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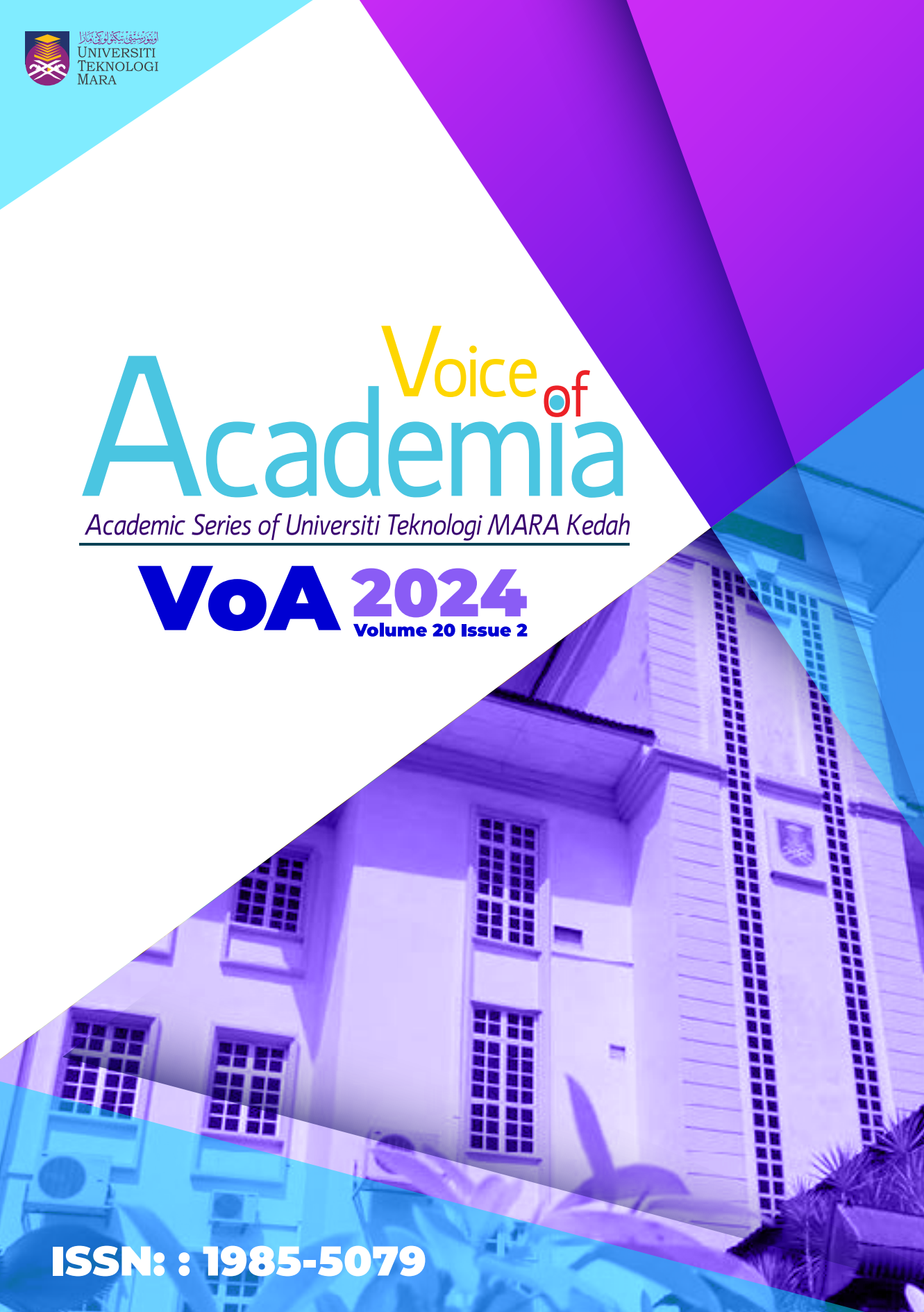

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STOCK MARKET AND EXCHANGE RATE: THE GREAT BALANCING ACT : A BIBLIOMETRIC ANALYSIS

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ABSTRACT

The study presents a bibliometric analysis of the stock market-exchange rate nexus from 1986 to 2023. Data was retrieved from the Scopus database as of August 2023 and analyzed using VOSviewer and Bibliomagika. A total of 477 documents, with a total of 1125 contributing authors, have been obtained. The analysis reveals a persistent interest in this field of research, but with minor variations over time. The results showed that most publications on the stock market and exchange rate were published in 2021 and 2020. The International Review of Economics and Finance is the most significant source title, and most articles were published in journals categorized as economics, econometrics, and finance. The study identifies five clusters of keywords, including asymmetric effect, commodity prices, causal relationship, volatility spillovers, and COVID-19. The findings suggest that future research should focus on exploring the role of exchange rates as a hedge or safe haven during times of uncertainty. The study highlights the lack of a policy perspective in previous studies, emphasizing the significance of exchange rate policy in maintaining stock market stability.

1. Introduction

Since the 1970s, as capital markets have grown, foreign capital controls have become less restrictive, and more flexible exchange rate regimes have been adopted, scholars and policymakers have become more interested in researching the linkages between the stock and foreign exchange markets. The ongoing removal of foreign exchange regulations has made it possible for emerging economies to diversify their portfolios through international investment. The choice of the currency denomination has given the entire portfolio decision an essential new

dimension. The volatility of foreign exchange markets and the risk involved with overseas investments have increased because of emerging countries' adoption of more flexible exchange rate regimes in the late 1980s and early 1990s. The spillover effects between these two variables during the occurrence of crises, including the Asian Financial Crisis in 1997, the Global Financial Crisis in 2007, and the European Debt Crisis in 2009, further explain the significance of the exchange rate in influencing domestic prices, including stock prices (Vanita & Khushboo, 2015).

Stock prices and exchange rates are two crucial variables in influencing the development of a nation (Salisu et al., 2021; Tsai, 2012). Since the early 1970s, numerous studies have investigated the linkages between stock markets and exchange rates with varying degrees of success but without producing any concrete evidence that explains the connection between the two variables (Bhargava and Konku, 2023). While the earlier studies focused on the systematic review of the literature based on citation and content analysis on exchange rate misalignment (Fiaz et al., 2023) and the relationship between oil prices and exchange rates (Siddiqui et al., 2023), no study on bibliometric analysis of the stock market and exchange rate was found. The existing bibliometric analysis studies focus on exchange rate predictability (Gulati, 2023) and exchange rate forecasting (de Souza Vasconcelos & Júnior, 2023) without relating to the stock market. Therefore, this study aims to perform a bibliometric analysis by mapping the research connected to the stock market-exchange rate nexus to obtain a comprehensive picture of the development and direction of this field of study. Academics, investors, practitioners, and authorities will gain an understanding of the stock market-exchange rate link through this study, which will help them make well-informed decisions.

The remaining sections are organized as follows: Section 2 presents the literature review. This is followed by section 3 on the research methodology, sections 4 and 5 with the findings and discussion as well as potential future research directions, and section 5 with the conclusion.

2. Literature Review

The relationship between the stock market and exchange rate can be explained by the flow-oriented model of Dornbusch and Fischer (1980). The model postulates that movements in exchange rates may lead to fluctuations in trade competitiveness and affect real output and stock prices. Studies on exchange rate and stock price relations have been researched by scholars across different regions with inconclusive findings (Huang et al., 2021; Kumar et al., 2019). Some studies pointed out a positive relation between the stock market and exchange rate as a result of changes in the exchange rate that affect real output via trade volumes and subsequently affect cash flows and stock returns of firms (Giri & Joshi, 2017; Mukherjee & Naka, 1995), while others proposed a negative relation (Bhattacharjee & Das, 2023; Kim, 2003).

Davoudi et al. (2018) revealed by using a generalized autoregressive conditional heteroscedasticity (GARCH) model that stock returns in the Tehran stock market were positively influenced by the oil prices and exchange rate during the period from 1993 to 2014. By using the impulse analysis and variance decomposition of the VAR model, Zhu (2023) indicated that changes in the exchange rate and investor sentiment have a positive impact on the fluctuations of China's A-share market. On the other hand, Khan et al. (2023) revealed that the exchange rate has a negative effect on the stock returns of Shanghai Stock Exchange in the short run and in the long run using a dynamic autoregressive distributed lag simulation model from 2000 to 2018. Nonetheless, by employing the Markov switching structural vector autoregression (SVAR) model, Cuestas and Tang (2021) showed that no significant connections occurred between stock return and exchange rate changes in China from January 1994 to January 2018. They further revealed

that though changes in exchange rates do not Granger-cause stock returns in the long run, they do show statistically significant spillover effects on stock returns.

Besides the symmetric relationship between exchange rate and stock return, previous studies have investigated the asymmetric relationship among variables. By using a nonlinear autoregressive distributed lag model (NARDL), Al-Hajj et al. (2018) discovered a long-run asymmetric impact of the exchange rate on the returns of nine sectors in the Malaysian stock exchange from January 1990 to November 2016. In examining the exchange rate pass-through to restaurant and hotel prices by a flexible autoregressive distributed lag (ARDL) method in the United States, Usman et al. (2021) found the absence of asymmetries in the exchange rate-tourism price nexus over the period 2001Q4 to 2017Q4. Extending the period from December 2001 to January 2019, Alola et al. (2023) revealed the exchange rate pass-through to US restaurant and hotel prices by employing a nonlinear autoregressive distributed lag (NARDL) model, with a positive shock in the exchange rate causing a positive shock to restaurant and hotel prices.

The review of the literature found that some studies examined the role of exchange rates during the period of the COVID-19 pandemic. Ji et al. (2020) discovered that, unlike gold, the role of exchange rates as a safe haven has deteriorated during COVID-19 in China, Europe, and the United States. Imran and Ahad (2023) showed that the exchange rate serves as a safe haven investment against stock returns in short and medium investment horizons in Pakistan, but the diversification ability of the exchange rate falls in the long term. Hussain et al. (2023) found that foreign exchange is connected to the stock markets in the BRICS countries with different degrees of volatility spillover during the COVID-19 pandemic period. The results of the study suggest a strategy for optimizing portfolios by reducing risk and diversifying. Variations in volatility connectedness allow countries with lower volatility connectedness to assign optimal portfolio weights, as high volatility increases portfolio risk. Bhargava and Konku (2023) uncovered the impact of volatility in the Australian dollar, Canadian dollar, and euro on stock market returns. They further revealed the volatility of Australian dollars and euro spillover to the volatility of the S&P500 and the asymmetric spillover of Australian dollars.

3. Methodology

Bibliometric analysis is a tool for determining a study field's historical status and forecasting future development trends, research activity, and collaboration (Gan et al., 2022). This paper aims to present a bibliometric analysis of the stock market-exchange rate nexus based on the publications collected from the Scopus database. Scopus is one of the biggest curated databases that offers a comprehensive overview of the output of scientific research around the globe (Singh et al., 2021; Ishak et al., 2023). The bibliometric technique investigates the descriptive patterns of publications based on a domain, field, nation, period, or affiliation and provides details on the development of a specific research field's body of knowledge (Hoong et al., 2023; Ho, 2007).

Search Strategy

The study collected data from the Scopus database on August 20, 2023. The Scopus database has been searched using the search string TITLE("stock market*" OR "stock market performance" OR "stock return*" OR "stock market return*" OR "stock price*" OR "stock market price*" OR "share market*" OR "share market performance" OR "share return*" OR "share market return*" OR "share price*" OR "share market price*" OR "stock inde*" OR "stock market inde*" OR "share inde*" OR "share market inde*") AND ("exchange rate*" OR "foreign exchange*" OR "foreign

exchange rate*" OR "foreign exchange market*" OR "currency rate*" OR "currency exchange*" OR "currency exchange rate*" OR "currency market*" OR "forex").

Data Analysis

Bibliometric analysis is employed to conduct a systematic and organised literature review. The data from Scopus was first filtered for duplicates and other irrelevant documents before being used in the study. The search is conducted based on the article title and includes only publications with English as the primary language. After filtering, no document was removed. As shown in Figure 1, the filtering resulted in 477 documents related to the stock market and exchange rate from 1986 to 2023. The dataset is then uploaded into Bibliomagika 2.2 (Ahmi, 2023) and VOSviewer (Van Eck & Waltman, 2020) for analysis.

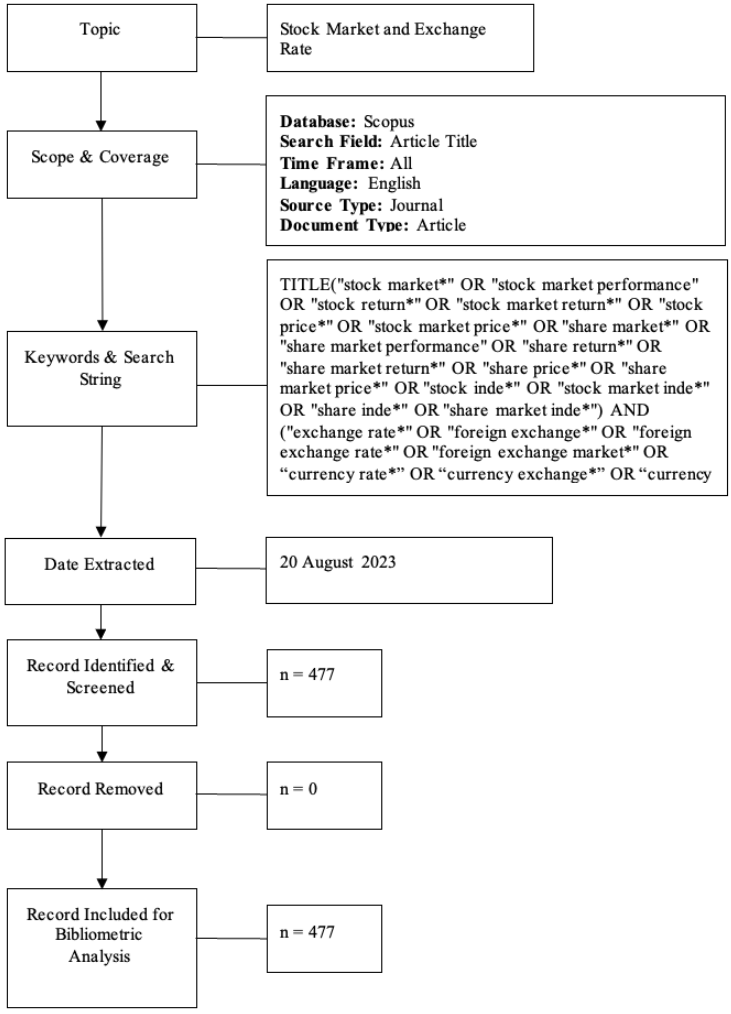

Figure 1. Flow diagram of the search strategy.

4. Results

This paper analyzes the following aspects of scholarly works: publication by year, publication by source title, publication by country, subject area, co-citation patterns, and themes in stock market-exchange rate studies based on keywords. Most of the information is provided as frequency and percentage.

Table 1
Main Information

Start Year	1986
End Year	2023
Total Publications	477
Number of Contributing Authors	1125
Number of Cited Papers	415
Total Citations	12,176
Citation per Paper	25.53
Citation per Cited Paper	29.34
Citation per Author	10.82
Citation sum within h-Core	11,368
Citable Year	38
h-index	58
g-index	95
Publication Years	1986 - 2023
Citation Years	37
Citation per Year	329.08
Author per Paper	2.36

Table 1 indicates that the earliest study discussing the connection between the stock market and exchange rate in the Scopus database appeared in 1986. The research in this field has been consistently active, with a total of 477 publications over the past 38 years. The study has been highly influential, with a total of 12,176 citations, resulting in a high citation per paper score of 25.53 and an average number of citations received by each author of 10.82. The research has been widely disseminated, with a total of 1125 contributing authors, 415 cited papers, and an average number of authors per paper of 2.36. The *h*-index and *g*-index counts show that the research has had a significant impact on the academic community, with a high level of citation and influence.

Publication Trends

The annual publication trends, with the details of total publication (blue color) and total citation (orange color), are shown in Figure 2 and Table 2. Figure 2 indicates that the total number of publications in stock market and exchange rate research has been progressively expanding over the years. There has been an obvious increase in the total publication since 2012, the period that coincided with the aftermath of the global financial crisis and the great recession. As financial crises are often associated with significant movements in exchange rates and lead to higher uncertainty and risk aversion, more attention has been drawn to investigating the role of exchange

rate movements during both the crisis and its immediate aftermath (Kohler, 2010), causing heightened interest in research on financial markets and macroeconomic policy during that time. Looking at the total citations by year, the study observed an interesting pattern. There was a significant jump in total citations in the early 2000s, followed by a period of relative stability until the mid-2010s, when the number of citations began to hike again. The resurgence in citations may reflect renewed interest in topics such as central bank policies, currency fluctuations, and emerging market economies.

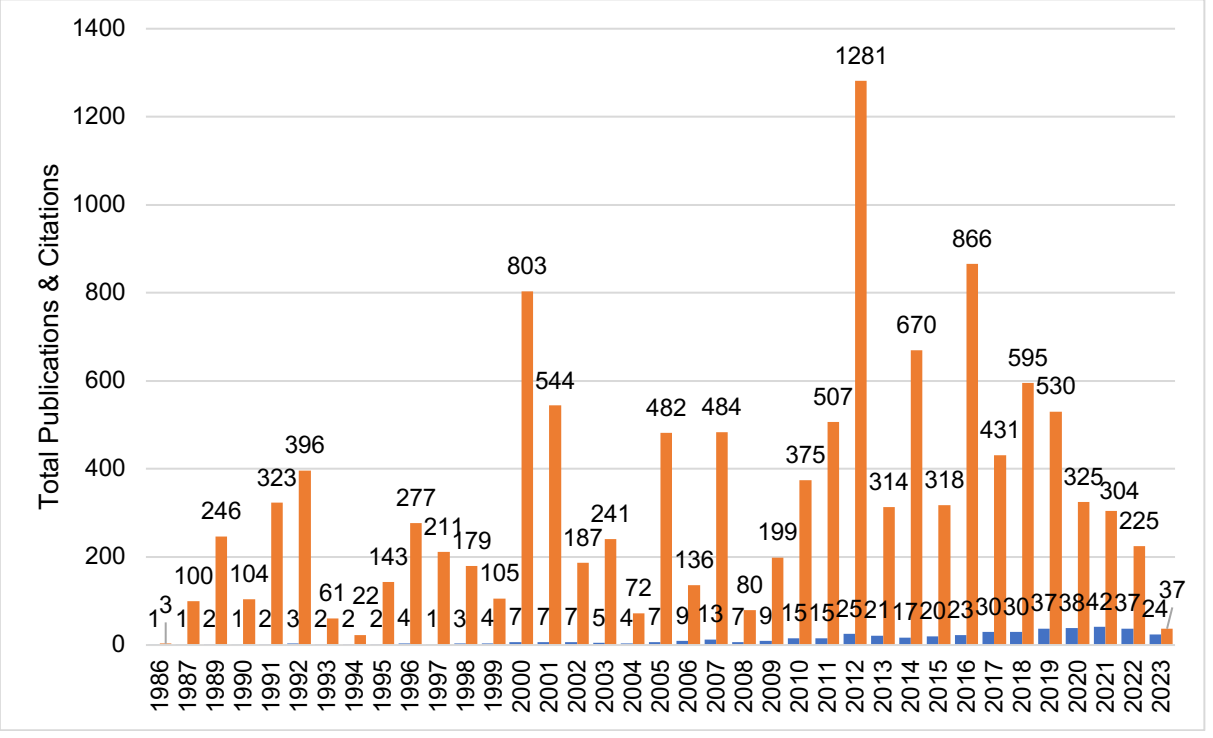

Figure 2. Total Publications and Citations by Year

Table 2 shows the publication trends of stock market and exchange rate research. The results indicate a continued interest in this area of study, albeit with some fluctuations over time. The total number of publications has consistently increased over the past few decades, with a slight decrease in recent years. The highest number of publications recorded in the years 2021 (42 documents) and 2020 (38 documents). The most significant number of citations was generated by publications in 2012, with 1281 citations, followed by publications in 2016, with 866 citations. The average number of citations per publication has decreased gradually over the years, suggesting that individual papers are receiving fewer citations on average. This may be attributed to issues such as heightened competition, shifting research focus, or changing methodologies.

Table 2
Year of Publication

Year	TP	%	TC	C/P	*h*	*g*
2023	24	5.03%	37	1.54	3	6
2022	37	7.76%	225	6.08	8	13
2021	42	8.81%	304	7.24	11	15
2020	38	7.97%	325	8.55	10	16
2019	37	7.76%	530	14.32	11	22
2018	30	6.29%	595	19.83	13	24
2017	30	6.29%	431	14.37	13	20
2016	23	4.82%	866	37.65	11	23
2015	20	4.19%	318	15.90	10	17
2014	17	3.56%	670	39.41	11	17
2013	21	4.40%	314	14.95	9	17
2012	25	5.24%	1281	51.24	13	25
2011	15	3.14%	507	33.80	11	15
2010	15	3.14%	375	25.00	9	15
2009	9	1.89%	199	22.11	6	9
2008	7	1.47%	80	11.43	5	7
2007	13	2.73%	484	37.23	9	13
2006	9	1.89%	136	15.11	6	9
2005	7	1.47%	482	68.86	7	7
2004	4	0.84%	72	18.00	3	4

Notes: TP=total number of publications; TC=total citations; C/P=average citations per publication; *h*=*h*-index; and *g*=g-index.

An analysis of the subject area provides an overview of the distribution of publications across different subject areas within the broader topic of stock market and exchange rate research. It can serve as a starting point for those interested in exploring specific areas of research within this field. Table 3 indicates that the publications on stock market and exchange rate research were published predominantly in the journals categorized in Economics, Econometrics, and Finance, accounting for 79.25% of all publications. This is followed by the Business, Management, and Accounting categories, as well as the Social Science category, which account for 30.82% and 13% of all publications, respectively. These results suggest that the majority of research in the stock market and exchange rate area focused on economic and finance-related topics. The inclusion of other fields such as mathematics, engineering and computer science demonstrate the interdisciplinary nature of this research area.

Table 3
Subject Area

Subject Area	Total Publications (TP)	Percentage (%)
Economics, Econometrics and Finance	378	79.25%
Business, Management and Accounting	147	30.82%
Social Sciences	62	13.00%
Mathematics	24	5.03%
Environmental Science	21	4.40%
Energy	20	4.19%
Engineering	18	3.77%
Computer Science	17	3.56%
Decision Sciences	17	3.56%
Multidisciplinary	9	1.89%

Publications by Countries

Table 4 exhibits the top 10 countries that have contributed to publications related to stock market and exchange rate research. It is essential to note that these rankings only reflect the contributions made by authors affiliated with institutions within these countries and may not accurately represent the overall research performance of these nations. The United States leads the list with 79 publications, followed by India with 65 publications and China with 40 publications. Taiwan and Malaysia complete the top five countries with 35 publications each.

Table 4
Top 10 Countries contributed to the publications

Country	TP	NCP	TC	C/P	C/CP	*h*	*g*
United States	79	76	4125	52.22	54.28	32	4
India	65	51	1094	16.83	21.45	16	6
China	40	35	674	16.85	19.26	15	4
Taiwan	35	32	1562	44.63	48.81	15	3
Malaysia	35	26	367	10.49	14.12	12	4
United Kingdom	33	29	1195	36.21	41.21	15	3
Nigeria	27	23	259	9.59	11.26	9	3
Pakistan	25	22	400	16.00	18.18	11	3
Turkey	23	22	417	18.13	18.95	10	2
Australia	18	18	383	21.28	21.28	11	0

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; *h*=*h*-index; and *g*=*g*-index.

Publications by Source Titles

A total of 477 articles on stock market-exchange rate research were published in multiple journals. Table 5 documents the top ten publications by source title for more than five articles. The International Review of Economics and Finance has the highest number of publications (12). This is followed by the Journal of International Financial Markets, Institutions, and Money and the Journal of International Money and Finance, with 11 and 10 publications, respectively. Overall, the table shows that the top journals in terms of total publications and total citations are those that focus on broad areas of finance, such as international finance, financial markets, and monetary policy.

Table 5
Most active source titles

Source Title	TP	TC	C/P	C/CP	*h*	*g*
International Review of Economics and Finance	12	659	54.92	59.91	9	12
Journal of International Financial Markets, Institutions and Money	11	403	36.64	36.64	8	11
Journal of International Money and Finance	10	762	76.20	76.20	8	10
International Journal of Energy Economics and Policy	9	37	4.11	5.29	4	5
Cogent Economics and Finance	9	77	8.56	9.63	4	8
Resources Policy	9	525	58.33	65.63	8	9
International Research Journal of Finance and Economics	9	132	14.67	18.86	6	9
Applied Financial Economics	9	351	39.00	43.88	7	9
Applied Economics	9	323	35.89	40.38	7	9
International Journal of Finance and Economics	9	70	7.78	8.75	5	8

Notes: TP=total number of publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; *h*=*h*-index; and *g*=*g*-index.

Top Keywords

Occurrence analysis of author keywords is used to identify the main keywords in scientific research. Table 6 displays the 20 most frequent author keywords that occur more than ten times. Exchange rate and stock market are two top keywords with 265 and 112 occurrences, respectively. Other frequent keywords used in stock market and exchange rate studies include stock prices, foreign exchange markets, Granger causality, stock returns, and oil prices. Overall, the top author's research has covered a wide range of topics in finance, with a particular emphasis on exchange rates, stock markets, and empirical methods.

Table 6
Top author's keywords

Author Keywords	Total Occurrence	Percentage (%)
exchange rate	265	30.92
stock market	112	13.07
stock prices	86	10.04
foreign exchange market	54	6.30
granger causality	43	5.02
stock returns	37	4.32
oil prices	32	3.73
cointegration	28	3.27
interest rate	26	3.03
garch	23	2.68
volatility	20	2.33
asymmetric effect	18	2.10
multivariate garch	18	2.10
emerging economies	16	1.87
asymmetry	14	1.63
financial crisis	14	1.63
volatility spillover	14	1.63
structural break	14	1.63
gold price	12	1.40
crude oil price	11	1.28

Co-Citation Analysis

Co-citation analysis is a method for scientific mapping that implies works that are frequently cited together are thematically related (Hjørland, 2013). According to Zhu et al. (2021) and Rossetto et al. (2018), this analysis can be used to reveal the intellectual structure of a research field and give readers a better understanding of its underlying themes. When two articles appear together in the references section of another publication, they are linked together in a co-citation network. Based on a minimum of 10 citations, Figure 3 shows a network visualization map of the co-citations made by cited authors for stock market and exchange rate research. The color, size of the circle, the content, and the thickness of the link all convey information about how closely the authors are connected. Five clusters of authors, namely Narayan P.K., Granger C.W.J., Engle R.F., Bahmani-Oskooee M., and Dornbusch R., are shown in the network visualization map of the co-citation by cited authors from the VOSViewer. Co-citation analysis focuses solely on highly cited publications and excludes specialized or recent publications from its theme clusters (Donthu et al., 2021). Co-citation analysis is therefore appropriate for business academics who want to find ground-breaking works and knowledge foundations.

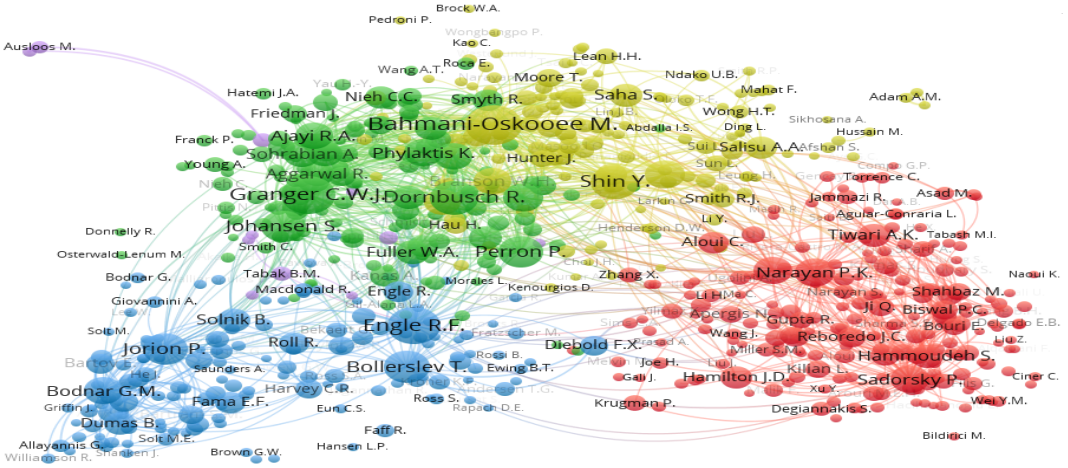

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Figure 3. Network visualization map of the co-citation by cited authors

Co-occurrence Analysis

The co-occurrence analysis of the author's keywords in relation to the clusters is shown in Figure 4. Prior works employed clustering as an analytical tool to uncover trends in research publications and analyze the research patterns (García -Corral et al., 2022). Each color corresponds to a set of keywords that have been grouped according to how many articles contain them. Each node reflects the author's keywords; its size denotes how frequently it occurs; and its thickness denotes the strength of the connection. As a result, the number of articles containing a given keyword increases as the size of the node increases, and the total link strength between two keywords increases as the line thickness increases. As shown in Figure 4, five clusters—asymmetric effect, commodity prices, causal relationship, volatility spillovers, and COVID-19—are formed from the author's study of keyword co-occurrences. The main conclusions and insights from the visualization are highlighted in the analysis that follows.

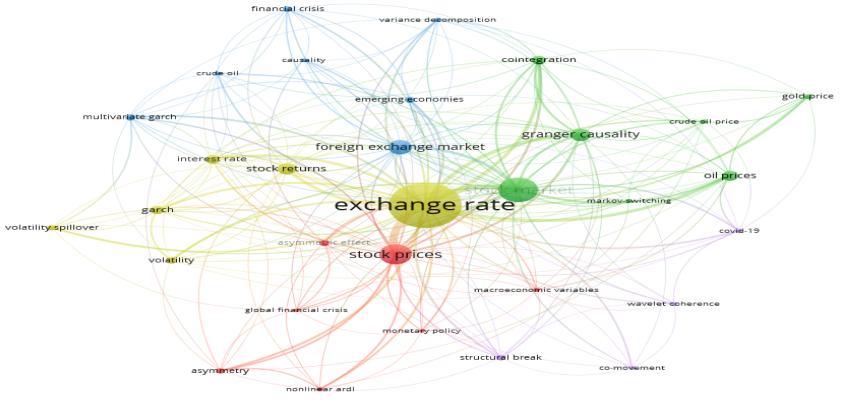

Figure 4. Visualization map of the co-occurrence of author's keywords

Cluster 1 emphasizes asymmetric impacts of exchange rates, stock prices, and other macroeconomic factors. The study suggests a new line of inquiry for future studies, recommending advanced econometric methods like quantile autoregressive distributive lag (QARDL) and nonlinear autoregressive distributed lag (NARDL) approaches to capture the intricate dynamics of the relationships and examine the symmetric vs. asymmetric effects of exchange rate changes on stock prices. Researchers discovered that investors respond differentially to positive and negative shocks in this cluster, where there is an asymmetrical relationship between macroeconomic changes and stock prices (Sheikh et al., 2020; Koutmos & Martin, 2003). Lee et al. (2022) discovered the asymmetric effect of the exchange rate on the performance of solar stock prices in China in addition to other variables such as temperature, metals, and investor moods. The results of the study showed that different quantiles of exchange rates have varied effects. According to Kumar (2019), both positive and negative shocks in oil prices from the prior month have a considerable impact on the exchange rate (stock prices), with positive shocks having a bigger impact. Olayeni et al. (2020) examine the dynamic relationship of the exchange rate between Nigeria and the US, the oil price, activity on the stock market, Kilian's global economic activity index, and world oil output. The analysis shows that asymmetry has a role in attaining stable exchange rate movement in the long run, indicating that positive and negative variations in exchange rate must be considered in policy making. On the other hand, the exchange rate adjustments have asymmetric effects on stock prices, and most of the effects are short-term in Brazil, Canada, Chile, Indonesia, Japan, Korea, Malaysia, Mexico, and the UK (Bahmani-Oskooee & Saha, 2016). However, according to Adeniyi and Kumeka (2020), who examined the symmetry and asymmetry of the exchange rate-stock price nexus for 54 companies listed on the Nigerian Stock Exchange, most companies do not experience asymmetric effects on stock prices.

The research conducted by Cluster 2 delves into the impact that commodity prices have on the analysis of exchange rates and stock markets. Sujit and Kumar (2011) research examines the dynamic interplay among gold prices, oil prices, exchange rates, and stock market returns through the examination of daily data from 1998 to 2011. The study employs vector autoregressive and cointegration techniques, revealing that changes in other variables exert a significant impact on exchange rates. Conversely, the stock market plays a comparatively minor role in affecting exchange rates. Additionally, their model captures stylized facts pertaining to fluctuations in oil prices. Singhal et al. (2019) conducted a study on the interrelationships between international crude oil prices, gold prices, exchange rates, and stock markets in Mexico, with a focus on their return and volatility linkages. The findings of the study suggest that there is a positive impact of international gold prices on the stock price of Mexico, while oil prices have a negative impact. Furthermore, it was observed that oil prices have a negative influence on the exchange rate in the long run, whereas gold prices do not significantly affect the exchange rate. Delgado et al. (2018) undertook an analysis of the interaction between the stock market, exchange rate, and oil prices in the Mexican economy. A vector autoregressive model (VAR) was utilized, which included variables such as oil prices, the nominal exchange rate, the Mexican stock market index, and the consumer price index. The findings of the study indicate that exchange rate has an adverse effect on the stock market index and oil prices have a statistically significant relationship with the exchange rate, leading to the conclusion that an increase in oil prices results in an appreciation of the exchange rate.

Cluster 3 pertains to the causal connections between the stock market and exchange rate. The study conducted by Tang and Yao (2018) delves into the correlation between stock prices and exchange rates in eleven emerging markets by employing cointegration methodology and multivariate Granger causality tests. The results indicate that the internal financial structure, which represents the percentage of direct financing and indirect financing, holds significant sway in the association between exchange rates and stock prices. Liang et al. (2013) conducted a study that

reevaluated the connections between stock prices and exchange rates in ASEAN-5 by using the panel Granger causality and panel DOLS methodologies. The results of the DOLS approach align with the short-run and long-run causal relations that exist between exchange rates and stock prices, thus implies that monetary authorities for the ASEAN-5 should allow their currency values to be determined by economic fundamentals rather than intervening to encourage export growth. Moreover, Liu and Wan (2012) undertake an investigation into the connection between the Shanghai stock market and the CNY/USD exchange rate by cross-correlation analysis, structural cointegration, and nonlinear causality tests. The findings indicate a significant cross-correlation and a unidirectional causality from exchange rates to stock prices, particularly after the financial crisis. Afshan et al. (2018), on the other hand, conduct an examination of time-frequency causality between stock prices and exchange rates utilizing wavelet analysis in Pakistan. The study verifies the existence of long-run associations between the two variables. In certain periods, wavelet coherence reveals dominant cycles, and bidirectional causality is discerned over a long timescale. Mishra (2004) investigated the relationship between the stock market and the foreign exchange market in India. According to the study, there is no Granger's causality between the exchange rate return and the stock return. The causal relationship between stock market and exchange rate in advanced economies was examined, among others, by Chen and Chen (2012), who scrutinized the correlation between the prices of stocks and exchange rates in 12 OECD nations. The results obtained empirically indicate that a state of equilibrium at a level of long duration is present among exchange rates and stock prices in only seven out of the twelve countries.

Cluster 4 illustrates the volatility spillovers in the stock market-exchange rate studies. By using the causality-in-variance test, Erdoğan et al. (2020) found that there are volatility spillovers from Islamic stock markets to foreign exchange markets in Turkey during the period of 2013 to 2019. Jebran and Iqbal (2016) reported bidirectional asymmetric volatility spillovers between stock and foreign exchange markets in Pakistan, China, Hong Kong, and Sri Lanka, a unidirectional volatility from India stock market to foreign exchange market and no evidence of volatility spillover of the two markets in Japan. Additionally, Rai and Garg (2022) have observed significant negative dynamic correlations and volatility spillovers between stock and exchange returns in BRIICS economies during the COVID-19 outbreak. Furthermore, Sensoy and Sobaci (2014) have discovered that the dynamic connections between the Turkish stock market, interest rate, and exchange rate are temporarily altered by volatility shocks. Mohamed Dahir et al. (2018) employ wavelet analysis to explore the dynamic connections between exchange rates and stock returns in BRICS countries. The study indicates positive relationships in the medium and long term, with exchange rates leading to stock returns in Brazil and Russia, while India has negative relationships. While China stock market index has shown no relation between the two variables, South Africa index exhibited bidirectional causality.

Cluster 5 pertains to the impact of COVID-19 on stock return and exchange rate research. Sharma et al. (2021) conducted a comprehensive analysis of the time-frequency relationship between COVID-19 cases, temperature, exchange rates, and stock market returns in the top 15 most affected countries by the pandemic. By employing wavelet coherence techniques, their findings revealed a significant long-term impact of COVID-19 cases on exchange rate returns and stock market returns. Shaikh et al. (2021) investigated the impact of the US-China trade war on exchange rates, stock prices, and trade volume during the COVID-19 pandemic using several indexes, such as the Shanghai Composite Index, Dow Jones Index, and Nifty 50. Their study found that the trade war negatively influenced exchange rates, stock prices, and trade volume in all three countries during COVID-19. In addition, Iyke and Ho (2021) focused on examining the nature of exchange rate exposure in the South African stock market before and during the COVID-19 pandemic. Employing a multifactor arbitrage pricing model and daily data from South Africa, they showed that industries were more exposed to exchange rate risk during the pandemic than before it. Their

estimates provide valuable insights for investors seeking to navigate the complex relationships between exchange rates and stock markets in emerging economies. Hoshikawa and Yoshimi (2021) demonstrated that a new COVID-19 infection spike increased South Korea's stock price index volatility and decreased foreign investors' holdings of domestic stocks, leading to the depreciation of the South Korean won. In summary, the COVID-19 pandemic has had a profound impact on the relationship between exchange rates and stock markets across the globe. These findings offer valuable insights for investors and policymakers seeking to understand the complex relationships between COVID-19, exchange rates, and stock markets.

5. Discussion

The bibliometric analysis of stock markets and exchange rates shows a significant number of publications that lead to more calls for future research. The keyword analysis shows the increasing importance of the study related to exchange rate; it has been found that future research could be more critical on the issue debated, especially related to the clusters that are appropriate to fill the significant current gap. Specifically, clusters on causal relationship, volatility spillover, and COVID-19 suggest that future research can endeavor on the role of the exchange rate as an effective hedge or safe haven for investment in the stock market during uncertainty, as well as its diversification ability post-COVID-19, which is important to reduce a portfolio's risk. This is crucial as portfolio managers and investors make short-term investments in financial assets and examine the trends of nominal prices of financial assets during adverse fluctuations (Akbar et al. 2019).

Another aspect related to the research on the stock market-exchange rate nexus is the lack of a policy perspective in the study. The government and central bank's policies are crucial in managing the disruption in the stock market, and exchange rate policy is crucial in explaining the disparities in wealth and income among various economies that are open to trade internationally (Oskolkov, 2023). The results of prior research suggest that discussion of exchange rate policy is important in the study of the stock market because crises in the stock market may be avoided by the exchange rate management (Mishra, 2004). Furthermore, Abraham (2016) found that the flexible exchange rate policy that was in place during the 2008 global financial crisis period helped in containing the impact of the crisis on the value of the nation's currency. Therefore, exchange rate policy needs to be discussed widely as a rigorous stance on exchange rate policy is essential for stock market stability (Ibrahim, 2000).

6. Conclusion

This article presents a bibliometric analysis of the stock market-exchange rate nexus. The study collected data from the Scopus database and analyzed 477 documents related to the stock market and exchange rate from 1986 to 2023. The use of bibliometric analysis provides a comprehensive overview of the research output in this field and helps identify the main keywords and themes in scientific research. The analysis reveals that over the previous few decades, the overall number of publications has steadily increased, with a modest decline in recent years. The articles on the stock market and exchange rates were primarily published in journals in the categories of economics, econometrics, and finance with the International Review of Economics and Finance as the most significant source title. The United States is the nation that has made the most contributions to the number of publications on stock market and exchange rate research. Five clusters of cited authors, namely Narayan P.K., Granger C.W., Engle R.F., Bahmani-Oskooee M., and Dornbusch R., were discovered through co-citation by cited authors. Five clusters, including asymmetric effect, commodity prices, causal relationship, volatility spillovers, and COVID-19, were found as a result of the author's analysis of keyword co-occurrences.

The findings of the study suggest that future research should focus on exploring the role of exchange rates as a hedge or safe haven during times of uncertainty. The article also points out the lack of a policy perspective in previous studies, emphasizing the significance of exchange rate policy in maintaining stock market stability. There are, however, a number of restrictions on this study. First, the study looked at the publications that were only accessible through the Scopus database. Therefore, to cover a wider field of study and provide different viewpoints for the debate on this topic, we advise looking into it on various search engines. Second, bibliometric analysis only offers data on publication volume and trend; thus, expert opinion from those knowledgeable in this area is needed to provide a thorough intellectual appraisal. Overall, this article highlights the gaps in current research and suggests potential avenues for future investigation in this area.

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References

Abraham, T. W. (2016). Exchange rate policy and falling crude oil prices: Effect on the Nigerian stock market. *CBN Journal of Applied Statistics (JAS), 7(1)*, 6.

Adeniyi, O., & Kumeka, T. (2020). Exchange rate and stock prices in Nigeria: Firm-level evidence. *Journal of African Business, 21(2),* 235-263.

Afshan, S., Sharif, A., Loganathan, N., & Jammazi, R. (2018). Time–frequency causality between stock prices and exchange rates: Further evidences from cointegration and wavelet analysis. Physica A: Statistical Mechanics and its Applications, 495, 225-244.

Ahmi, A. (2023). biblioMagika®. https://aidi-ahmi.com/index.php/bibliomagika

Akbar, M., Iqbal, F., & Noor, F. (2019). Bayesian analysis of dynamic linkages among gold price, stock prices, exchange rate and interest rate in Pakistan. *Resources Policy, 62*, 154-164.

Al-hajj, E., Al-Mulali, U., & Solarin, S. A. (2018). Oil price shocks and stock returns nexus for Malaysia: Fresh evidence from nonlinear ARDL test. *Energy Reports, 4,* 624-637.

Alola, U. V., Usman, O., & Alola, A. A. (2023). Is pass-through of the exchange rate to restaurant and hotel prices asymmetric in the US? Role of monetary policy uncertainty. *Financial Innovation, 9(1),* 1-19.

Bahmani-Oskooee, M., & Saha, S. (2016). Do exchange rate changes have symmetric or asymmetric effects on stock prices?. *Global Finance Journal, 31*, 57-72.

Bhargava, V., & Konku, D. (2023). Impact of exchange rate fluctuations on US stock market returns. *Managerial Finance*.

Bhattacharjee, A., & Das, J. (2023). Assessing the long-run and short-run effect of monetary variables on stock market in the presence of structural breaks: evidence from liberalized India. *IIM Ranchi Journal of Management Studies, 2(1)*, 70-81.

Chen, S. W., & Chen, T. C. (2012). Untangling the non‐linear causal nexus between exchange rates and stock prices: New evidence from the OECD countries. *Journal of Economic Studies, 39(2)*, 231-259.

Cuestas, J. C., & Tang, B. (2021). A Markov switching SVAR analysis on the relationship between exchange rate changes and stock returns in China. *International Journal of Emerging Markets, 16(3),* 625-642.

Davoudi, S., Fazlzadeh, A., Fallahi, F., & Asgharpour, H. (2018). The impact of oil revenue shocks on the volatility of Iran's stock market return. *International Journal of Energy Economics and Policy, 8(2),* 102-110.

de Souza Vasconcelos, C., & Júnior, E. H. (2023). Forecasting exchange rate: A bibliometric and content analysis. *International Review of Economics & Finance, 83*, 607-628.

Delgado, N. A. B., Delgado, E. B., & Saucedo, E. (2018). The relationship between oil prices, the stock market and the exchange rate: Evidence from Mexico. *The North American Journal of Economics and Finance, 45,* 266-275.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research, 133*, 285-296.

Dornbusch, R., & Fischer, S. (1980). Exchange rates and the current account. *The American Economic Review, 70(5),* 960-971.

Erdoğan, S., Gedikli, A., & Çevik, E. İ. (2020). Volatility spillover effects between Islamic stock markets and exchange rates: Evidence from three emerging countries. *Borsa Istanbul Review, 20(4),* 322-333.

Fiaz, A., Ahmad, N., Al‐Abri, A., Khurshid, N., & Menegaki, A. (2023). Exchange rate misalignment: A systematic literature review based on citation and content analysis. *OPEC Energy Review*.

Gan, Y. N., Li, D. D., Robinson, N., & Liu, J. P. (2022). Practical guidance on bibliometric analysis and mapping knowledge domains methodology–A summary. *European Journal of Integrative Medicine, 56,* 102203.

García-Corral, F. J., Cordero-García, J. A., de Pablo-Valenciano, J., & Uribe-Toril, J. (2022). A bibliometric review of cryptocurrencies: how have they grown?. *Financial Innovation, 8(1),* 1-31.

Giri, A. K., & Joshi, P. (2017). The impact of macroeconomic indicators on Indian stock prices: An empirical analysis. *Studies in Business and Economics, 12(1),* 61-78.

Gulati, V. (2023). Bibliometric Review of Research on Exchange Rate Predictability and Fundamentals. *Finance Research Letters,* 104228.

Hjørland, B. (2013). Citation analysis: A social and dynamic approach to knowledge organization. *Information Processing & Management, 49(6),* 1313-1325.

Ho, Y. S. (2007). Bibliometric analysis of adsorption technology in environmental science. *Journal of Environmental Protection Science, 1(1),* 1-11.

Hoong, T. B., Ling, T. Y., Hassan, S., & Abdullah, N. M. H. (2023). Stock Returns and Inflation: A Bibliometric Analysis. *International Journal of Professional Business Review, 8(2),* e01547-e01547.

Hoshikawa, T., & Yoshimi, T. (2021). The Effect of the COVID‐19 Pandemic on South Korea's Stock Market and Exchange Rate. *The Developing Economies, 59(2)*, 206-222.

Huang, Q., Wang, X., & Zhang, S. (2021). The effects of exchange rate fluctuations on the stock market and the affecting mechanisms: Evidence from BRICS countries. *The North American Journal of Economics and Finance, 56,* 101340.

Hussain, M., Bashir, U., & Rehman, R. U. (2023). Exchange Rate and Stock Prices Volatility Connectedness and Spillover during Pandemic Induced-Crises: *Evidence from BRICS Countries. Asia-Pacific Financial Markets,* 1-21.

Ibrahim, M. H. (2000). Cointegration and Granger causality tests of stock price and exchange rate interactions in Malaysia. *ASEAN Economic Bulletin*, 36-47.

Imran, Z. A., & Ahad, M. (2023). Safe-haven investments against stock returns in Pakistan: a role of real estate, gold, oil and US dollar. *International Journal of Housing Markets and Analysis, 16(1),* 167-189.

Ishak, M.S., Sarkowi, A., Ahmi,A., Abdulrauf-Salau, A., & Memon, S. (2023). Global Research Trends in School Bullying: A Bibliometric Analysis. *Journal of Educational and Social Research, 13(1),* 91-105.

Iyke, B. N., & Ho, S. Y. (2021). Exchange rate exposure in the South African stock market before and during the COVID-19 pandemic. *Finance Research Letters, 43*, 102000.

Jebran, K., & Iqbal, A. (2016). Dynamics of volatility spillover between stock market and foreign exchange market: evidence from Asian Countries. *Financial Innovation, 2(1)*, 1-20.

Ji, Q., Zhang, D., & Zhao, Y. (2020). Searching for safe-haven assets during the COVID-19 pandemic. *International Review of Financial Analysis, 71,* 101526.

Khan, M. K., Teng, J. Z., Khan, M. I., & Khan, M. F. (2023). Stock market reaction to macroeconomic variables: An assessment with dynamic autoregressive distributed lag simulations. *International Journal of Finance & Economics, 28(3),* 2436-2448.

Kim, K. H. (2003). Dollar exchange rate and stock price: evidence from multivariate cointegration and error correction model. *Review of Financial Economics, 12(3)*, 301-313.

Kohler, M. (2010). Exchange rates during financial crises1. BIS Quarterly Review, 39.

Koutmos, G., & Martin, A. D. (2003). First - and second - moment exchange rate exposure: evidence from US stock returns. *Financial Review, 38(3),* 455-471.

Kumar, S. (2019). Asymmetric impact of oil prices on exchange rate and stock prices. The Quarterly Review of Economics and Finance, 72, 41-51.

Kumar, S., Tiwari, A. K., Chauhan, Y., & Ji, Q. (2019). Dependence structure between the BRICS foreign exchange and stock markets using the dependence-switching copula approach. International Review of Financial Analysis, 63, 273-284.

Lee, C. C., Yahya, F., & Razzaq, A. (2022). The asymmetric effect of temperature, exchange rate, metals, and investor sentiments on solar stock price performance in China: evidence from QARDL approach. Environmental Science and Pollution Research, 29(52), 78588-78602.

Liang, C. C., Lin, J. B., & Hsu, H. C. (2013). Reexamining the relationships between stock prices and exchange rates in ASEAN-5 using panel Granger causality approach. Economic Modelling, 32, 560-563.

Liu, L., & Wan, J. (2012). The relationships between Shanghai stock market and CNY/USD exchange rate: New evidence based on cross-correlation analysis, structural cointegration and nonlinear causality test. Physica A: Statistical Mechanics and its Applications, 391(23), 6051-6059.

Mohamed Dahir, A., Mahat, F., Ab Razak, N. H., & Bany-Ariffin, A. N. (2018). Revisiting the dynamic relationship between exchange rates and stock prices in BRICS countries: A wavelet analysis. *Borsa Istanbul Review, 18 (2)*, 101–113.

Mishra, A. K. (2004). Stock market and foreign exchange market in India: are they related?. *South Asia Economic Journal, 5(2),* 209-232.

Mukherjee, T. K., & Naka, A. (1995). Dynamic relations between macroeconomic variables and the Japanese stock market: an application of a vector error correction model. *Journal of Financial Research, 18(2),* 223-237.

Olayeni, O. R., Tiwari, A. K., & Wohar, M. E. (2020). Global economic activity, crude oil price and production, stock market behaviour and the Nigeria-US exchange rate. *Energy economics,* 92, 104938.

Oskolkov, A. (2023). Exchange rate policy and heterogeneity in small open economies. *Journal of International Economics, 142*, 103750.

Rai, K., & Garg, B. (2022). Dynamic correlations and volatility spillovers between stock price and exchange rate in BRIICS economies: evidence from the COVID-19 outbreak period. *Applied Economics Letters, 29(8),* 738-745.

Rossetto, D. E., Bernardes, R. C., Borini, F. M., & Gattaz, C. C. (2018). Structure and evolution of innovation research in the last 60 years: Review and future trends in the field of business through the citations and co-citations analysis. *Scientometrics, 115(3),* 1329-1363.

Salisu, A. A., Cuñado, J., Isah, K., & Gupta, R. (2021). Stock markets and exchange rate behavior of the BRICS. *Journal of Forecasting, 40(8)*, 1581-1595.

Shaikh, E., Mishra, V., Ahmed, F., Krishnan, D., & Dagar, V. (2021). Exchange rate, stock price and trade volume in US-China trade war during COVID-19: An empirical study. *Studies of Applied Economics, 39(8),* 1-18.

Sharma, G. D., Tiwari, A. K., Jain, M., Yadav, A., & Erkut, B. (2021). Unconditional and conditional analysis between covid-19 cases, temperature, exchange rate and stock markets using wavelet coherence and wavelet partial coherence approaches. *Heliyon, 7(2)*.

Sensoy, A., & Sobaci, C. (2014). Effects of volatility shocks on the dynamic linkages between exchange rate, interest rate and the stock market: The case of Turkey. *Economic Modelling,* 43, 448-457.

Sheikh, U. A., Asad, M., Ahmed, Z., & Mukhtar, U. (2020). Asymmetrical relationship between oil prices, gold prices, exchange rate, and stock prices during global financial crisis 2008: Evidence from Pakistan. *Cogent Economics & Finance, 8(1),* 1757802.

Siddiqui, T. A., Ahmed, H., Naushad, M., & Khan, U. (2023). The Relationship between Oil Prices and Exchange Rate: A Systematic Literature Review. *International Journal of Energy Economics and Policy, 13(3)*, 566.

Singh, V. K., Singh, P., Karmakar, M., Leta, J., & Mayr, P. (2021). The journal coverage of Web of Science, Scopus and Dimensions: A comparative analysis. *Scientometrics, 126*, 5113-5142.

Singhal, S., Choudhary, S., & Biswal, P. C. (2019). Return and volatility linkages among international crude oil price, gold price, exchange rate and stock markets: Evidence from Mexico. *Resources Policy, 60*, 255-261.

Sujit, K. S., & Kumar, B. R. (2011). Study on dynamic relationship among gold price, oil price, exchange rate and stock market returns. *International Journal of Applied Business and Economic Research, 9(2),* 145-165.

Tang, X., & Yao, X. (2018). Do financial structures affect exchange rate and stock price interaction? Evidence from emerging markets. *Emerging Markets Review, 34*, 64-76.

Tsai, I. C. (2012). The relationship between stock price index and exchange rate in Asian markets: A quantile regression approach. *Journal of International Financial Markets, Institutions and Money, 22(3)*, 609-621.

Usman, O., Iorember, P. T., & Jelilov, G. (2021). Exchange rate pass ‐ through to restaurant and hotel prices in the United States: The role of energy prices and tourism development. *Journal of Public Affairs, 21(2),* e2214.

Van Eck, N. J., & Waltman, L. (2020). VOSviewer manual: Manual for VOSviewer version 1.6. 15. Leiden: Centre for Science and Technology Studies (CWTS) of Leiden University.

Vanita, T., & Khushboo, A. (2015). Long run co-integrating relationship between exchange rate and stock prices: empirical evidence from BRICS Countries. *Advances in Management, 8(1),* 15.

Zhu, Q., Martins, R. A., Shah, P., & Sarkis, J. (2021). A bibliometric review of brand and product deletion research: Setting a research agenda. *IEEE Transactions on Engineering Management, 70(2),* 554-575.

Zhu, X. (2023). Exchange Rate, Investor Sentiment, and Fluctuation of China A-share Market. In FFIT 2022: Proceedings of the International Conference on Financial Innovation, FinTech and Information Technology, FFIT 2022, October 28-30, 2022, Shenzhen, China (p. 18). *European Alliance for Innovation.*

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