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REVIEW

Stock Market Volatility: A Bibliometric Review of Research Trends

Volatilidad del mercado de valores: una revisión bibliométrica de las tendencias de investigación

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ABSTRACT

Introduction: stock market volatility plays a vital role in financial markets and economic stability, drawing considerable academic attention over the past two decades. However, a comprehensive review of the literature examining the landscape of stock market volatility research has been lacking.
Objective: this study aims to fill that gap by conducting a systematic bibliometric analysis to identify key authors, journals, documents, contributing countries, and collaborative networks, while mapping thematic trends in stock market volatility research.
Method: the analysis employs VOS Viewer and the Bibliometrix R-package to examine 1418 articles published between 2005 and 2022, retrieved from the Scopus database. The study utilizes keyword co-occurrence analysis and bibliographic coupling to map research themes and collaborative networks.
Results: findings reveal a significant rise in research output after 2015, with a notable surge during the COVID-19 pandemic. The top 10 most-cited papers amassed over 4700 citations, with crisis-related studies demonstrating substantial influence. Key contributors include Gupta R., Ma F., and Zhang Y., while the USA, China, and the UK emerge as the leading publishing countries. Four main research streams are identified: volatility measurement and forecasting, crisis and contagion effects, macroeconomic influences, and spillover effects across markets. “Realized volatility” and “GARCH” emerge as dominant themes driving the field.
Conclusions: this study offers a foundational overview of stock market volatility research, supporting scholars in identifying trends and research gaps, and providing practitioners with a structured understanding of the domain’s evolution.

Keywords: Stock Market Volatility; Financial Market Volatility; Bibliometric Analysis; Research Trends; VOS Viewer.

RESUMEN

Introducción: la volatilidad del mercado de valores desempeña un papel vital en los mercados financieros y la estabilidad económica, atrayendo considerable atención académica durante las últimas dos décadas. Sin embargo, ha faltado una revisión exhaustiva de la literatura que examine el panorama de la investigación sobre volatilidad del mercado de valores.
Objetivo: este estudio tiene como objetivo llenar ese vacío mediante la realización de un análisis bibliométrico sistemático para identificar autores clave, revistas, documentos, países contribuyentes y redes de colaboración, mientras se mapean las tendencias temáticas en la investigación sobre volatilidad del mercado de valores.
Método: el análisis emplea VOS Viewer y el paquete Bibliometrix de R para examinar 1418 artículos publicados

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entre 2005 y 2022, recuperados de la base de datos Scopus. El estudio utiliza análisis de co-ocurrencia de palabras clave y acoplamiento bibliográfico para mapear temas de investigación y redes de colaboración.
Resultados: los hallazgos revelan un aumento significativo en la producción de investigación después de 2015, con un incremento notable durante la pandemia de COVID-19. Los 10 artículos más citados acumularon más de 4700 citas, con estudios relacionados con crisis demostrando una influencia sustancial. Los principales contribuyentes incluyen a Gupta R., Ma F. y Zhang Y., mientras que Estados Unidos, China y el Reino Unido emergen como los países líderes en publicaciones. Se identifican cuatro corrientes principales de investigación: medición y pronóstico de volatilidad, efectos de crisis y contagio, influencias macroeconómicas y efectos de spillover entre mercados. "Volatilidad realizada" y "GARCH" emergen como temas dominantes que impulsan el campo.
Conclusiones: este estudio ofrece una visión general fundamental de la investigación sobre volatilidad del mercado de valores, apoyando a los académicos en la identificación de tendencias y brechas de investigación, y proporcionando a los profesionales una comprensión estructurada de la evolución del dominio. RetryClaude can make mistakes. Please double-check responses.

Palabras clave: Volatilidad del Mercado Bursátil; Volatilidad del Mercado Financiero; Análisis Bibliométrico; Tendencias de Investigación; VOS Viewer.

INTRODUCTION

Stock market volatility represents a critical measure of market risk and uncertainty, reflecting the dispersion of returns for a given security or market index. High volatility periods typically correspond to market stress, while low volatility generally indicates stability.[1,2] Understanding, measuring, and forecasting volatility have become essential for investors, policymakers, and financial institutions, particularly following major financial crises that have emphasized the importance of risk management and market stability.[3,4]

The global financial crisis of 2007-2009 and more recently, the COVID-19 pandemic has significantly impacted financial markets worldwide, triggering substantial volatility spikes and renewed academic interest in this area.[5,6] Advanced econometric methods, technological developments, and increased data availability have further contributed to the evolution of volatility research.[7,8,9] Although numerous individual studies have examined specific aspects of stock market volatility, a comprehensive overview of the research landscape, identifying key contributors, evolutionary patterns, and emerging research directions remains lacking.[10,11]

Bibliometric analysis provides an effective approach for evaluating the intellectual foundation and development trajectory of research domains by employing quantitative methods to examine publication patterns, citation impacts, and content relationships within scholarly literature.[10] By synthesizing the body of knowledge on stock market volatility through bibliometric techniques, this study aims to map the intellectual structure of the field, identify influential contributions, and highlight emerging research directions.

This study aims to analyze research advancement patterns in stock market volatility research up to 2022, identify the most-cited documents and the most contributing authors, countries, and journals, examine the thematic structure evident in stock market volatility research articles, and identify potential future research areas in the field.

The findings offer valuable insights for both academics and practitioners in finance and economics. For researchers, this review provides a roadmap of the field's evolution, highlighting influential works, key contributors, and emerging topics that warrant further investigation. For practitioners, it synthesizes the knowledge structure on volatility research, potentially informing trading strategies, risk management approaches, and regulatory considerations.

Stock Market Volatility

Stock market volatility refers to the rate at which the price of securities increases or decreases for a set of returns. It is typically measured as the standard deviation or variance between returns from the same security or market index.[2,12] Volatility is a critical measure used by investors and financial institutions to assess market risk and uncertainty. High volatility indicates increased risk, while low volatility suggests more predictable returns.[1,9]

Several factors influence stock market volatility, including macroeconomic indicators, monetary policy decisions, corporate performance, geopolitical events, and market sentiment.[4,8,7] Volatility can be classified into historical volatility, which examines past price changes, and implied volatility, which reflects market expectations of future volatility derived from option prices.[1,6]

The development of advanced econometric models has significantly contributed to the measurement and forecasting of volatility. The Autoregressive Conditional Heteroskedasticity (ARCH) model introduced by Engle

and its generalized version (GARCH) by Bollerslev have become fundamental tools for analyzing time-varying volatility in financial markets.[13,14] These models have been extended to account for various features of volatility, such as asymmetric effects (EGARCH), fractional integration (FIGARCH), and long memory processes.[3,2,9]

Recent advancements in high-frequency data analysis have led to the development of realized volatility measures, which utilize intraday price observations to obtain more accurate volatility estimates.[9,4] Additionally, the emergence of volatility indexes, such as the VIX (often referred to as the "fear gauge"), has provided standardized measures for market sentiment and expected volatility.[1,12]

Stock Market Volatility and Financial Crises

Financial crises have historically been associated with extreme volatility in stock markets. The global financial crisis of 2007-2009 and the European sovereign debt crisis highlighted the interconnectedness of financial markets and the potential for volatility spillovers across regions.[1,4,12] These events prompted researchers to investigate the dynamics of volatility during crisis periods, including contagion effects, regime switching, and structural breaks in volatility processes.[9,2]

More recently, the COVID-19 pandemic triggered unprecedented market reactions, with global stock markets experiencing extreme volatility in early 2020.[5,6,15] This period has become a focal point for research on the relationship between pandemic-induced uncertainty and market volatility, drawing attention to factors such as policy responses, health outcomes, and economic impacts.[7,6,16,17]

Bibliometric Analysis in Finance Research

Bibliometric analysis has become an increasingly popular method for synthesizing knowledge and mapping intellectual structures in various academic fields, including finance.[10,18,19] By analyzing publication patterns, citation networks, and content relationships, bibliometric studies provide insights into the historical development, current status, and future directions of research domains.[11,20]

Several bibliometric studies have been conducted in finance-related areas, examining topics such as behavioral finance, corporate governance, cryptocurrency, and sustainable finance.[21,22,23,24] Bibliometric methods have also been applied to analyze financial crises literature, financial technology , and Islamic finance.[25,26] However, a comprehensive bibliometric analysis of stock market volatility research is notably absent from the literature. Given the importance of this topic and its extensive body of literature, a systematic bibliometric review would significantly contribute to understanding the intellectual landscape of volatility research.[10,11]

METHOD

This study examines stock market volatility research through various bibliometric techniques. Beyond analyzing publication volume and citation metrics, bibliometric analysis identifies collaboration networks, maps the thematic evolution of the field, and discerns emerging research directions.[19,27,28,29] This comprehensive approach enables both evaluation of the current state of knowledge and identification of potential future research areas.[10,18,30]

This study employs both VOS Viewer software and Bibliometrix R-package software for the analysis.[18,28,31] Publication metrics and citation analysis using Bibliometrix R-package identify the most influential authors, documents, journals, and countries based on total citations and publication counts.[18,19] Co-authorship analysis highlights international research collaborations, while keyword analysis provides a thematic map and identifies trending topics in the field.[29,32,33,34]

Table 1. Search Procedure

Filtering Criteria	Excluded	Included
Database: Scopus		
Date of search: 02 March 2025		
Keywords: "stock market volatility" OR "financial market volatility" OR "equity market volatility" in the article title, abstract and keyword		2268
Published from: 2005 to present	176	2092
Subject area: Economics, Econometrics, Finance, Business, Management, Accounting, and Social Science	450	1642
Document type: include only 'articles'	158	1484
Language: documents in English only	19	1465
Limit to: documents with publication stage as 'final'	47	1418

Note: this table shows the filtering criteria used to reach the final compilation of 1418 studies

Co-occurrence analysis in VOS Viewer examines the relationships between keywords in the literature, providing insights into the knowledge structure.[27,31] Bibliographic coupling analysis reveals conceptual connections between publications that cite the same sources, helping to identify major research streams in stock market volatility research.[10,18,28,35,36]

The Scopus database was chosen for this study based on its comprehensive coverage of peer-reviewed literature in finance and economics. As demonstrated by Mongeon & Paul-Hus Scopus offers more extensive coverage than Web of Science across most disciplines and provides more reliable records than Google Scholar, which often contains duplicate entries and non-peer-reviewed materials.[37,38,39]

Table 1 details the systematic data collection procedure following recommended protocols for bibliometric studies.[10,31] The search used keywords "stock market volatility" OR "financial market volatility" OR "equity market volatility" in article titles, abstracts, and keywords.[11,40] After applying filtering criteria for time period (2005-present), subject areas (Economics, Econometrics, Finance, Business, Management, Accounting, and Social Science), document type (articles only), language (English), and publication stage (final), a total of 1418 documents were included in the analysis.[18,31]

RESULTS

Sample Characteristics

The sample contains 1418 articles published in peer-reviewed journals between 2005 and 2025. These publications were produced by numerous authors from 47 different countries, with a diverse representation of research institutions and theoretical perspectives.

Performance Analysis

Publication Trend

Figure 1 illustrates the publication trend of stock market volatility research from 2005 to 2025. The analysis reveals a clear upward trajectory in research output, particularly since 2015.[18,10] The most productive periods occurred in 2019-2021, with 2020 showing a notable spike in publications, likely driven by research interest generated by the COVID-19 pandemic's impact on financial markets.[5,6,15,41] While there was a slight decrease in 2022, the overall trend indicates sustained scholarly interest in stock market volatility.[17]

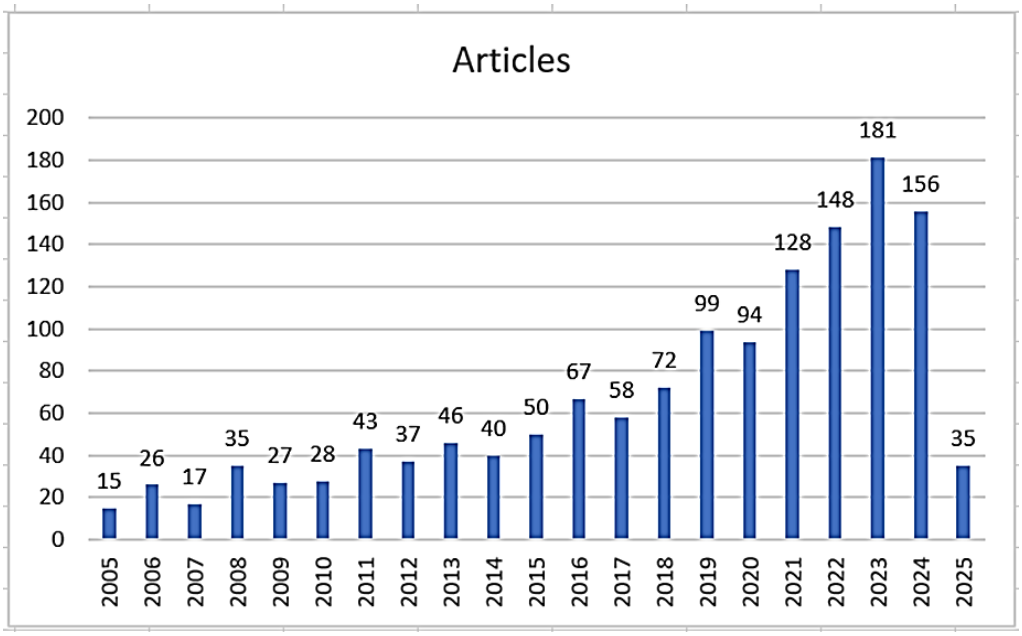

Figure 1. Publication trend of stock market volatility research from 2005 to 2025

Top Authors and Countries in Stock Market Volatility Research

Table 2 presents the most influential authors and countries in stock market volatility research based on citation metrics.[18,20] Among the active researchers in this field, Gupta R. stands out with 954 citations across 36 publications, followed by Ma F. with 1082 citations from 34 publications, and Zhang Y. with 810 citations from 31 documents.[10,11] Other notable contributors include Li Y., Liang C., and Demirer R., each with substantial citation counts and publication volumes.[42,19,30]

In terms of geographical distribution, the United States leads with 7177 citations across 428 publications, followed by China with 6487 citations from 627 documents.[37] The United Kingdom, Australia, and India complete

the top five countries by citation impact.[33,32] This pattern indicates that while Western economies (particularly the US and UK) maintain strong research traditions in finance, emerging economies like China and India are increasingly contributing to the knowledge base on stock market volatility.[43,44,45]

Table 2. Top Authors and Countries of Stock Market Volatility Research

Authors	TC	TP	Countries	TC	TP
Gupta R	954	36	USA	7177	428
Ma F	1082	34	CHINA	6487	627
Zhang Y	810	31	UNITED KINGDOM	4875	180
Li Y	597	17	AUSTRALIA	1302	100
Liang C	793	16	INDIA	1162	181
Demirer R	475	16	GERMANY	1159	106
Bouri E	708	15	FRANCE	886	114
Wang Y	380	15	NEW ZEALAND	730	34
Wang J	529	14	ITALY	711	80
Salisu AA	176	13	GREECE	667	61

Note: TC = Total Citations, TP = Total Publications

Top Sources for Stock Market Volatility

Figure 2 illustrates most relevant sources for stock market volatility research. As shown in the figure, Finance Research Letters and International Review of Financial Analysis emerge as the most impactful sources with 67 and 45 publications, respectively. However, North American Journal of Economics and Finance and International Review of Economics and Finance are the next most prolific, with 37 and 36 publications, respectively. Examining the distribution across finance-oriented versus general economics journals shows that six of the top ten journals publishing stock market volatility research are finance-focused publications. This indicates a healthy multidisciplinary research ecosystem, with contributions spanning specialized finance journals and broader economics publications, a crucial factor for advancing knowledge in this complex field.

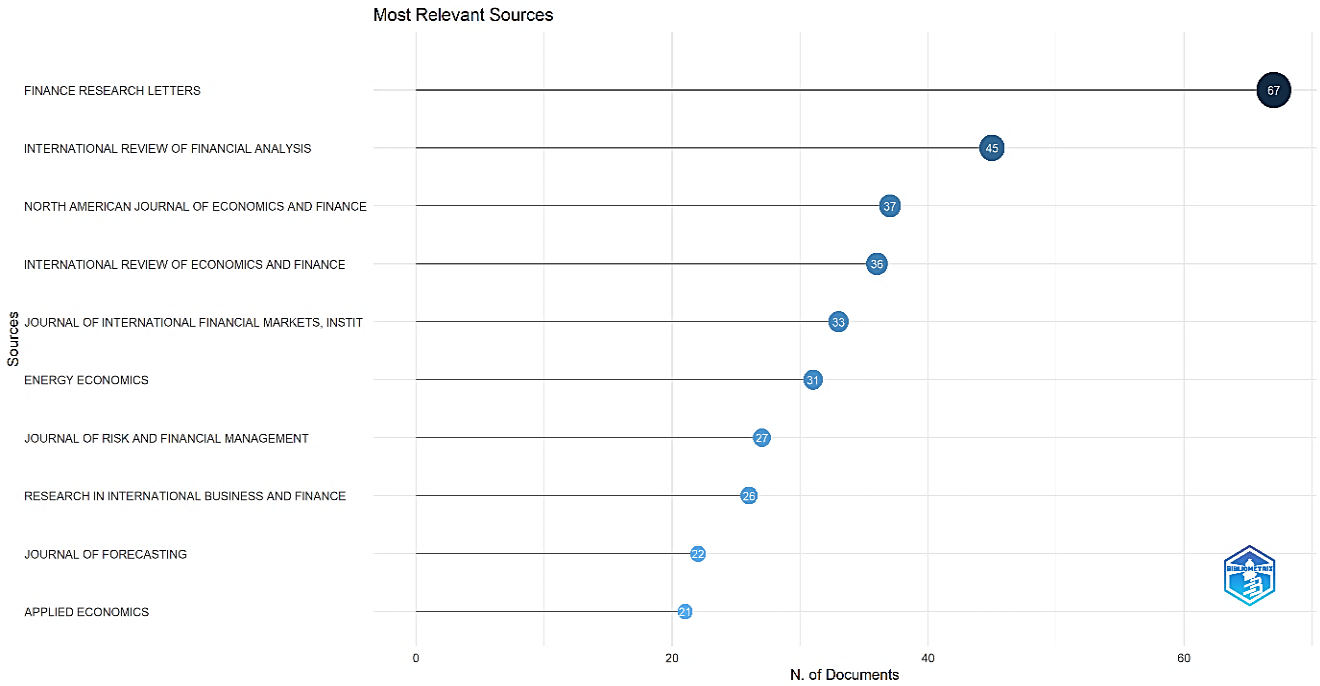

Figure 2. Top sources for stock market volatility research

Top Publications on Stock Market Volatility

Table 3 lists the most influential articles in stock market volatility research based on citation impact. The study by Sharif et al.[5] examining the nexus between COVID-19, oil prices, stock markets, and geopolitical risk has received the highest number of citations (1080), despite its relatively recent publication. This indicates the

significant scholarly interest in pandemic-related market volatility. Other highly cited works include Cappiello et al.[9] on asymmetric dynamics in global equity and bond returns (1037 citations), and Engle et al.[2] on the relationship between stock market volatility and macroeconomic fundamentals (718 citations).

The top-cited articles reflect several key themes in volatility research, including the impact of crises and uncertainty, the relationship between volatility and macroeconomic factors, and volatility measurement approaches.[1,2,3,5,6,7] The strong citation performance of recent publications suggests that the field is actively evolving, with new contributions rapidly gaining recognition.

Table 3. Top-Cited Articles in Stock Market Volatility Research

References	Authors	TC
Sharif, A., Aloui, C., & Yarovaya, L. COVID-19 pandemic, oil prices, stock market, geopolitical risk and policy uncertainty nexus in the US economy: Fresh evidence from the wavelet-based approach. International review of financial analysis, 70, 101496.10.1016/j.irfa.2020.101496	Sharif et al.[5]	1080
Cappiello, L., Engle, R. F., & Sheppard, K. Asymmetric dynamics in the correlations of global equity and bond returns. Journal of Financial econometrics, 4(4), 537-572. 10.1093/jjfinec/nbl005	Cappiello et al.[9]	1037
Engle, R. F., Ghysels, E., & Sohn, B. Stock market volatility and macroeconomic fundamentals. Review of Economics and Statistics, 95(3), 776-797. 10.1162/REST_a_00300	Engle et al.[2]	718
Bekaert, G., Hoerova, M., & Duca, M. L. Risk, uncertainty and monetary policy. Journal of Monetary Economics, 60(7), 771-788. 10.1016/j.jmoneco.2013.06.003	Bekaert et al.[3]	614
Altig, D., Baker, S., Barrero, J. M., Bloom, N., Bunn, P., Chen, S.,& Thwaites, G. Economic uncertainty before and during the COVID-19 pandemic. Journal of public economics, 191, 104274. 10.1016/j.jpubeco.2020.104274	Altig et al.[7]	607
Lustig, H., Roussanov, N., & Verdelhan, A. Common risk factors in currency markets. The Review of Financial Studies, 24(11), 3731-3777. 10.1093/rfs/hhr068	Lustig et al.[12]	469
Bekaert, G., & Hoerova, M. The VIX, the variance premium and stock market volatility. Journal of econometrics, 183(2), 181-192. 10.1016/j.jeconom.2014.05.008	Bekaert et al.[1]	460
Zaremba, A., Kizys, R., Aharon, D. Y., & Demir, E. Infected markets: Novel coronavirus, government interventions, and stock return volatility around the globe. Finance Research Letters, 35, 101597. 10.1016/j.frl.2020.101597	Zaremba et al.[6]	455
Hassan, T. A., Hollander, S., Van Lent, L., & Tahoun A. Firm-level political risk: Measurement and effects. The Quarterly Journal of Economics, 134(4), 2135-2202. 10.1093/qje/qjz021	Hassan et al.[8]	452
Antonakakis, N., Chatziantoniou, I., & Filis, G. Dynamic co-movements of stock market returns, implied volatility and policy uncertainty. Economics Letters, 120(1), 87-92. 10.1016/j.econlet.2013.04.004	Antonakakis et al.[4]	430

Top Keywords in Stock Market Volatility Research

Table 4. Top Keywords in Stock Market Volatility Research

Sl.no	Keyword	TO	Sl.no	Keyword	TO
1	stock market	171	11	price dynamics	36
2	commerce	72	12	forecasting method	35
3	financial markets	72	13	china	32
4	financial market	61	14	forecasting	32
5	united states	47	15	regression analysis	32
6	investments	45	16	financial crisis	30
7	uncertainty analysis	43	17	spillover effect	29
8	stock market volatility	42	18	macroeconomics	27
9	crude oil	41	19	numerical model	27
10	covid-19	36	20	energy market	25

Table 4 presents the most frequently occurring keywords in stock market volatility publications. Beyond the primary terms "stock market" (171 occurrences) and "stock market volatility" (42 occurrences), several prominent themes emerge. These include methodological approaches ("forecasting method," "regression analysis," "numerical model"), economic contexts ("financial crisis," "united states," "china"), market relationships ("crude oil," "energy market"), and contemporary issues ("covid-19," "uncertainty analysis").[18,27]

The diversity of keywords highlights the multifaceted nature of volatility research, encompassing econometric modelling, cross-market interactions, macroeconomic determinants, and the impact of significant events.[2,3,4,5,7,9,12,14] The presence of "covid-19" among the top keywords, despite its recent emergence, underscores the immediate scholarly response to the pandemic's effects on financial markets.[17,15,16]

Science Mapping

Co-authorship Analysis Based on Countries

Figure 3 presents the co-authorship network among countries contributing to stock market volatility research.[28,31] The analysis reveals distinct patterns of international collaboration, with several major research hubs emerging.[32,33] The United States maintains the most extensive collaborative network, forming strong connections with China, the United Kingdom, and several European countries.[18,19] China also demonstrates substantial international collaborations, particularly with Hong Kong, Taiwan, and selected Western economies.[37]

The most robust co-authorship links appear between the USA and China, the UK and China, and among European nations such as Germany, France, Italy, and Spain.[27,29] These patterns reflect both geographical proximity and established academic relationships between countries with strong financial research traditions.[11,20] The network also shows emerging collaborative relationships involving developing economies, particularly India, Brazil, and several Southeast Asian nations.[10,30]

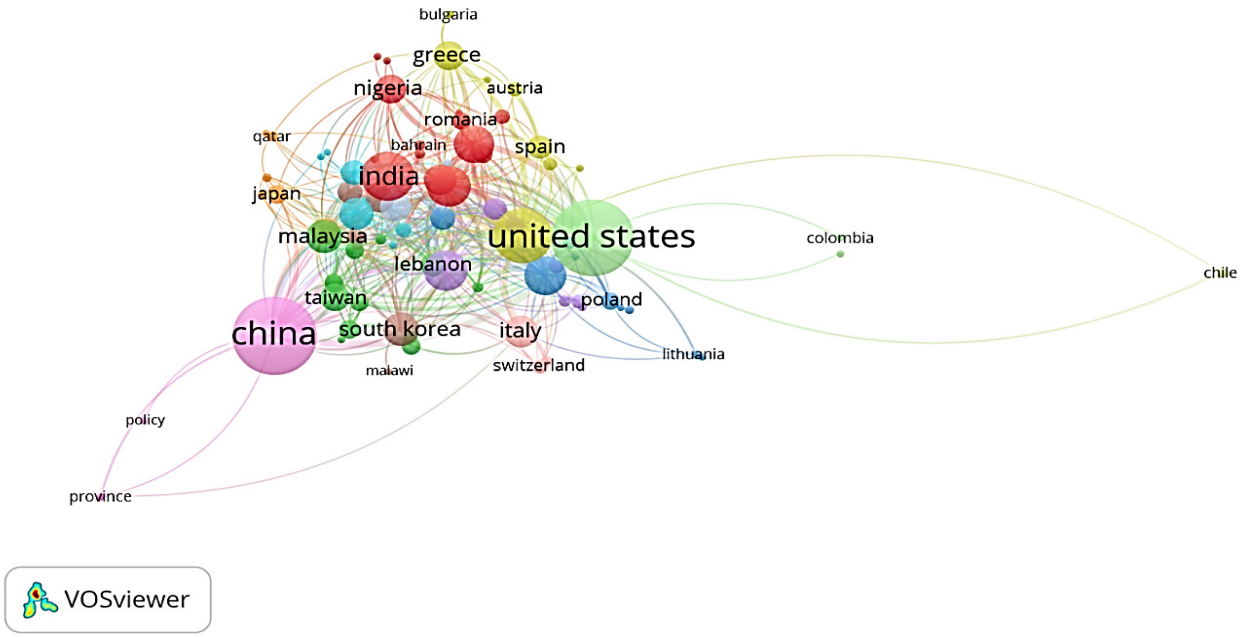

Figure 3. Co-authorship analysis based on countries

Keyword Analysis and Thematic Map

Figure 4 illustrates the co-occurrence network of keywords in stock market volatility research.[29,31] The analysis identifies several distinct clusters representing major research themes.[18,34] The central cluster revolves around "stock market volatility," with strong connections to methodological approaches such as "GARCH", "volatility forecasting", and "realized volatility".[1,9,13,14] Additional clusters focus on "financial markets" and their relationship with "commerce," "economic policy uncertainty", "crude oil", and "spillovers".[4,5,8,15]

The thematic map presented in figure 5 categorizes research themes based on their centrality (importance) and density (development).[27,29] In the upper-right quadrant (motor themes), we find highly developed and central topics such as "commerce," "financial markets," and "investments".[10,30] These represent the core, well-established research areas driving the field.[19] The lower-right quadrant (basic themes) includes "stock market," "financial market," and "united states," indicating foundational concepts with broad significance.[11,20]

The upper-left quadrant identifies niche themes that are well-developed but less central to the overall research landscape.[18,28] The lower-left quadrant highlights emerging or declining themes that may represent future research opportunities or topics losing relevance.[10,46]

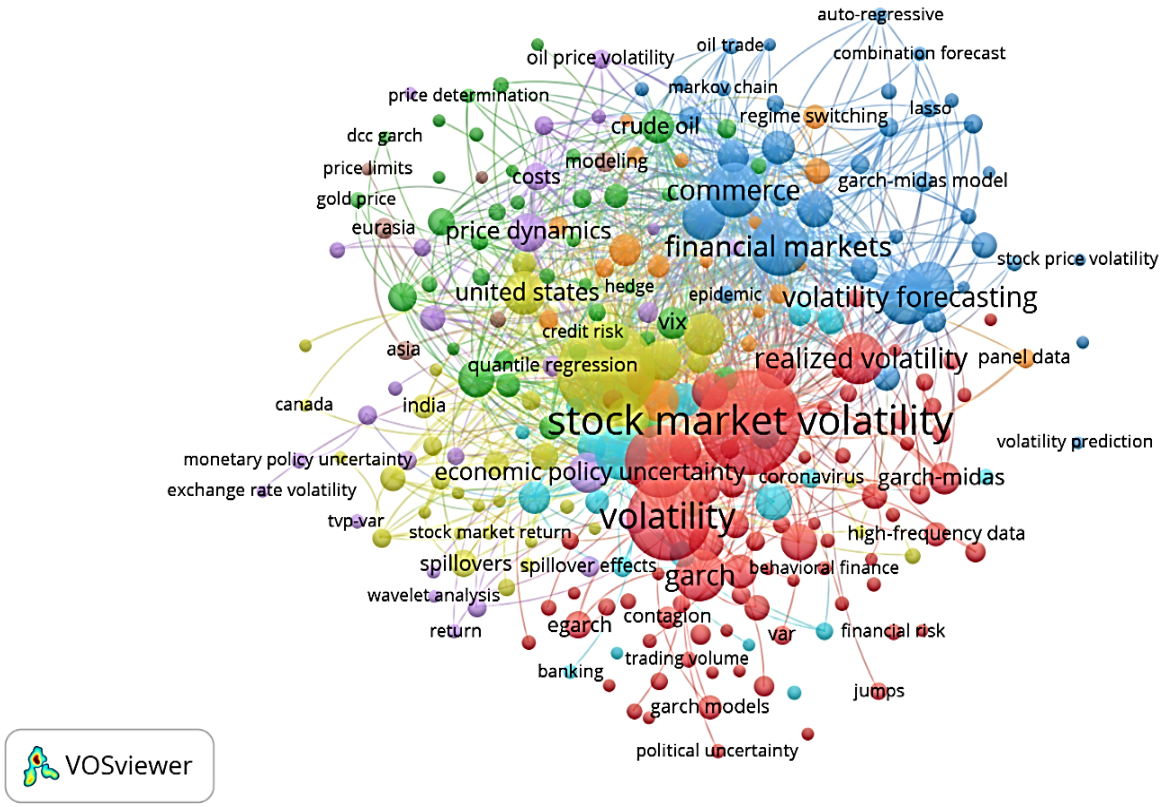

Figure 4. Co-occurrence analysis of keywords

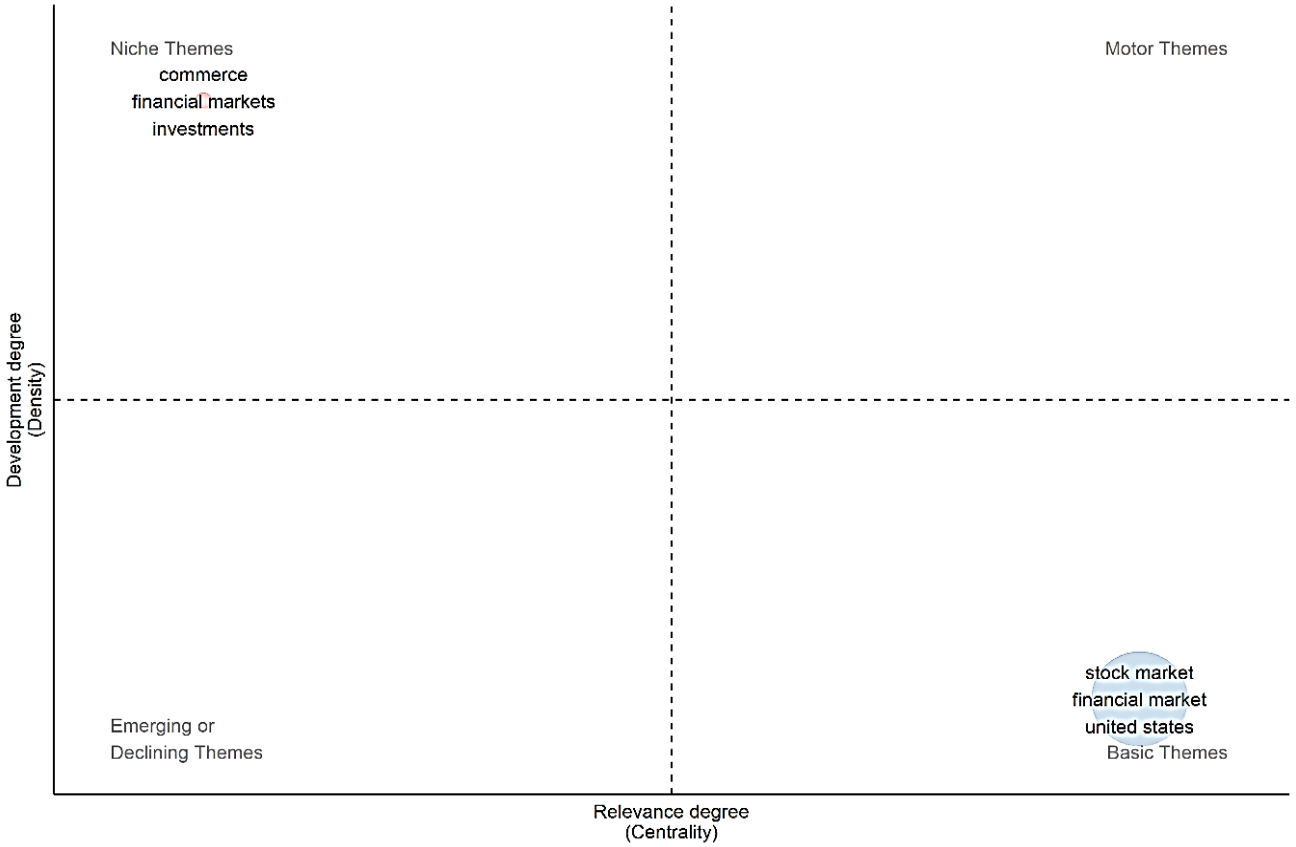

Figure 5. Thematic Map

Figure 6 provides a detailed visualisation of trending topics in stock market volatility research from 2007 to 2023, derived from keyword frequency analysis. This bibliometric evaluation utilises data visualisation to

illustrate the temporal emergence of research ideas and their relative significance in the literature. The analysis indicates that realised volatility, risk management, and investment-related topics have predominated the recent research landscape (2020-2023), as evidenced by the substantially greater term frequencies reflected in the bigger node sizes. This tendency illustrates the field's growing emphasis on empirical assessments of volatility and effective risk mitigation tactics in modern financial markets.

A distinct chronological advancement is evident throughout the research themes. Prior research (2007-2010) focused on fundamental methodological frameworks and geographical analyses, as indicated by keywords such as "methodology," "Asia," and "Eurasia." The intermediate period (2013-2017) experienced a transition towards analytical methodologies and policy deliberations, with words such as "variance analysis," "monetary policy," and "empirical analysis" becoming increasingly significant. The visualisation further demonstrates the evolution of research contexts. Studies on financial crises started in 2015-2016, perhaps reflecting ongoing analysis of the aftermath of the 2008 global financial crisis. From 2018 to 2021, there has been significant expansion in research investigating the interrelations between volatility and broader economic issues, with particular emphasis on "crude oil," "uncertainty analysis," and "developing world" contexts.

The field has evolved from generic "stock market" studies to more specialised research in "financial markets," indicating a rise in sophistication and specialisation within the discipline. The advent of "dynamic conditional correlations" research circa 2016 signifies an increase in methodological intricacy within volatility modelling techniques.

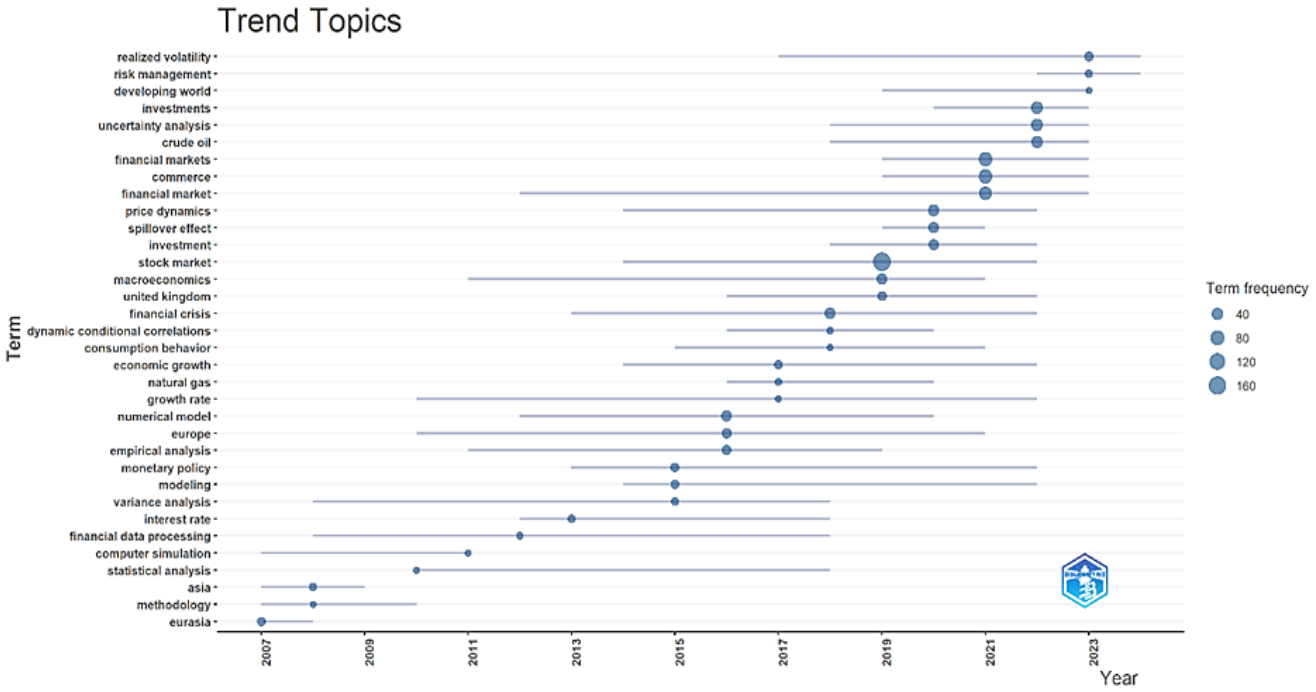

Figure 6. Trending topics with the use of keywords

Bibliographic Coupling Analysis

Bibliographic coupling analysis identifies intellectual connections between publications based on shared references.[27,35,36] This analysis reveals four major research streams in stock market volatility literature:

- Volatility Measurement and Forecasting: this stream focuses on econometric approaches to measuring and predicting volatility, including GARCH-family models, realized volatility measures, and machine learning applications.[1,9,13,14,25] Key topics include high-frequency data analysis, long-memory processes, and the comparison of forecasting methodologies.[2,38]
- Crisis and Contagion Effects: this stream examines volatility dynamics during periods of financial distress, including the global financial crisis, European sovereign debt crisis, and COVID-19 pandemic.[5,6,7] Research in this area addresses volatility jumps, contagion across markets, and regime-switching behavior.[15,17]
- Macroeconomic Determinants of Volatility: this stream investigates the relationship between stock market volatility and macroeconomic factors, including monetary policy, economic uncertainty, inflation, and business cycles.[2,3,4] Research explores both the predictive power of volatility for economic conditions and the impact of macroeconomic news on market volatility.[8,16]
- Spillover Effects Across Markets: this stream analyzes volatility transmission between different

financial markets, including cross-country stock markets, commodity markets (particularly oil), bond markets, and currency markets.[9,12] Research examines both directional spillovers and the time-varying nature of these relationships.[1,4]

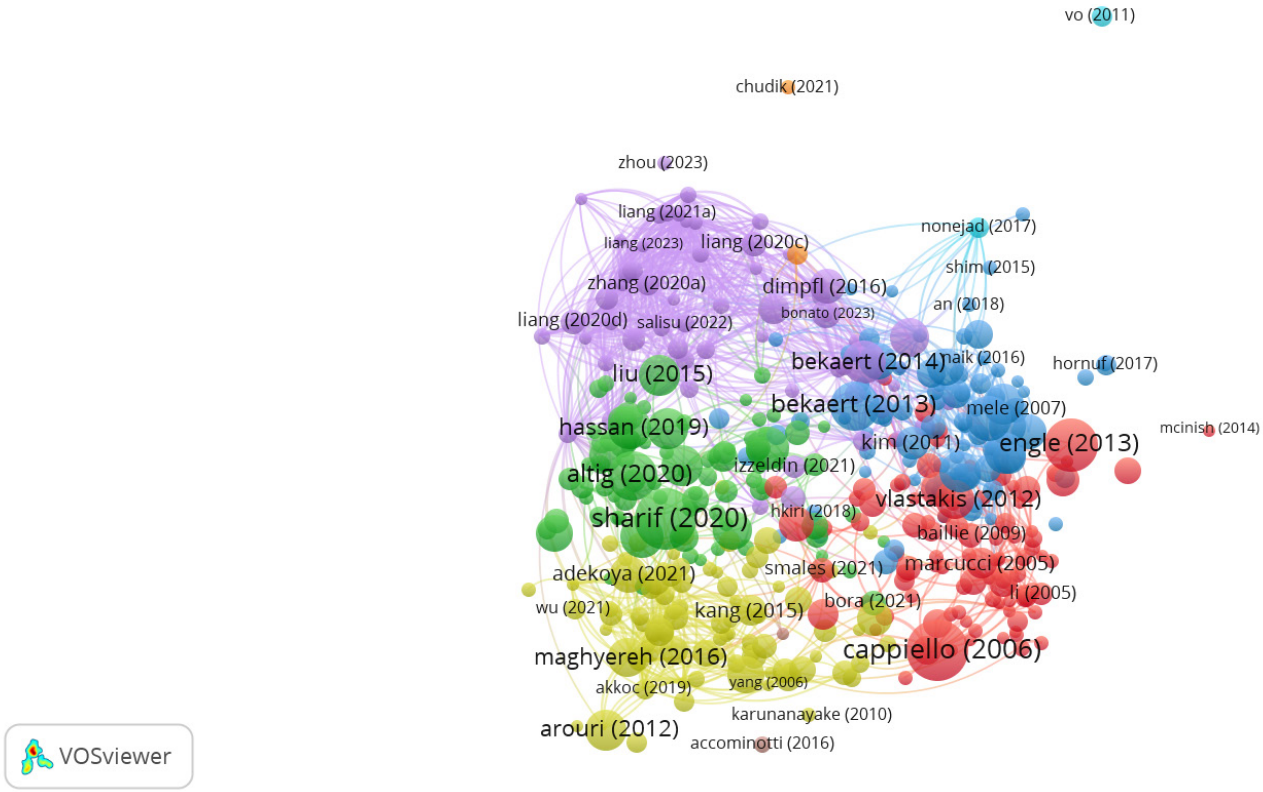

Figure 7. Bibliographic Coupling Analysis

DISCUSSION

Theoretical Implications

This comprehensive bibliometric analysis of stock market volatility research provides several important theoretical implications. First, it demonstrates the field's evolution from primarily methodological studies focused on volatility modeling to a more diverse research landscape encompassing cross-market relationships, macroeconomic linkages, and crisis effects.[2,3,5,6,9,12,13,14] This expansion reflects the growing recognition of volatility's multifaceted nature and its interconnections with various economic and financial phenomena.[4,8]

Second, the analysis highlights the increasing globalization of volatility research, with significant contributions from both established economies (USA, UK) and emerging markets (China, India).[1,33] This geographical diversification brings varied perspectives to the field, potentially enriching theoretical frameworks by incorporating different market structures and economic contexts.[15,17]

Third, the identification of four major research streams, volatility measurement, crisis effects, macroeconomic determinants, and spillover effects, provides a useful categorization for understanding the intellectual structure of the field. These streams are not isolated but rather demonstrate significant interconnections, suggesting that comprehensive volatility research requires integrating multiple theoretical perspectives.[1,2,4,7,10,11]

Finally, the temporal analysis indicates an ongoing shift from purely statistical approaches toward more economically grounded models that incorporate real-world phenomena and behavioral aspects.[15,16] This evolution aligns with broader trends in financial research that emphasize the importance of economic mechanisms and market microstructure in explaining volatility patterns.[6,8]

Practical Implications

The findings offer valuable insights for financial practitioners, policymakers, and investors. The growing emphasis on volatility spillovers and cross-market relationships underscores the importance of considering systemic risk and portfolio diversification strategies that account for changing correlation structures during crisis periods.[1,6,9]

The significant attention to crisis-related volatility, particularly evident in highly cited COVID-19 studies, provides frameworks for understanding market behavior during extreme events.[5,7,15] This knowledge can inform risk management approaches, stress testing methodologies, and contingency planning for future crises.[16,17]

The research on macroeconomic determinants of volatility highlights the importance of monitoring economic indicators and policy developments when assessing market risk.[2,3,4] The bidirectional relationship between volatility and economic conditions suggests that volatility measures themselves may serve as useful indicators for economic forecasting and policy evaluation.[1,8]

For quantitative analysts and risk managers, the evolving methods for volatility measurement and forecasting from traditional GARCH models to realized volatility approaches and machine learning techniques offer an expanding toolkit for risk assessment.[9,14] The comparative studies in the literature provide guidance on the relative performance of different methods across various market conditions.[1,2]

Limitations and Future Research Directions

Despite its comprehensive approach, this study has several limitations. The analysis focused exclusively on Scopus-indexed articles, potentially excluding relevant works published in non-indexed journals, books, or conference proceedings.[38] Additionally, the keyword-based search strategy may have missed some relevant studies that discuss volatility using different terminology.[30,40]

Based on the thematic analysis and trends identified, several promising directions for future research emerge:

- Integration of alternative data sources: exploring how non-traditional data (social media, news sentiment, satellite imagery) can enhance volatility forecasting and understanding.[15,17]
- Climate risk and volatility: investigating the relationship between climate change risks, environmental policies, and stock market volatility.[5,24]
- Cryptocurrency volatility spillovers: analyzing the interplay between traditional financial markets and the highly volatile cryptocurrency markets.[6,23]
- Artificial intelligence applications: developing and evaluating machine learning and deep learning approaches for volatility prediction beyond traditional econometric models.[17,25]
- Behavioral aspects of volatility: exploring how investor psychology, sentiment, and cognitive biases contribute to volatility patterns beyond fundamental economic factors.[15,21]
- Volatility under different market structures: comparing volatility dynamics across markets with varying levels of development, regulation, and investor composition.[3,8]
- Long-term structural changes in volatility: examining how technological advancements, market microstructure changes, and evolving trading practices have altered fundamental volatility patterns over decades.[1,2]

These research directions reflect both the evolving methodological capabilities in the field and the changing nature of financial markets themselves.[10,46] By addressing these areas, researchers can continue to enhance our understanding of stock market volatility and its implications for financial stability, investment strategies, and economic policy.[7,16]

CONCLUSIONS

This bibliometric study provides a comprehensive overview of stock market volatility research published between 2005 and 2022, revealing significant growth and diversification in the field. The analysis of 1418 articles identifies four major research streams and demonstrates the field's evolution from methodological foundations to a multidimensional domain encompassing crisis dynamics, macroeconomic linkages, and cross-market spillovers. The surge in publications following 2015, particularly during the COVID-19 pandemic, underscores the field's responsiveness to real-world events and its practical relevance.

The findings highlight the dominance of realized volatility and GARCH modeling as central themes, while also revealing emerging areas such as machine learning applications and behavioral finance perspectives. The strong international collaboration network, led by the USA, China, and the UK, indicates the global nature of volatility research and its relevance across different market contexts.

This study serves as a foundational resource for researchers seeking to identify knowledge gaps and emerging trends, while also providing practitioners with insights into the theoretical and methodological developments shaping volatility analysis. Future research should continue to explore the integration of advanced computational methods, the role of behavioral factors, and the dynamics of volatility transmission in increasingly interconnected global markets.

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CONFLICT OF INTEREST

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Formal analysis: Swapna Kurian.
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