals that TPU serves as a Granger cause in China's financial markets. Its shocks exert a significant negative impact on the stock market, manifesting as "short-term amplification and long-term convergence" following escalations in trade friction. TPU's explanatory power over financial market volatility increases with friction intensification (boosting stock market volatility by approximately 8% on average and contributing up to 12% to exchange rate fluctuations). Notably, the transmission mechanism shows pronounced phase heterogeneity.

Keywords: trade policy uncertainty, financial market, vector autoregression, multiple breaks, impulse response

1. Introduction

Since the United States imposed tariffs on Chinese goods in 2018, U.S.-China trade friction has progressively evolved into a systemic competition spanning multiple domains, including science and technology, finance, and investment. Trade Policy Uncertainty (TPU), as the primary conduit for trade friction, has significantly impacted China's stock market, exchange rate, and other financial markets by influencing market expectations, capital flows, and risk premiums. Existing studies predominantly rely on single models or static time frames, which inadequately capture the structural changes in the TPU impact mechanism at different stages of trade friction [1-3]. Consequently, this paper constructs a multivariate VAR model and incorporates three critical breakpoints: July 2018 (the onset of the friction), May 2019 (when tariffs increased to 25%), and January 2020 (the signing of the first-stage agreement). This approach systematically analyzes the time-varying shock effects of TPU on China's financial markets, aiming to address the following questions: (1) Is TPU a

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Granger cause of fluctuations in China's financial markets? (2) What are the direction, scale, and persistence of the TPU shock? (3) Does the explanatory power of TPU regarding financial volatility vary with the stage of the friction? (4) Is there a structural change in the transmission mechanism of TPU before and after the identified breakpoints? This paper provides time-varying evidence for understanding the financial transmission path of trade policy uncertainty and provides empirical evidence for policy formulation and risk management.

2. Literature review

2.1. The multidimensional impact effects of China-U.S. trade friction

The trade dispute between China and the United States, which began in 2018, has aroused significant scholarly attention, revealing a complex array of consequences that extend far beyond tariff imposition. Existing research consistently demonstrates that the trade disputes have resulted in significant welfare losses and reductions in trade flows for both nations [1,4]. Analyses of the initial U.S. tariffs imposed in 2018 reveal that the full cost was transferred to domestic consumers and businesses, leading to billions of dollars in losses and a marked decline in U.S. real income [1,4]. These findings highlight that tariffs, instead of effectively safeguarding domestic industries, often impose a direct economic burden through higher prices and reduced welfare.

At both the firm and supply chain levels, the friction has prompted significant behavioural adjustments and global reconfigurations. Research indicates that tariffs on imported inputs inadvertently undermined U.S. export competitiveness by elevating production costs for exporters dependent on those inputs [5]. For Chinese exporters, U.S. tariffs resulted in a considerable decline in exports to the United States, primarily due to reductions in quantity [2,6]. In response, Chinese firms demonstrated resilience by diversifying export destinations, notably increasing shipments to alternative markets like the EU [2,6]. Trade frictions are not only causing direct economic losses but are also profoundly reshaping the global trade landscape and supply chains.

2.2. Measurement of trade policy uncertainty and its mechanisms of influence

TPU has emerged as a significant factor affecting economic outcomes. Empirical studies that employ these measures consistently demonstrate that increases in TPU result in decreased investment and overall economic activity, indicating that uncertainty alone can hinder growth even prior to any actual policy changes [7]. The economic impact of TPU is multifaceted, primarily operating through corporate financial decisions and market stability channels. Research on Chinese companies demonstrates that elevated TPU correlates with heightened corporate financialization, characterized by increased holdings of financial assets instead of investments in tangible operations, and decreased corporate risk-taking due to stricter financial limitations and greater operational risks [3,8]. Moreover, TPU has been found to disrupt financial markets by substantially elevating the risk of stock price crashes, with implications channeled through factors such as information asymmetry and investor sentiment [9]. These results emphasize TPU's function as a macroeconomic risk element that pervades corporate tactics and market equilibrium. Existing research has established that trade frictions exert a substantial influence on financial markets, leading to co-movements in stock prices and fluctuations in commodity prices.

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2.3. Research review and the marginal contribution of this paper

Existing literature has significantly advanced the analysis of the economic impacts of trade friction and the adverse effects of TPU on investment and firm behavior. Despite these contributions, gaps persist regarding the dynamic and time-varying effects of TPU on China's financial markets amid the evolving trade conflict. This study aims to address these limitations via several key contributions. Firstly, it utilizes a multiple-breakpoint VAR model to identify significant events (such as the onset in July 2018, the escalation in May 2019, and the Phase One agreement in January 2020) in order to explicitly capture structural changes, enabling a more detailed analysis compared to static or single-break models. Secondly, it systematically investigates the dynamic impact mechanism of TPU on both the Chinese stock and foreign exchange markets during these distinct stages. Thirdly, by conducting a thorough empirical analysis that includes Granger causality tests and impulse response functions, it presents evidence on how the predictive power, shock magnitude, and explanatory capacity of TPU for financial volatility have evolved throughout the various phases of the trade tensions.

3. Research design

3.1. Data and variables

This study employs monthly data spanning from June 2015 to June 2025, resulting in 121 valid observations. Table 1 provides definitions, measurements, and theoretical foundations for these variables:

Table 1. Definitions, measurements, and theoretical foundations of variables

Variable Type	Variable Name (Notation)	Measurement / Description	Data Source	Theoretical Basis / Rationale
Explained Variables	Stock Market Return (shci)	Monthly logarithmic return of the SSE Composite Index.	Yahoo Finance China	Indicating that the performance of the Chinese stock market is sensitive to fluctuations in investor sentiment and capital flows resulting from policy uncertainty [9-11].
	Foreign Exchange Market Change (d_exr)	Monthly rate of change of the RMB offshore exchange rate (CNH) against the USD.	Yahoo Finance Hong Kong	This channel serves as a crucial transmission mechanism for international spillovers and adjustments in capital flows, reflecting pressures in money markets that are linked to trade tensions [11-13].
Core Explanatory Variable	Trade Policy Uncertainty (d_tpu)	First difference of the U.S. Economic Policy Uncertainty index's trade policy component.	EPU Website (Baker et al.)	A direct measure of the impact on expected corridors reveals that the increase in TPUs indicates higher future trade costs and policy risks, which in turn influence investment and pricing decisions [3,7,8,14].
Control Variables	U.S. Federal Funds Rate (d_ffer)	First difference of the effective U.S. Federal Funds Rate.	FRED	Represents the opportunity cost associated with global monetary policy and capital. Changes in this context impact global capital flows through various channels and subsequently influence asset prices and exchange rates in emerging markets [11,13].
	China GDP Growth Rate (d_gdp)	Year-on-year growth rate of China's real GDP (first difference). Interpolated from quarterly to monthly frequency.	NBS	Controlling for domestic macroeconomic fundamentals and growth expectations, which are critical determinants of long-term asset valuations [2,4].
	Log U.S.-China Trade Balance (ln_trade)	Natural logarithm of the monthly trade balance (Chinese exports to U.S. minus imports from U.S.).	GACC	Controlling direct economic exposure and trade linkages between the two countries serves as a foundation for the transmission of real economic shocks [1,2,4,6].

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All variables passed the Augmented Dickey-Fuller (ADF) test ($p < 0.05$) and met the smoothness requirement.

3.2. Modeling

The lag order is set to be 2 (selected based on AIC and SBIC criteria) and the model form is as follows:

$$Y_t = A_0 + A_1 Y_{t-1} + A_2 Y_{t-2} + \varepsilon_t \quad (1)$$

Where

$$Y_t = [shci,d\_exr,d\_cgb10y,d\_tpu,d\_ffer,d\_gdp] \quad (2)$$

To address the distinct phases of Sino-U.S. trade tensions identified in the literature, this study adopts a multiple breakpoint regression approach. Three significant event dates are established as breakpoints: the formal initiation of substantial tariffs in July 2018, a major escalation in May 2019, and the signing of the Phase One agreement in January 2020. Accordingly, three dummy variables are created: trade_war_dummy1 (equal to 1 from July 2018 onward), trade_war_dummy2 (equal to 1 from May 2019 onward), and trade_war_dummy3 (equal to 1 from January 2020 onward). The model's parameters are permitted to shift at these points. To examine the time-varying nature of the transmission mechanisms, separate VAR models are estimated for the subsamples before and after each breakpoint, facilitating a direct comparison of the dynamics of TPU shocks across different policy regimes.

3.3. Robustness tests and methods of analysis

A battery of robustness tests was conducted to ensure the reliability and validity of the empirical results. First, the robustness of the stock market results was verified by substituting the primary explained variable, the SSE Composite Index returns, with returns from the broader CSI 300 Index. Second, to account for the direct economic linkage between the two nations, the logarithmic U.S.-China trade balance (ln_trade) was incorporated into the baseline VAR specification.

The empirical analysis utilizes a range of time-series techniques to examine the relationship between TPU and China's financial markets. Initially, Granger causality tests are conducted to determine the predictive content and directionality of the variables. Subsequently, Impulse Response Functions (IRFs) are generated to trace the dynamic responses of financial market variables to a one standard deviation shock to TPU, both for the full sample and across subsamples. Finally, multiple breakpoint comparisons are synthesized by presenting the subsample IRFs in unified charts, which visually depict how the magnitude, persistence, and nature of financial market responses to TPU shocks evolved throughout the various phases of the trade conflict.

4. Empirical findings

4.1. Granger causation

In the full sample, TPU is the Granger cause of the stock market ($p=0.086$) versus the FX market ($p=0.163$), and in a staged manner, TPU's Granger causality for the stock market increases after July

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2018 (p=0.044), suggesting that the escalation of trade frictions strengthens the predictive power of TPU.

4.2. Impulse response analysis

4.2.1. Full sample response

A one-unit positive shock to the TPU leads to a decline in the return on the Shanghai Composite Index of about 2.0×10^{-6} (0.0002%) in the current period, and the effect lasts for about six months before converging to zero (Figure 1). The impact on the exchange rate is positive but weak, suggesting that a rise in TPUs may drive RMB depreciation expectations in the short run.

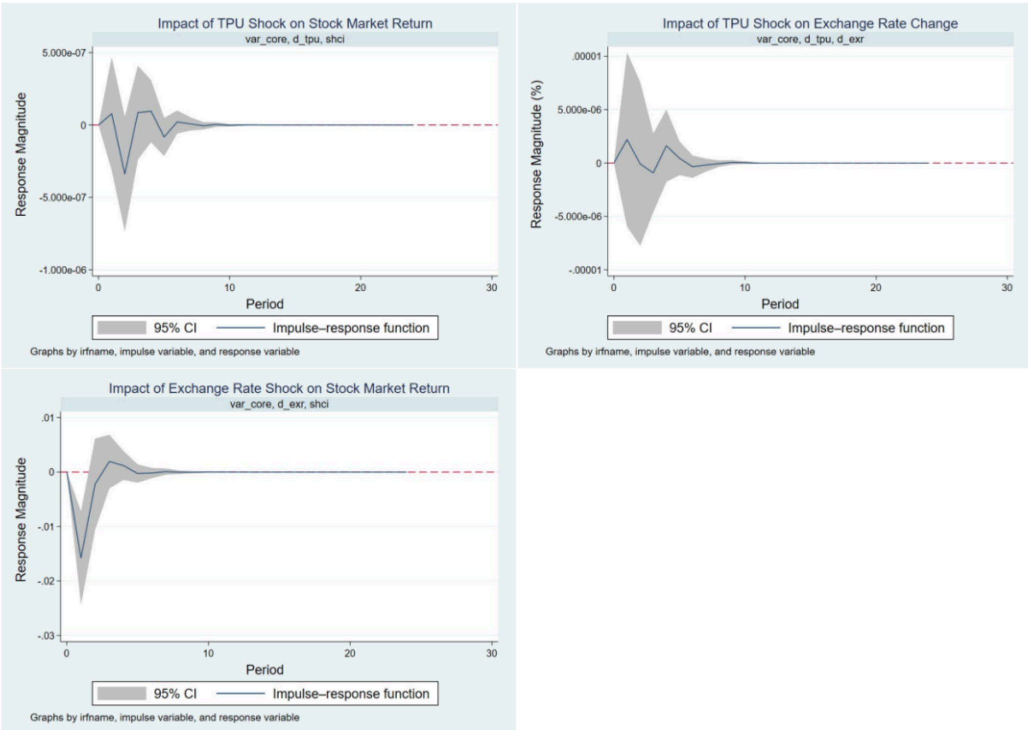

Figure 1. Impact of TPU on different variables

4.2.2. Before and after breakpoints

Around July 2018: the magnitude of the response was 2.0×10^{-6} (0.0002%) before the breakpoint and decreased to 5.0×10^{-7} (0.00005%) after the breakpoint, but with increased volatility and widened confidence intervals (Figure 2).

Around May 2019: Response turns positive after the breakpoint 5.0×10^{-7} (0.00005%), possibly related to the market's "bearish" reaction to the tariff escalation.

Around January 2020: After the agreement was signed, the duration of the impact of the TPU shock was shortened, indicating that the increased policy certainty alleviated the long-term uncertainty.

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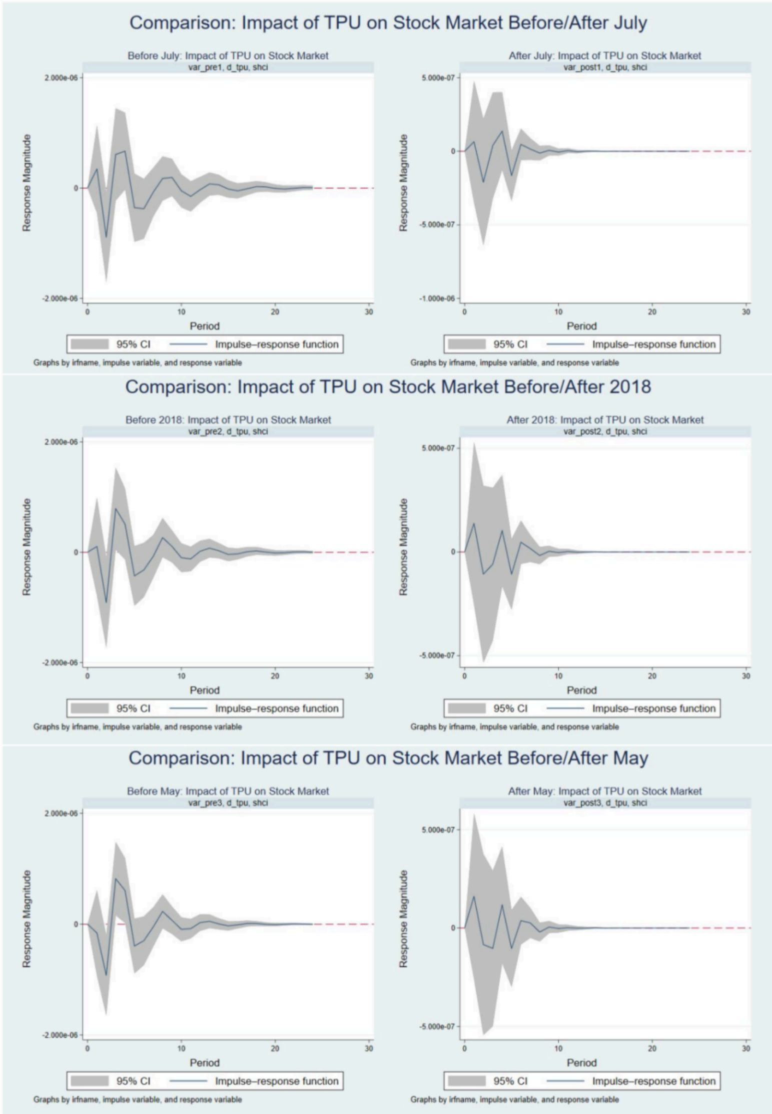

Figure 2. Comparison before and after breakpoint

4.3. Variance decomposition

The contribution of TPU to stock market volatility has significantly increased following the onset of trade frictions. In the entire sample, the average proportion of TPU in explaining stock market fluctuations is approximately 5%. After July 2018, this proportion rose to 8%-12%. The contribution to exchange rate fluctuations is as high as 12% (Figure 2), demonstrating that TPU has become an important source of fluctuations in the foreign exchange market.

4.4. Robustness tests

1. Replacement of stock variables: The results using the CSI 300 index (HS300) are generally consistent with the Shanghai Composite Index, confirming the robustness of the findings.

2. Addition of trade variables: The direction and significance of the coefficients on TPU in the extended model did not change fundamentally, but trade flows (ln_trade) had an independent negative effect on the stock market (p=0.006).

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3. Multiple breakpoint consistency: the subsample IRFs for all three breakpoints show structural changes in TPU impacts after the breakpoints, corroborating the presence of stage heterogeneity.

5. Discussion of mechanisms

TPU influences the Chinese financial market through several interconnected channels. First, the anticipation channel indicates that heightened uncertainty regarding future trade policies directly increases investors' risk aversion and prompts precautionary behaviour. As documented in the literature, this behaviour leads to capital outflows from riskier assets, such as stocks, and a reallocation towards safer havens [5,15]. Second, the capital flow channel transmits TPU shocks via cross-border financial linkages. Increased uncertainty can trigger volatile capital movements, exacerbating fluctuations in the exchange rate and bond markets, as supported by studies on spillovers during trade tensions [3,12]. Third, the policy feedback channel reflects the domestic policy response to external uncertainty. Empirical evidence suggests that during periods of elevated TPU, China's monetary authorities tend to adopt accommodative policies to cushion the domestic economy. While such measures may alleviate pressures on the stock market, they can simultaneously amplify exchange rate volatility due to diverging policy stances among major economies [4,16]. Collectively, these channels illustrate how TPU permeates the financial system, affecting both asset prices and macroeconomic stability.

The findings of this study yield several important policy implications. First, regarding macroprudential management, it is essential to enhance the monitoring of cross-border capital flows during periods of escalating trade friction to mitigate systemic risks associated with TPU shocks. Second, on expectation guidance, effective policy communication and targeted market interventions are necessary to smooth the financial transmission of trade policy uncertainty and stabilize market expectations. Third, concerning risk-hedging tools, financial institutions should be encouraged to develop TPU-related derivatives and other innovative financial instruments to offer market participants effective hedging mechanisms against trade policy risks.

6. Conclusion

This paper systematically investigates the dynamic effects of TPU on China's financial market from 2015 to 2025 by employing a multiple breakpoint VAR model. The study yields the following findings:

1. TPU serves as a Granger cause for both China's stock and foreign exchange markets, with its shocks inducing significant structural changes during periods of trade friction.

2. The influence of TPU on the stock market intensifies in the short term and stabilizes in the long term following an escalation of friction, while the impact on the exchange rate varies with the phase of trade tensions.

3. The explanatory power of TPU regarding financial volatility has markedly increased in the post-friction period, establishing it as a significant source of risk. 4. The various phases of trade friction have altered the transmission mechanism of TPU by modifying market expectations and policy responses.

This study has a notable limitation in that it does not decompose the heterogeneity across industries and firms; for future research, integrating microdata to further examine the heterogeneous effects of TPU would be a valuable extension.

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