INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 15, Issue 5, (2025) E-ISSN: 2222-6990

Impact of Economic Policy Uncertainty and Investor Sentiment on Stock Market Volatility in China: A Conceptual Framework

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To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v15-i5/25472 DOI:10.6007/IJARBSS/v15-i5/25472

Published Date: 26 May 2025

Abstract

This study develops a conceptual framework to examine the impact of economic policy uncertainty (EPU) and investor sentiment (IS) on stock market volatility (SMV) in China at both market and firm levels. A time-varying parameter vector autoregression model with stochastic volatility (TVP-VAR-SV) is employed to capture the dynamic interactions among EPU, IS, and SMV at the market level. This approach visually captures the evolving patterns of economic variable parameters over time and precisely identifies structural breakpoints through Chow's test validation, thereby providing a robust basis for sample segmentation in subsequent firm-level analysis. At the firm level, firm-level EPU exposure and firm-specific IS sensitivity are used to investigate the mediating role of IS in the EPU–SMV relationship

through panel regressions. Institutional investor activity is also incorporated to enhance firm-level evidence. Grounded in real options theory, herd behaviour theory, noise trading theory, and information asymmetry theory, this study provides new insights into the evolving EPU–IS–SMV nexus in the Chinese market context.
Keywords: Economic Policy Uncertainty, Investor Sentiment, Stock Market Volatility, TVP-VAR-SV Model, Firm-Level

Introduction

The stock market is essential to a country's economic system and can optimise resource allocation and diversify risk (Lu and Ma, 2023; Shi and Wang, 2023). Stock market volatility (SMV) is one of the most concise and practical indicators of price behaviour, as well as the quality and efficiency of stock markets. Due to its significance, volatility has remained a central theme in financial market research (Xiao et al., 2024; Yang et al., 2023). Effective volatility forecasting enhances investors' understanding of market risks and opportunities, aids in assessing the risk associated with asset price fluctuations, and supports the development of risk management strategies for investors and financial institutions (Gao et al., 2023; Li et al., 2023b; Zeng et al., 2024). Scholars have been very interested in SMV driving factors (Luo et al., 2023). So far, four factors have been identified as potentially necessary: macroeconomic conditions, firm-specific characteristics, policy changes, and investor sentiment (Chen, 2020; Xia and Wen, 2018).

Since the 2008 global financial crisis, governments and central banks worldwide have adopted emergency measures to stabilise markets, stimulate economic recovery, promote international cooperation, and advance economic globalisation (Akron et al., 2020; Isah et al., 2024). However, these efforts have been undermined by escalating regional conflicts and rising trade protectionism. The increasingly complex global environment and sluggish economic growth have made uncertainty a pervasive global challenge (Karaömer and Guzel, 2024). Among all types of policy uncertainty, economic policy uncertainty (EPU) is exceptionally influential on SMV. According to Cai et al. (2022), EPU arises from investors' inability to predict whether, when, and how governments will alter existing economic policies. As a result, investment decisions are inevitably based on assumptions about future outcomes (Aharon, 2020). When confronted with policy uncertainty, investors develop divergent perceptions, leading to shifts in investor sentiment (IS) that influence investment decisions, amplify SMV (Li and Zhong, 2020; Qiao et al., 2022). IS reflects widespread irrational behaviour and cognitive bias in the stock market, fundamentally influencing trading activities and asset prices (Gong et al., 2022). Scholars have linked IS to stock price bias, arguing that IS causes stock prices to deviate from fundamentals (Kanzari et al., 2023) and further triggers an increase in SMV (Tohidi, 2022; Wang et al., 2022; Xie et al., 2023). The changes in IS here are a dynamic process by which investors' expectations or beliefs deviate from reality (Barberis et al., 1998; Long et al., 1990). Many scholars have used EPU and IS to quantify the impact of policy and investor psychological factors on SMV, resulting in several outputs.

As an emerging market, China's SMV aligns with expectations, as emerging markets typically struggle to manage volatility due to limited information transparency compared to more developed markets (Ghani et al., 2022; Li and Li, 2021). China is regarded as an authoritative regime country (Malesky, 2021), and its stock market has always represented a typical policy-driven market (Xiao et al., 2024). China’s ongoing economic reform cycle (Cai et al., 2022;

Cheng et al., 2021) has led to policy interventions across various aspects of the stock market, including industrial guidance, macroeconomic control, financial regulation, company listings and delistings, and trading rules. These unique institutional factors limit arbitrage opportunities, creating significant differences compared to mature markets (Gu et al., 2018). Following the trade conflict with the United States, China is expected to frequently introduce policies aimed at stabilising its economy amid complex domestic and international conditions (Liu and Su, 2023). Policymakers face the critical challenge of balancing the "invisible hand" and the "visible hand" to manage the effects of economic policy while mitigating the backlash of policy uncertainty. As a result, the Chinese stock market remains highly sensitive to EPU (Xiao et al., 2024). In addition, a significant difference between the Chinese stock market and other mature stock markets lies in the composition of investors (Chu et al., 2015). Investors can be divided into two categories: retailers and institutional investors. The Chinese stock market comprises many retailers (Han and Shi, 2022), and they contribute over 90% of the market's trading volume and frequency (Sun et al., 2021a). It is thought that there is a significant difference between retailers and institutional investors (Cao and Liu, 2016; Duxbury and Wang, 2024; Li et al., 2017). Retail investors typically have limited theoretical knowledge, weaker analytical abilities, and fewer information sources. They often rely on supplementary information rather than fundamental data for trading decisions. Consequently, retail investors are more influenced by IS, a phenomenon particularly evident in the Chinese stock market (Han and Shi, 2022; Lao et al., 2024), making the Chinese stock market highly speculative, with emotional trading behaviors such as "chasing trends," "blindly following the crowd," and "quick in and out" being prevalent (Li et al., 2023a), which often increases SMV. Given these two issues, integrating EPU and IS to examine their impact and mechanisms on SMV, while accounting for external structural changes, is a valuable research topic.

Literature Review

This section outlines the theory supporting the development of core variables, their linkages, and the hypotheses development.

Theory Underpinning

This research draws on four foundational theories: real options theory, noise trading theory, herding behaviour theory, and information asymmetry theory. Under heightened policy uncertainty, firms seeking external financing typically delay investment decisions and reduce spending, as suggested by real options theory. This postponement reflects a strategy to wait for clearer policy directions and more predictable future cash flows, but may also reduce firm value and increase SMV. Meanwhile, investors face heightened market noise, fostering noise trading and herding behaviour. Retail investors, often influenced by institutional investors with superior information, contribute to coordinated trading, which further amplifies SMV.

Real Option Theory

Myers (1977) introduced the concept of real options, suggesting that a firm's initial investment is akin to buying a call option, granting the firm the flexibility to choose the optimal timing for future growth. This allows firms to leverage uncertainty for greater benefits while managing risk. If growth opportunities fail to materialise, the firm loses only the initial investment, considered a sunk cost; if opportunities arise, additional investments can be viewed as exercising the option. EPU impacts firms' investment behaviour through the real

option effect (Chen et al., 2020; Dreyer and Schulz, 2022). When EPU is high, a firm's investment decision is akin to buying a call option, meaning it must passively bear the losses from future uncertainty. Consequently, firms prefer holding cash, delaying investment, and making future decisions based on their risk profiles. The Real Options Theory suggests that investment delays reduce expected profits, leading to decreased future cash flows and lower stock prices (Yang and Song, 2020).

Noise Trading Theory

Financial market anomalies challenge traditional classical financial theory. Black (1986) introduced the concept of "noise," defining it as the antithesis of information, with its source being false market information. Some investors make irrational decisions based on this misleading information, causing stock prices to deviate from their true value and leading to irrational fluctuations. Noise traders treat noise as information, influencing asset prices by incorporating it into their decisions (Lei et al., 2016). In semi-strong or weakly efficient markets, noise dominates over firm-specific information in determining stock prices (Ashbaugh-Skaife et al., 2007; Wu, 2022).

Empirical studies have confirmed the existence of noise trading and its impact on the stock market. Long et al. (1990) showed that noise traders, influenced by emotions, cause SMV. (Chen and Li, 2017). Zhang and Wang (2016) integrated the DSSW model with Bayesian learning, highlighting how institutional investors' sentiment affects retail investors. Yao et al. (2019) used a VAR model to demonstrate that noise trading and positive feedback behaviours significantly affect SMV, with a unidirectional causal relationship between them.

Herd Behaviour Theory

Banerjee (1992) applied game theory and principal-agent theory to explore the mechanisms behind collective actions driven by individual behaviours, establishing the theory of the herd effect. In financial markets, investors often imitate others' decisions under information uncertainty, relying on public opinion rather than private information (Song and Wu, 2001). Emotions influence investment decisions, causing many investors to simultaneously buy or sell stocks or enter/exit sectors based on others' actions. When emotions are highly social, behaviour tends to converge, leading to market mispricing and irrational price fluctuations (Wu, 2022). Investors at the front of the herd may profit, but those at the middle or tail risk losses, amplifying psychological biases and further price volatility. The herd effect results in decisions based on collective sentiment rather than fundamentals.

Herd behaviour in financial decision-making is common (Li et al., 2023a). Key reasons include: first, the desire to save on information search costs, especially in markets with asymmetric and incomplete information (Wang, 2019). Second, regret aversion leads decision-makers to follow others to avoid potential regret from personal mistakes (Qin, 2015). Third, factors such as knowledge gaps, personality traits, intelligence, and confidence contribute to herd behaviour (Li and Zhong, 2017). Finally, both retail and institutional investors, individually or in groups, can exhibit herd behaviour (Zhang et al., 2021).

Information Asymmetry Theory

The concept of information asymmetry, introduced by Akerlof (1970), highlights its potential to cause market failure. Spence (1973) expanded this with signalling theory, suggesting that

signals flow from the informed party to the uninformed one in such conditions. Stiglitz and Weiss (1981) explored credit rationing, showing that banks may fail to provide loans even at higher interest rates due to incomplete information about borrowers. These foundational works have broadened to various economic fields, with information asymmetry recognised as a key microeconomic research area. In stock markets, institutional investors typically have an information advantage due to better access to information, reducing noise trading (Lao et al., 2024; Li and Jin, 2019). Consequently, institutional investors are better equipped to assess a company's value and prospects, leading to more rational decision-making and a reduced risk of stock price bias. This advantage may mitigate excessive volatility and market inefficiency.

EPU

The concept of EPU originated in the 1960s and 1970s and has been widely explored by scholars. EPU refers to the inability of economic agents, such as firms, to predict changes in economic policy (Gulen and Ion, 2015). Brogaard and Detzel (2014) define it as the uncertainty created by policymakers through fiscal, monetary, and regulatory decisions. More broadly, EPU arises from the uncertainty surrounding when, how, and whether governments will change existing economic policies (Cai et al., 2022; Wen et al., 2021). In this study, EPU is understood as the uncertainty that arises in the process of formulating, introducing, and implementing economic policies (fiscal, monetary, and regulatory) due to the inability of economic entities to accurately predict whether, when, and how the government will change its existing economic policies, encompassing both policy expectations and the potential for changes in government positions or policy execution (Jiang, 2020).

IS

Long et al. (1990) argued that Investor Sentiment (IS) represents a systematic bias in noise traders' expectations of asset value. Barberis et al. (1998) viewed IS as a misuse of Bayesian norms, where investors overreact to good or bad news, explaining this systematic error through cognitive psychology and expectancy theory. Lee et al. (2012) defined IS as the portion of an investor's future asset returns that cannot be explained by fundamentals, leading to unreasonable deviations in future asset prices. Baker and Stein (2004) described IS as a misvaluation of assets, driven by speculative tendencies. Baker and Wurgler (2006) defined it as the propensity to invest, which generates investment demand. In this study, IS is defined as In this study, IS is defined as the subjective deviation (mispricing) of financial products' prices in the capital market, influenced by investors' personality traits, financial knowledge, experience, and psychology. It reflects a market tendency for stock prices to deviate from their fundamental value due to investor irrationality and limited arbitrage for error correction. It reflects a market tendency for stock prices to deviate from their fundamental value due to investor irrationality and limited arbitrage for error correction.

EPU and SMV

Governments often adjust policies during economic downturns, providing bearish protection to the market. However, this uncertainty can introduce a risk premium, increasing market volatility and correlation (Pástor and Veronesi, 2012). Government economic policies have broad, non-diversifiable impacts on the market. The EPU index introduced by Baker et al. (2016) is widely regarded as the standard for studying EPU indicators (Idnani et al., 2021). It is well-established in the literature that EPU represents an external risk to which the stock

market typically responds negatively (Shao et al., 2022). While many empirical studies support the view that high EPU increases SMV (Baker et al., 2016; Brogaard and Detzel, 2014; Goodell et al., 2019; Su et al., 2019), recent research has found opposite results (Wang et al., 2020; Wu, 2021). Some scholars suggest this divergence may be due to significant structural changes in the market environment over time, which alter the model's estimated parameters (Chen and Chen, 2022; Qiao et al., 2022).

Corporations make decisions based on expected future costs and benefits as rational economic entities. However, uncertainty in economic policy changes creates significant challenges, as EPU affects business decisions by influencing expected costs and benefits. Most existing EPU studies treat EPU as an exogenous shock without distinguishing firms' perceptions of policy uncertainty. Recently, scholars have sought to develop indicators to measure firms' sensitivity to EPU, or firm EPU exposure (FEPUE) (Cheng et al., 2021; Cui et al., 2021; Xing and Wang, 2021). While the EPU index by Baker et al. (2016) has advanced research on uncertainty's impact on corporate behaviour, it has limitations. First, the index is country-level and provides a single observation for all firms at a given time, overlooking differences in EPU exposure across firms. Second, it assumes homogeneous sensitivity to EPU changes across firms, despite regional and sectoral policy differences within the same country. Therefore, firms' responses to economic policy shocks vary based on their unique exposure and perception. Consequently, scholars have emphasized the need for measures that account for firms' heterogeneous sensitivity to EPU changes (Wang et al., 2023a; Wang et al., 2023b). Firms with different characteristics face varied exposure to EPU, leading to diverse stock price responses (Cheng et al., 2021).

IS and SMV

In the post-crisis era, behavioural finance has sought to explain abnormal stock market phenomena that traditional finance cannot, as it assumes complete rationality. According to traditional theory, sharp SMV are impossible because fundamental values determine prices, and any short-term irrational behaviour would quickly be corrected by arbitrageurs. However, behavioural finance scholars use IS to explain irrational market behaviour that leads to abnormal SMV (Brown and Cliff, 2004; Xia et al., 2023). Long et al. (1990) viewed IS as market participants' expectations of future cash flows and investment risks. Some scholars argue that the role of information in market transactions should be emphasised, as investors' expectations, shaped by available information, guide trading behaviour, leading to discrepancies between actual prices and fundamental values, ultimately contributing to SMV (Liu and Chen, 2017).

In analysing the mechanism through which IS impacts SMV, several key links emerge. First, during the information transmission process, noise directly disrupts the efficiency of information flow, leading to interference that prevents investors from making accurate judgments, resulting in noise traders (Koski et al., 2004; Long et al., 1990; Ramiah et al., 2015). Second, investor information processing leads to different trading behaviours, such as the investment style differences between institutional and retail investors. Institutional investors typically benefit from professional management, standardised behaviour, and rational asset portfolios, with advanced risk management mechanisms that contribute to more stable SMV. In contrast, retail investors often exhibit more emotional and speculative trading behaviour, making them prone to contributing to abnormal SMV (Bailey et al., 2009; Sun et al., 2021b).

Additionally, interactions between different investor types can create a herding effect, where investors blindly follow each other (Bekiros et al., 2017; Chiang and Zheng, 2010). Third, the impact of IS and its reflection of expectations varies across different market cycles, such as bull and bear markets (Wang et al., 2022); high and low sentiment periods (Han and Shi, 2022), and notable events like financial crises and the COVID-19 pandemic (Hsu and Tang, 2022; Jiang et al., 2021). Finally, IS can be categorised into market-wide and firm-specific sentiments (He, 2022; Yang and Hu, 2021), reflecting overall market sentiment and the sentiment surrounding specific companies.

At the firm level, firm-specific sentiment is more explanatory and significant than market sentiment. While previous studies have focused on market IS sensitivity—the responsiveness of stock returns to market sentiment—research on the impact of firm-specific investor sentiment sensitivity (FSISS) remains limited (Lin and Qiu, 2022; Yang and Hu, 2021). This study uses the capital asset pricing model to analyse FSISS, which measures the sensitivity of stock returns to firm-specific sentiment, offering a more accurate reflection of a stock's responsiveness to sentiment than market-wide sentiment (Yang and Hu, 2021).

EPU, IS and SMV

The relationship between EPU, IS, and stock market performance is complex, prompting scholars to explore various models to understand their interconnections. The time-varying parameter vector autoregression model with stochastic volatility (TVP-VAR-SV) has been used to study the impact of policies and IS on SMV, highlighting how macroeconomic time-varying effects and IS influence the transmission process of policies across different periods (Qiao et al., 2022; Ren and Li, 2020; Zhan and Zhang, 2019). Scholars often view IS as a mediating variable, suggesting that policies influence IS, which in turn affects the stock market (Pan et al., 2022; Qi et al., 2022; Wu, 2022; Ye and Wu, 2023). Firm-level studies have shown that FEPUE negatively impacts firms' market value, Tobin's Q, and innovation investment (Cui et al., 2021; Yang et al., 2019), while contributing positively to stock price bubbles (Cheng et al., 2021). Nartea et al. (2020) found that risk-averse investors are willing to pay a premium for stocks with a positive EPU beta, but in low sentiment periods, they prefer stocks with a negative EPU beta, requiring additional risk compensation. Moreover, Lin and Qiu (2022) noted that sentiment beta becomes significantly negative under conditions of limited arbitrage and heightened SMV, with this effect amplified in low EPU environments and crisis periods. However, more micro-level evidence is needed to further clarify the impact and transmission mechanisms of EPU and IS on SMV.

Institutional Investor

Since China began promoting institutional investor participation in 1998, its presence and influence in the capital market have expanded substantially. By the end of 2023, institutional investors—including social security funds, public funds, insurance funds, and other professional entities—held 15.9 trillion yuan in A-share market value, with their ownership share increasing from 17% to 23% compared to early 2019[1]. Institutional investors are generally more effective than retail investors at mitigating noise trading, enhancing pricing efficiency, and stabilising stock market volatility (Carpentier and Suret, 2020). They also contribute to market quality through capital provision, enhanced corporate governance,

[1] *Chinadaily*. *Institutional investors are intensifying market participation and assuming a leading role in driving equity investment*. https://caijing.chinadaily.com.cn/a/202403/11/WS65ee4438a3109f7860dd4ca9.html

superior information processing, and professional expertise (Andrieş et al., 2022; Cao et al., 2018; Tee et al., 2019). Institutional ownership signals firm quality and attracts additional investor attention, often inducing herding behaviour among market participants (Cao and Liu, 2016; Lao et al., 2024).

However, not all findings suggest a stabilising role. Some scholars argue that institutional investors, driven by short-term performance pressures and herd behaviour, may amplify SMV, especially when governance interventions are weak or ineffective (Ma, 2020). Consequently, recent studies have emphasised the heterogeneity among institutional investors, identifying divergent effects across different categories (Huang et al., 2022; Li et al., 2021; Ma, 2020; Zhang et al., 2023).

Hypothesis Development

As a barometer of the macroeconomy, the stock market is significantly influenced by macroeconomic policies. Economic policies, as key tools of macroeconomic regulation, are closely scrutinised for their impact. SMV is affected not only by traditional economic policies but also by the uncertainty generated by these policies. EPU can create uncertainty in investor expectations regarding future risks and returns, thereby influencing IS. In the Chinese stock market, which is largely dominated by retail investors prone to herd behaviour, the IS affected by EPU can lead to irrational investment decisions, further impacting SMV (Zhan and Zhang, 2019; Zhou and Jia, 2019). The complex relationship between EPU, IS, and SMV (Bossman et al., 2023; Chen and Chen, 2022) has led some scholars to use dynamic time-varying structural models to explain these contradictions. Specifically, the external structure in which these variables operate changes over time, causing the coefficients reflecting their relationships to vary. The TVP-VAR-SV model has been widely employed to reveal that the influence of these three factors exhibits significant time-varying effects, with the degree of influence varying under different time constraints (Qiao et al., 2022; Ren et al., 2019; Zhan and Zhang, 2019). Based on these studies, this research proposes the following hypothesis:

Hypothesis 1: The effects of EPU and IS on SMV, as well as the impact of EPU on IS, change over time and vary with different periods.

For firms, the impact of EPU and IS on SMV depends not only on the magnitude of EPU and IS but also on the sensitivity of individual stock returns to these factors, specifically FEPUE and FSISS.

Pástor and Veronesi (2012) were the first to use a model illustrating how different firms are affected by EPU. According to asset pricing theory, FEPUE should warrant positive risk compensation, and empirical evidence shows that FEPUE generates a significant negative premium. Brogaard and Detzel (2014) argued that investors seek assets with positive FEPUE as a hedge, driving up their prices and lowering expected returns. However, this conclusion relies on rational investor behaviour. In contrast, Li (2017) found that in the Chinese market, dominated by speculative traders with irrational biases, there is a greater demand for assets with negative FEPUE. Bali et al. (2017) suggested that the negative uncertainty premium may arise from limited market participation by certain investor types, depending on market conditions. Similarly, Xing and Wang (2021) found that FEPUE negatively predicts stock returns in China, attributing this to the confirmation effect of prospect theory, where investors expect declining returns from stocks with positive FEPUE, leading them to sell those assets.

In addition to stock returns, scholars have explored other dimensions of FEPUE. Yang and Yang (2021) found that stocks sensitive to EPU exhibit high volatility following the COVID-19 lockdown, especially in consumer, low-margin, and highly leveraged stocks. Yang et al. (2019) examined the negative effect of FEPUE on firms' market value, noting that firms with low market openness, high policy dependence, weak competitiveness, and poor corporate governance experience exacerbated adverse effects. This negative premium cannot be explained by other firm characteristics, sectors, or equity types, indicating that investors do not receive risk compensation from FEPUE. Luo and Zhang (2020) studied EPU's positive impact on stock price crashes, finding that younger, smaller, volatile, and growth-oriented stocks typically have higher FEPUE and are more susceptible to crash risk. Cui et al. (2018) further investigated the positive effect of FEPUE on stock crash risk, noting that this effect is influenced by firm size, ownership structure, profitability, and market sentiment. Cui et al. (2021) examined the positive relationship between FEPUE and earnings management, which is more pronounced in firms with high financial leverage, growth rates, and weaker external regulation. Cheng et al. (2021) explored the positive link between FEPUE and stock price bubbles, finding that the relationship is stronger in firms with higher information uncertainty (e.g., smaller market value, higher profitability, and lower analyst coverage) and more optimistic market conditions (e.g., rising sentiment or stock prices). Based on these studies, this research proposes the following hypothesis:

Hypothesis 2: Firms with greater EPU exposure experience higher stock return volatility.

EPU is a primary determinant of IS (Idnani et al., 2021), exerting a significant negative impact. As EPU rises, investor uncertainty and concern about the future economic environment increase, leading to reduced market confidence and more cautious, pessimistic sentiment (Qiao et al., 2022). IS, therefore, plays a crucial role in explaining the EPU premium. Nartea et al. (2020) argued that the magnitude of the EPU premium depends on IS: when IS is low (high), the negative EPU premium becomes more pronounced (weaker). They also found that during periods of high IS, investor engagement is stronger, leading to a weaker negative EPU premium. In contrast, pessimistic and uncertainty-averse investors are more likely to limit participation in low IS periods. Similar to FEPUE, scholars have begun examining IS and IS sensitivity (Li, 2022; Lin and Qiu, 2022; Yang and Hu, 2021).

Firms with high FEPUE face increased uncertainty regarding business operations and earnings. Given that EPU negatively impacts IS, a rising EPU leads to a reduction in IS. As a result, investors become more risk-averse, lowering their demand for risky assets. To attract investors, firms must enhance their sensitivity to IS. Based on this analysis, this research proposes the following hypothesis:

Hypothesis 3: A firm’s EPU exposure positively influences its firm-specific investor sentiment sensitivity.

In recent years, IS has been used to explain the abnormal volatility of individual stocks, yet research on the relationship between FSISS and stock returns remains limited. Glushkov (2006) introduced sentiment beta, arguing that it has a strong theoretical foundation and good statistical properties for explaining stock returns. He found that portfolios of stocks with high sentiment beta underperform those with low sentiment beta on average. Sentiment-sensitive firms tend to be small, young, volatile, have low dividend yields and price-to-book ratios, and exhibit high asset growth. Retail investors more commonly hold stocks with high sentiment betas than institutional investors. Yang and Hu (2021) observed that stocks with

high FSISS exhibit greater volatility, in line with Glushkov (2006). However, they also found a positive correlation between FSISS and stock returns, with the effect being significant across markets, sample periods, and both bull and bear markets. Li (2022) further examined mood sentiment, noting that stocks with high mood sentiment outperform the broader market during mood periods. Based on these findings, this research proposes the following hypothesis:

Hypothesis 4: A firm's sensitivity to investors' sentiment towards a specific firm positively affects its stock return volatility.

Based on the above research, FEPUE significantly impacts firm stock market volatility (FSMV) and FSISS, while FSISS also exerts a notable influence on FSMV. Therefore, this study speculates that FEPUE may affect FSMV through the mediating role of FSISS. Pan et al. (2022) found that IS mediates the relationship between policy and trading volume, with approximately 36% of the policy effect transmitted through IS. Wu (2022) demonstrated that EPU fuels IS and reduces stock price synchronicity, with IS acting as a mediator. Similarly, Qi et al. (2022) confirmed that IS mediates the relationship between EPU and financial stability. Ye and Wu (2023) further revealed that EPU influences SMV through the partial mediating effect of institutional investors' expectations regarding inflation and credit expansion. Synthesising these findings, this study proposes the following hypothesis:

Hypothesis 5: Firm-specific investor sentiment sensitivity mediates the impact of a firm's EPU exposure on its stock return volatility.

Institutional investors can influence the stock market in both stabilising and destabilising ways. Some scholars argue that institutional investors, adhering to value investment principles, help stabilise SMV, reduce noise, and enhance market quality (Lao et al., 2024; Ma, 2020). Conversely, other scholars contend that the diverse participation and varying influence of institutional investors across different types and ownership structures (Ma et al., 2020; Zhang et al., 2023). The institutional investor shareholding ratio (IISR) reflects the degree of institutional investor participation and preference, which can attract trend-following behaviours from other investors (Lao et al., 2024), thereby contributing to a reduction in SMV. Li et al. (2021) found that financial institutional investors help curb market manipulation by enhancing the information content of stock prices and reducing information asymmetry, whereas general legal institutional investors, due to differences in holding purposes and trading strategies, may instead intensify market manipulation. Huang et al. (2022) further noted that public and private equity funds tend to amplify, rather than stabilise, SMV, whereas the highly regulated social security funds have improved price efficiency and reduced SMV through effective value discovery. Zhang et al. (2023) showed that Qualified Foreign Institutional Investor (QFII) ownership helps lower volatility risk in China's A-share market. Similarly, Ozdemir et al. (2023) found that higher institutional ownership mitigates the adverse effects of EPU on corporate financial performance. Tee (2019) reported that in Malaysia, institutional ownership weakens the positive link between political connections and stock price crash risk. Zhu (2024) demonstrated that an increase in shareholder accounts, implying that institutional investors sell to retailers, leads to higher SMV. Wei et al. (2021) highlighted that long-term holdings by insurance funds stabilise the market, whereas changes in their holdings intensify SMV. Based on these findings, this study proposes the following hypothesis:

Hypothesis 6: Institutional investors of a firm moderate the positive effect of its EPU exposure on its stock return volatility.
Hypothesis 6a: Insurance holdings, QFII (Qualified Foreign Institutional Investor) holdings, social security fund holdings, and bank holdings among institutional investors weaken the impact of a firm's EPU exposure on its stock return volatility.
Hypothesis 6b: Fund holdings, other institutional holdings, brokerage holdings, and trust holdings among institutional investors strengthen the impact of a firm's EPU exposure on its stock return volatility.

Proposed Conceptual Framework
Building on the preceding discussion, the conceptual framework of this study is illustrated in Figures 1 and 2. Specifically, the research examines the impact of EPU and IS on SMV from both market and firm perspectives. It explores the transmission mechanism whereby EPU affects SMV, with IS identified as a key mediating variable at both levels. Furthermore, the framework incorporates the moderating effect of institutional investors, offering a more comprehensive analysis of the relationships among EPU, IS, and SMV.

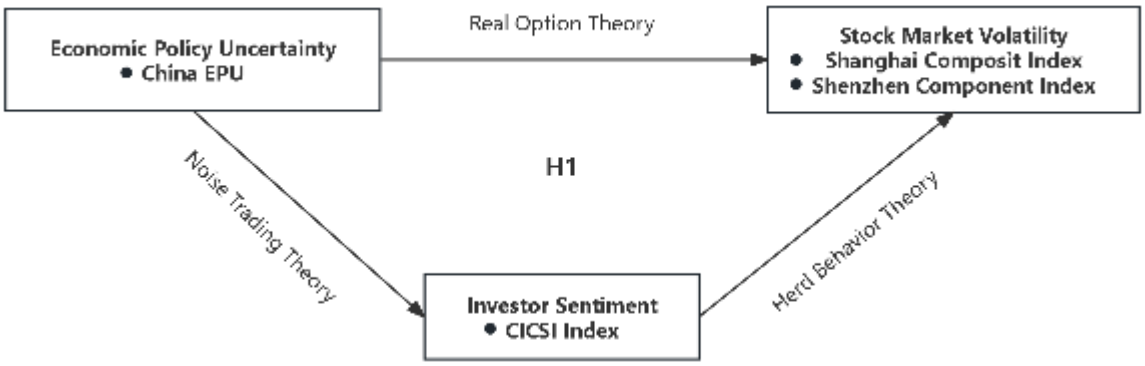

Fig. 1 Market Level Conceptual Diagram
(Source: By Author)

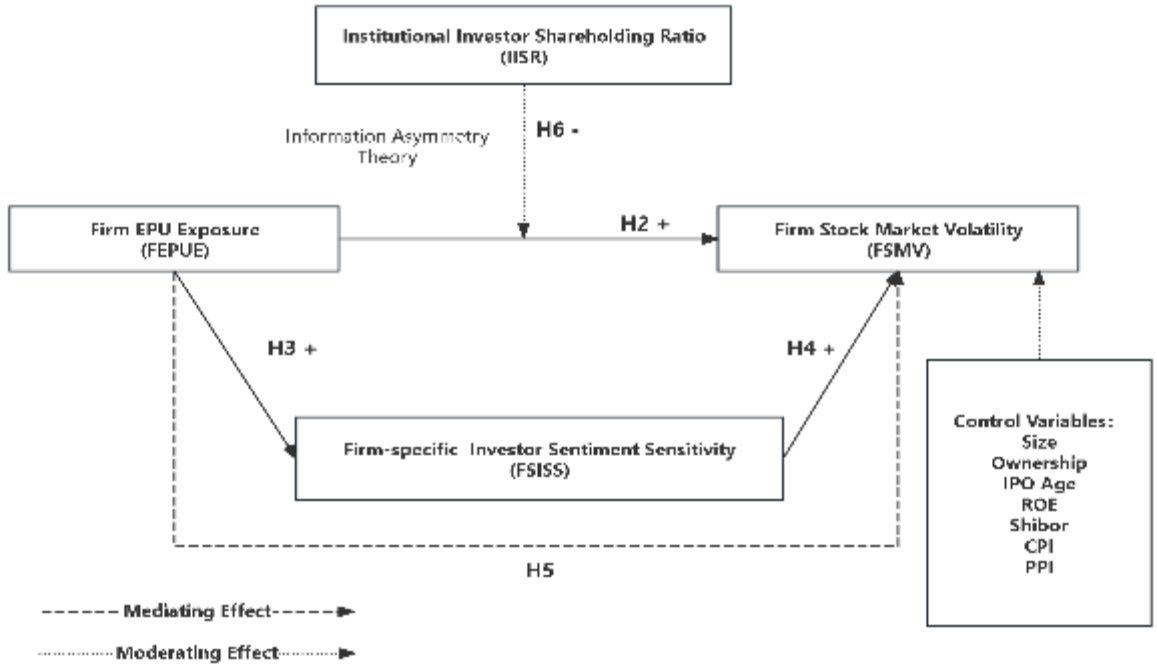

Fig. 2 Firm Level Conceptual Diagram
(Source: By Author)

Proposed Methods and Empirical Challenges

To empirically investigate the relationships among EPU, IS, and SMV, this study conducts a comprehensive analysis at both the market and firm levels. At the market level, a Vector Autoregression model is first constructed, with the optimal lag order determined based on the Akaike Information Criterion. Preliminary structural breakpoints are then identified using weekly breakpoint tests. Following this, the TVP-VAR-SV model is estimated utilising OxMetrics software, and three-dimensional plots are generated via MATLAB to visually depict the dynamic interactions among EPU, IS, and SMV over time. The structural shifts are ultimately confirmed by cross-referencing the detected breakpoints with the patterns observed in the 3d visualisations. In the subsequent firm-level analysis, EPU and IS are transformed into FEPUE and FSISS, respectively. To adjust for data frequency differences, the weighted average method is employed. In addition, principal component analysis (PCA) and the rolling window technique are utilised to construct firm-specific IS measures and to smooth the coefficients during the transformation of FEPUE and FSISS. Using the structural breakpoints determined at the market level, the whole sample period (2005–2023) is divided into several sub-samples. Across these sub-periods, the study systematically investigates the mediating role of FSISS in the relationship between FEPUE and FSMV, while also exploring its potential moderating effects through IISR. This approach offers deeper insights into the dynamic interactions among EPU, IS, and SMV.

The study selects the period from 2005 to 2023 because China implemented its Split Share Structure Reform in 2005 (Lao et al., 2024), using the market's reasonable rights and obligations adjustment system to eliminate the differences in investors' equity transfer and promote the standardised development of stock market transactions (An, 2021).

At the market level, this study employs monthly data for analysis. SMV is measured by calculating the monthly standard deviation of daily returns on stock indices. Specifically, the Shanghai Composite Index and the Shenzhen Component Index are selected as representative benchmarks for the Shanghai and Shenzhen stock exchanges, respectively. EPU is quantified by Davis et al. (2019) index and Huang and Luk (2020) index as an alternative proxy for robust tests, since Baker et al. (2016) index data sources are not from mainland China. IS is quantified by the Chinese Investor Composite Sentiment Index, constructed by Yi and Mao (2009). The Investor Sentiment Index, developed by Wei et al. (2014), is an alternative proxy for robust tests. Both indices refer to the Baker and Wurgler (2006) index's establishment method (PCA) and replace proxy indicators according to China's unique national conditions.

All A-share listed companies in the Shanghai and Shenzhen stock markets, excluding financial companies, ST, *ST, and PT, were selected as samples at the firm level. This study analyses firm-level mediating effects using monthly data and firm-level moderating effects using quarterly data, as the IISR is typically derived from quarterly financial reports. A similar approach to the study of mixed data frequencies is referred to as He et al. (2022). FEPUE is converted following the method of Yang et al. (2019). Firm-specific investor sentiment is first synthesised following Li and Yang (2017) and further converted following Yang and Hu (2021). FSMV is calculated based on the monthly or quarterly standard deviation of individual stock daily returns. All adjustments from monthly data to quarterly data are conducted following the method proposed by Tan and Zhang (2017). Control variables are considered from the perspectives of Size, Ownership, Age, ROE, Shibor, CPI, and PPI[2].

Discussion

Previous research has primarily analysed the direct effects of individual factors (EPU and IS) on SMV, leading to mixed conclusions. However, only a limited number of studies have examined the joint impact and underlying mechanisms among the three, particularly the mediating role of IS in the relationship between EPU and SMV, which remains largely unsupported by empirical evidence. This study focuses on the Chinese stock market as the research context, given that issues related to EPU, IS, and SMV are more pronounced in China than in other markets, making it an ideal setting for investigating this topic. Furthermore, this study extends the analysis to the firm level, emphasising firms' sensitivity to changes in EPU and IS, thereby contributing to the existing body of literature. As this area remains relatively underexplored, the study offers new insights into the comprehensive understanding of stock price movements. Moreover, the rise of institutional investors in the Chinese stock market provides new research opportunities by allowing for distinctions between different investor groups (retail investors and various types of institutional investors), enabling an examination of how diverse investment styles influence market dynamics.

Conclusion

This study introduces a distinctive conceptual framework designed to establish propositions regarding the relationship between EPU and SMV, while examining the mediating role of IS within the context of the Chinese stock market. Empirical research is planned at both the

[2] Size is a dummy variable that equals 0 for small enterprises, 1 for medium enterprises, and 2 for large enterprises. Ownership is a dummy variable that equals 1 for state-owned enterprises; 0 otherwise. Age is the natural logarithm of the age after IPO. ROE is the earnings-to-book equity ratio for the specific stock, for quarterly data. Shibor is the Shanghai Interbank Offered Rate for 30 /90 days. CPI is quarterly data, the consumer price index for all urban consumers. PPI is the producer price index for industrial products, with monthly data.

market and firm levels. The effects of EPU and IS on SMV represent a promising avenue for future investigation. Subsequent studies could focus on alternative measures of IS and the application of mixed-frequency data models. Furthermore, future research could differentiate among various sentiment agents to better identify the distinct impacts of different investors on stock market trading. Lastly, future studies could compare the framework proposed in this study across different markets, or within emerging economies, to investigate how the EPU-IS-SMV relationship affects stock market behaviour in different institutional settings, and whether it acts as a hindrance or a catalyst for SMV.

Theoretical and Contextual Contribution

EPU and IS have become critical themes in SMV research, yet few studies have systematically explored their interrelationships. Drawing on real options theory, noise trading theory, herding behavior theory, and information asymmetry theory, this study examines the impact and mechanisms of EPU and IS on SMV at both market and firm levels, providing new macro- and micro-level evidence. To address structural changes over time that affect variable relationships, this study employs a TVP-VAR-SV model, enabling a dynamic, multidimensional analysis across time, horizon, and impact intensity. Structural breakpoints are identified and validated using Chow's breakpoint test. Based on these breakpoints, firm-level analyses are conducted, focusing on the relationships among FEPUE, FSISS, and FSMV, with FSISS serving as a mediating variable and the IISR as a moderating variable. By elucidating these mechanisms, the study offers practical insights for investors in risk assessment and strategy formulation, supports the development of stable and orderly markets, and informs policymakers in designing effective macroeconomic responses amid complex domestic and international conditions.

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