

From Financial Crisis to Digital Volatility: A Thematic Evolution and Bibliometric Mapping of Malaysian Ringgit Research

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ABSTRACT

This study provides a comprehensive bibliometric analysis of the research landscape concerning the fluctuation of the Ringgit Malaysia (MYR) between 1996 and 2026. Utilizing data from the Scopus database and the Biblioshiny platform, the analysis evaluates a dataset comprising 107 documents published across 75 distinct sources. The field is characterized by a high degree of collaborative maturity, evidenced by an average of 2.52 co-authors per document and a significant international co-authorship rate of 23.36%. With a document average age of 11.6 years, the literature reflects an established domain that has evolved through critical economic epochs, including the Asian Financial Crisis and the post-pandemic recovery. Thematic mapping, organized by centrality and density, reveals a highly structured conceptual framework. "Motor Themes" such as the real exchange rate and its relationship with the Japanese yen represent the core intellectual capital of the field. "Basic Themes," including comparative studies with the Indonesian rupiah and Thai baht, highlight foundational transversal topics that remain integral to regional discourse. Conversely, the analysis identifies "Emerging or Declining Themes," specifically the influence of the Chinese yuan and high-frequency daily data on stock returns, suggesting a pivot toward modern volatility modelling. While "Niche Themes" like long-run equilibrium and trade balance show high developmental density, they operate in relative isolation. The findings imply a significant research gap in integrating advanced digital financial metrics into traditional macroeconomic models. Consequently, future scholarly efforts should prioritize interdisciplinary collaborations to transition emerging risk-management theories into established motor themes, addressing the challenges of "digital volatility" in an increasingly connected global economy. This analysis provides a strategic roadmap for researchers to navigate Malaysia's monetary evolution amidst shifting global economic paradigms.

Keywords: Ringgit Malaysia, Bibliometric Analysis, Exchange Rate Volatility, Thematic Map, Scopus, Financial Crisis.

INTRODUCTION

The research field of exchange rate dynamics remains a cornerstone of international macroeconomics, particularly within the context of emerging economies like Malaysia. The Malaysian Ringgit (MYR) has historically served as a critical barometer for regional economic health, with its fluctuations profoundly impacting trade balances, foreign direct investment, and inflationary pressures (Lau & Yip, 2021). Given the abstract and multifaceted nature of currency movements, influenced by a complex interplay of geopolitical shifts, commodity price cycles, and monetary policy, understanding these fluctuations is exceptionally valuable for both policymakers and investors. While traditional research has successfully documented the positive outcomes of exchange rate stability on economic growth (Kaur, Manual, & Eeswaran, 2019), the field faces significant challenges. These include the rapid evolution of financial technology, limited temporal data for high-frequency modelling, and inherent market resistance to predictability. This complexity underscores the necessity of moving

beyond localized case studies toward a systematic understanding of how the Ringgit's discourse has transitioned from reactive crisis management to proactive risk mitigation within the global financial architecture (Makin, 1999).

Despite the wealth of literature on Malaysian monetary policy, a significant research gap persists in the systematic mapping of the field's intellectual evolution. Previous studies in the broader economic domain have primarily focused on modelling global currency trends or developed market pairs, often neglecting the thematic trajectory of the Ringgit specifically (Ho & Tsui, 2008; Tai, 2001). To address this gap, the current study utilizes bibliometric analysis as a robust tool to evaluate the 107 core documents that define the MYR fluctuation landscape between 1996 and 2026. The primary objective of this study is to analyze research trends and identify the most influential contributors who have shaped the field's foundations. By examining the intellectual structure through thematic mapping and co-citation networks, this research explicitly aims to distinguish between established "Motor Themes" and underdeveloped "Basic Themes," such as the nexus between modern time-frequency volatility, systemic crises, and currency risk (Kakran et al., 2025). Ultimately, this analysis seeks to provide a strategic roadmap for researchers to navigate Malaysia's monetary evolution amidst shifting global economic paradigms.

METHODOLOGY

This study adopts a systematic bibliometric methodology guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework to ensure a rigorous, transparent, and reproducible evaluation of this research. The major publication such as Scopus database, selected for its comprehensive coverage of high-impact, peer-reviewed literature in international macroeconomics and finance. A precise search protocol was developed using a complex string of Boolean operators and wildcards. A precise Boolean search string with wildcards was applied to the Title, Abstract, and Keywords (TITLE-ABS-KEY) fields: ("*Ringgit Malaysia*" OR "*MYR*" OR "*Malaysian Ringgit*") AND ("*fluctuate**" OR "*volatility*" OR "*exchange rate**"). The extraction timeframe was intentionally set to span exactly three decades, from 1996 to 2026. This specific thirty-year period was chosen to capture the complete evolutionary trajectory of the Malaysian currency through critical macroeconomic epochs, encompassing the pre- and post-1997 Asian Financial Crisis environments, the implementation and subsequent removal of the currency peg, and the contemporary transition toward high-frequency digital volatility.

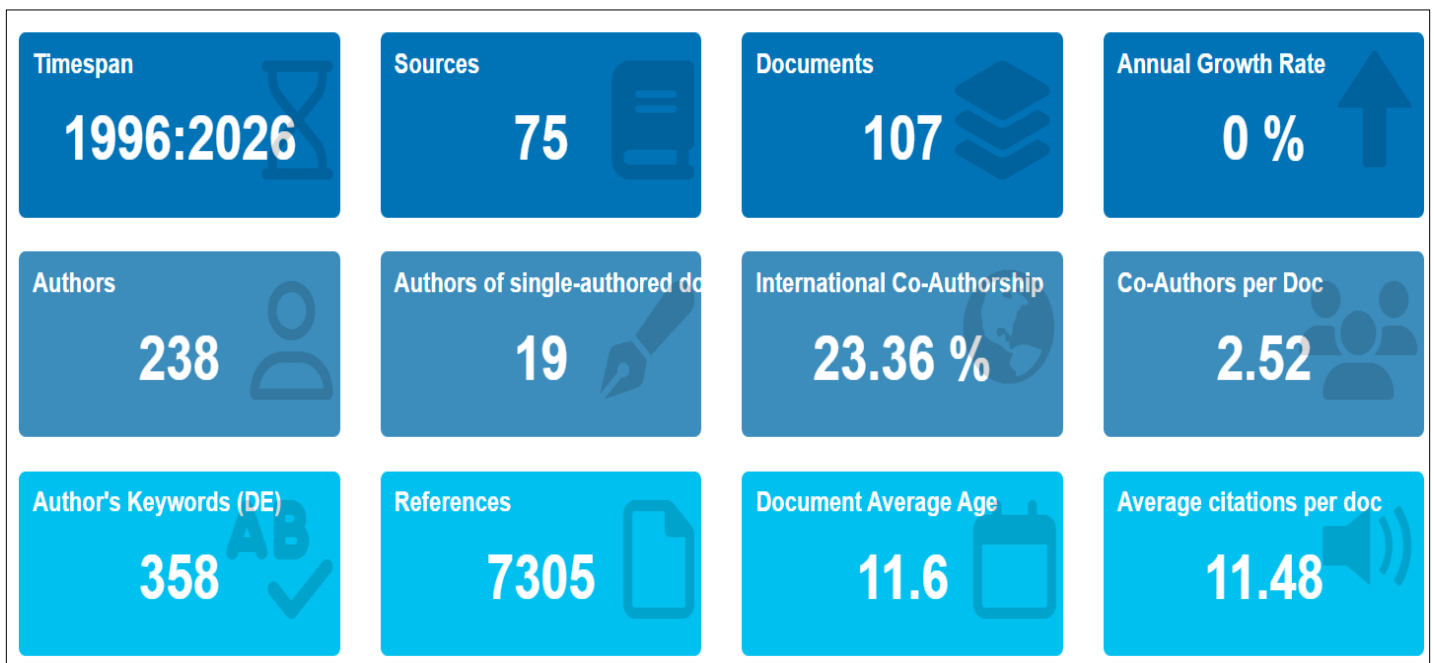
By referring the highest standard of academic quality and prevent dataset dilution, strict inclusion and exclusion criteria were systematically applied to the initial search results. The dataset was strictly limited to final-stage, peer-reviewed journal articles written in the English language. Furthermore, the subject areas were restricted to Economics, Econometrics, and Finance to ensure domain relevance, thereby excluding book chapters, conference proceedings, and working papers. Following the data export in CSV format from Scopus, the dataset underwent a rigorous cleaning and harmonization process. Abstract bigrams and author keywords were extracted and standardized through a word stemming process to consolidate morphological variations of identical terms, alongside applying a minimum frequency threshold to filter out statistically insignificant outliers. This refinement resulted in a robust final dataset of 107 documents sourced from 75 distinct outlets (Quadry et al., 2017).

The data analysis and visual output generation were structured using the Biblioshiny package within the R-Studio environment. This methodological choice enabled the researchers to map annual publication trends, reflecting a mature field with an average document age of 11.6 years (Kogid et al., 2009). To map the intellectual and conceptual structure, the study generated specific visual outputs, including co-occurrence networks to map conceptual relationships and thematic maps to categorize topics into motor, basic, niche, and emerging themes based on their centrality and density (Tay B.H, 2024). Furthermore, citation networks and collaboration metrics were analyzed to understand the intellectual foundations of the field, revealing an international co-authorship rate of 23.36% (Aftab et al., 2024). To elevate the analytical rigor beyond descriptive summaries, this methodology integrates dynamic network metrics to quantify the true structural impact of specific clusters, transforming raw bibliometric data into a strategic roadmap for future macroeconomic inquiry.

RESULTS

The bibliometric overview of research on Ringgit Malaysia fluctuations from 1996 to 2026 reveals a specialized and established field, comprising 107 documents sourced from 75 distinct outlets. This dataset, supported by 7,305 references and 358 author keywords, indicates a high degree of thematic diversity and a rigorous scholarly foundation. While the 0% annual growth rate suggests a stabilized, niche field rather than a rapidly expanding one, the document average age of 11.6 years reflects a mature body of literature deeply rooted in significant historical economic shifts, such as the 1997 Asian Financial Crisis and subsequent de-pegging events. Collaboration is a defining characteristic of this domain; with an average of 2.52 co-authors per document and a notable 23.36% international co-authorship rate, the Ringgit's stability is clearly a matter of both regional and global concern. An average of 11.48 citations per document suggests steady academic impact, though the presence of 19 single-authored works highlights a persistent segment of individual expertise. Collectively, these indicators point to a field that is resilient and highly collaborative, yet potentially ripe for a new wave of research, perhaps focusing on digital currency transitions or post-pandemic recovery-to bridge the gap between its historical maturity and contemporary economic volatility.

Figure 1: Summary of the Data Collected

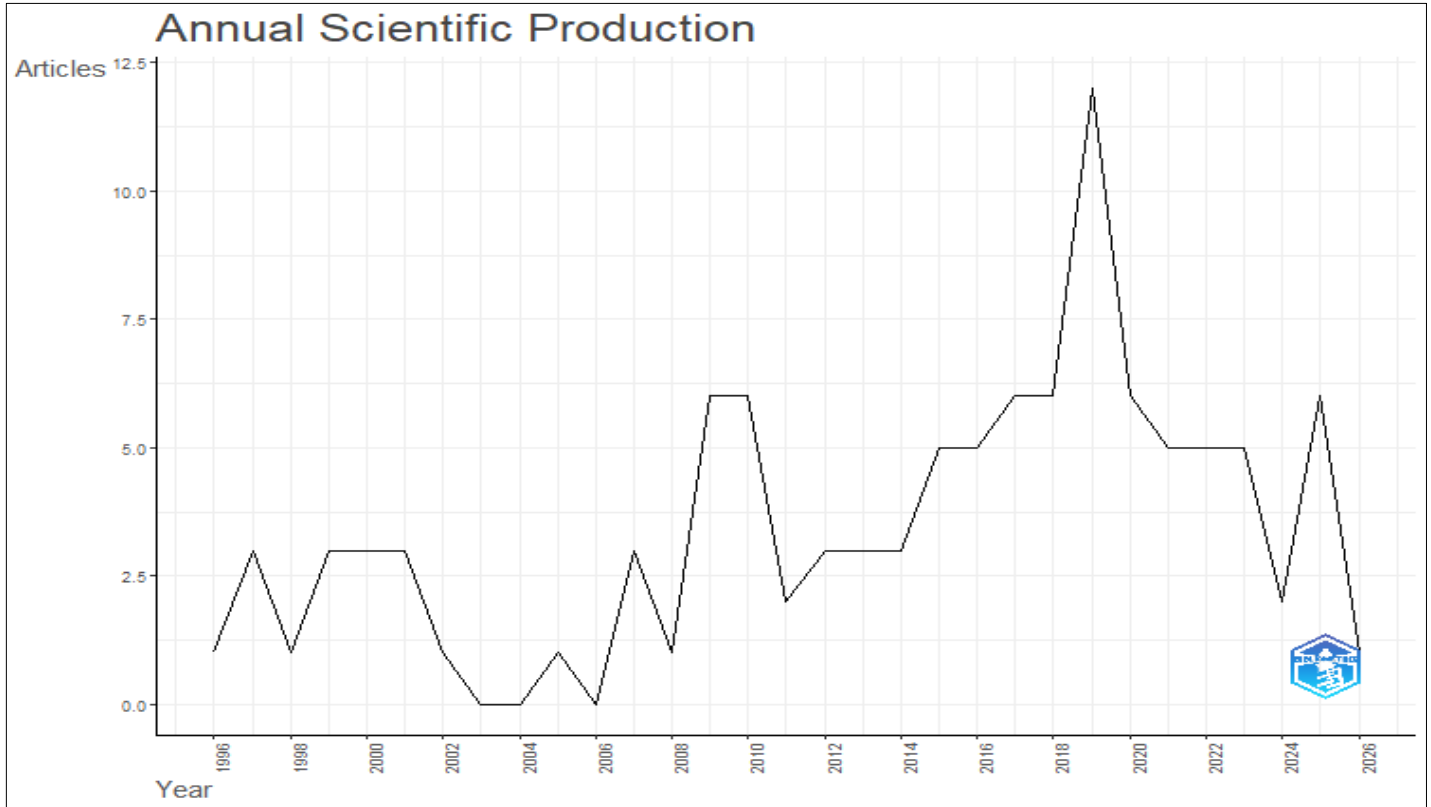


Annual scientific production

The annual scientific production concerning Ringgit Malaysia fluctuations from 1996 to 2026 reveals a trajectory characterized by cyclical sensitivity to global economic shocks rather than a linear expansion. The initial period following the 1997 Asian Financial Crisis established an early, albeit modest, peak as researchers sought to document the impact of capital controls and the subsequent currency peg (Jomo, 1998).

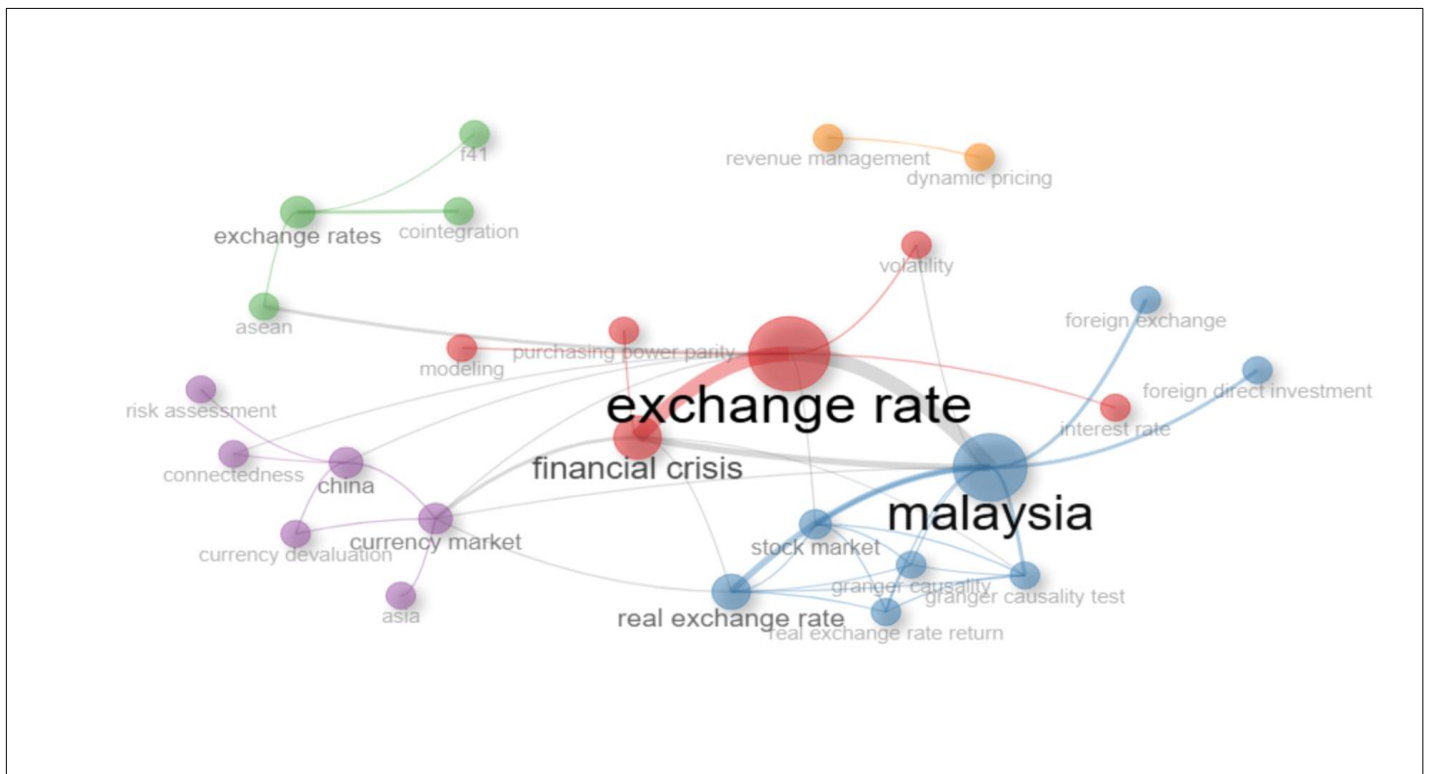
This was followed by a phase of relative decline and re-evaluation in the early 2000s, reflecting a period of exchange rate stability under the fixed regime. However, a steady upward trend commenced after 2005, following the transition to a managed float, with productivity surging through the global financial crisis and reaching an all-time peak of 12 articles in 2019. This peak aligns with external stressors such as the US-China trade war and commodity price volatility, which necessitated renewed academic inquiry into the Ringgit's resilience (Quadry et al., 2017). A recent decline in 2024, followed by a slight 2025 rebound, suggests the field is moving toward a mature state, yet it remains reactive to modern shifts such as the integration of high-frequency data and the influence of algorithmic trading (Naeem, 2022). These patterns imply that while the field is established, a significant research gap exists in utilizing advanced forecasting tools to address contemporary digital volatility (Aftab et al., 2024). Future researchers should prioritize collaborative, interdisciplinary efforts to evolve traditional risk-management frameworks into proactive, technology-driven models (Tay B.H., 2024).

Figure 2: Annual scientific production



Co-occurrence Network

Figure 3: Co-occurrence Network



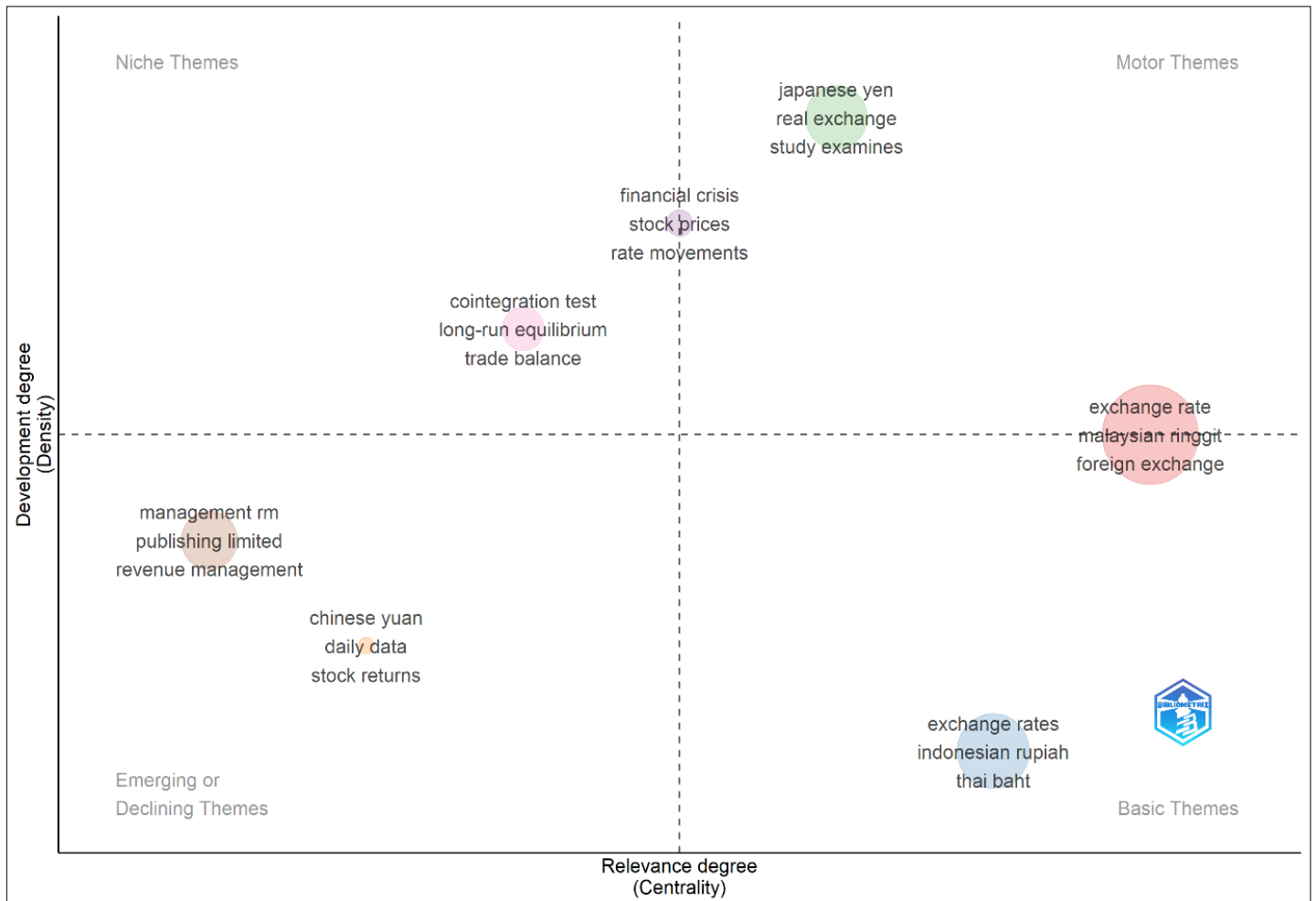
The co-occurrence network of keywords provides a visual mapping of the thematic and conceptual structure of research on Ringgit Malaysia fluctuations, highlighting the intricate relationships between core economic indicators and regional crises. The central nodes, specifically "exchange rate" and "Malaysia," serve as the heart of the network, demonstrating a strong intersectional relationship with "financial crisis" and "purchasing power

parity" (Kogid et al., 2009; Quadry et al., 2017). The network is organized into distinct, color-coded clusters: the red and blue clusters represent the established motor themes of macroeconomic stability and stock market causality, while the purple cluster reflects a growing regional focus on "China" and "currency devaluation" (Aftab et al., 2024; Tay B.H, 2024). These findings imply that while the field is anchored in historical econometric frameworks, there is a clear gap in integrating these core theories with the peripheral niche themes. Future research should prioritize interdisciplinary exploration of "risk assessment" and "connectedness" within the currency market to bridge the gap between traditional exchange rate determination and modern digital volatility (Naeem, 2022).

Thematic Analysis: Fluctuation of Ringgit Malaysia

The thematic map of Ringgit Malaysia research, characterized by its dual axes of centrality and density, provides a sophisticated overview of the field's conceptual maturity and intellectual relevance. The Motor Themes in the upper-right quadrant, specifically "Japanese yen," "real exchange," and "study examines," indicate highly developed and central topics that drive the current academic discourse (Furuoka et al., 2026; Naeem, 2022). Conversely, the Basic Themes in the lower-right, featuring "Indonesian rupiah" and "Thai baht," highlight foundational, transversal topics that are highly relevant to regional currency studies but remain less developed in specialized density (Kogid et al., 2009). The Niche Themes of "long-run equilibrium" and "trade balance" reflect specialized technical frameworks, while the Emerging or Declining quadrant, containing "Chinese yuan," "daily data," and "stock returns," suggests a pivot toward modern volatility modelling and regional spillover effects (Aftab et al., 2024; Tay B.H, 2024). This structure implies that while the field is anchored in historical econometric models, it is diversifying to address the challenges of "digital volatility" and real-time market connectedness (Quadry et al., 2017). Scholars should prioritize integrating the high-frequency "Emerging" themes with established "Motor" theories to bridge the gap between traditional exchange rate predictability and the high-speed reality of modern financial technologies.

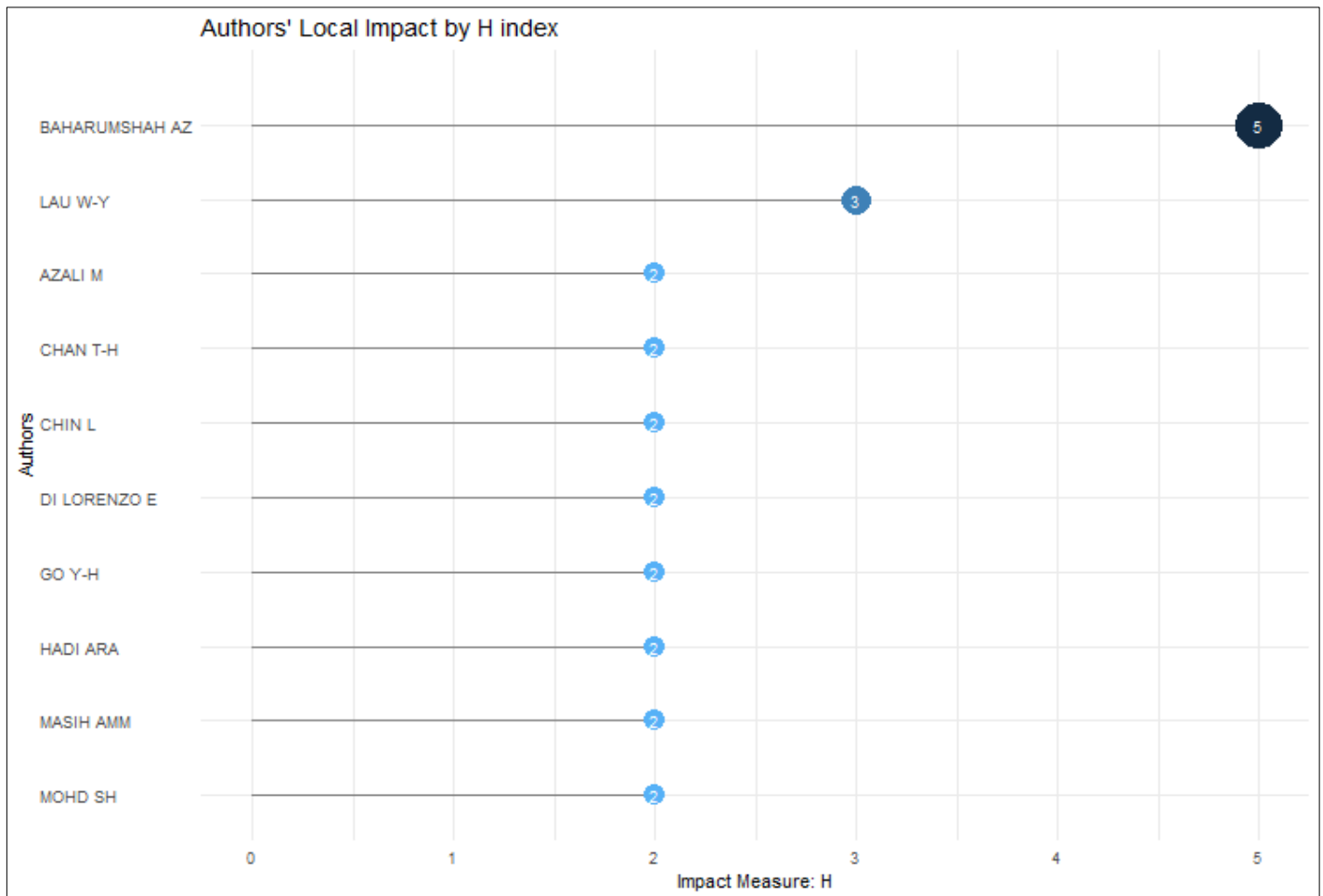
Figure 4: Thematic Map



Author’s Local Impact

The analysis of Author’s Local Impact, as visualized in the Biblioshiny output, provides a standardized measure of scholarly influence within the specific domain of Ringgit Malaysia fluctuations. In bibliometric analysis, local impact represents the contribution and prestige of researchers within the curated dataset, measured here by the H-index, which quantifies both productivity and citation significance by identifying the number of papers that have received high citations (Naeem, 2022). The graph identifies Baharumshah, A. Z. as the most impactful contributor with an H-index of 5, followed closely by Lau, W-Y. with an index of 3, highlighting their central roles in establishing the field's intellectual foundations (Baharumshah et al., 2017).

Figure 5: Author’s Local Impact



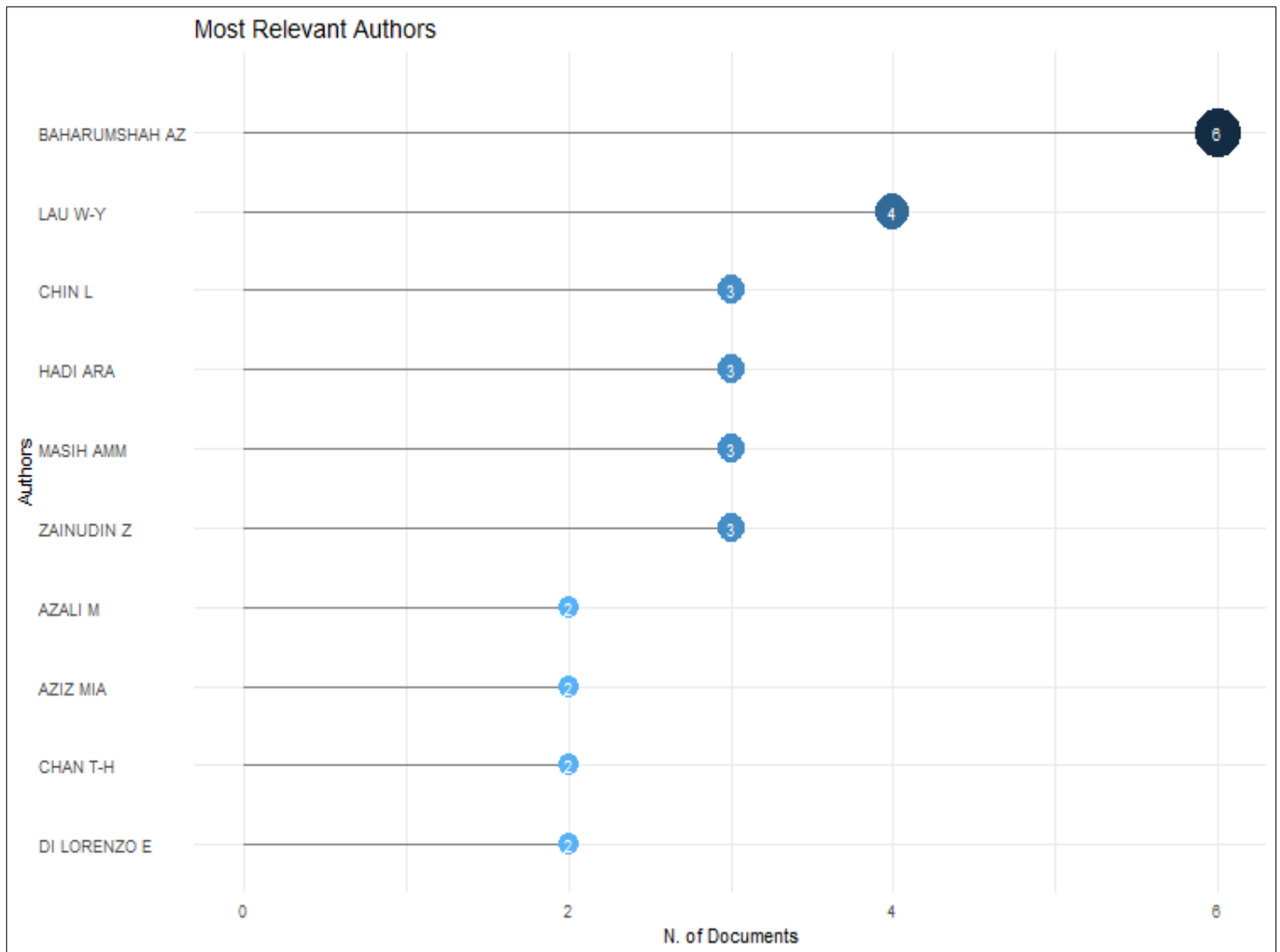
Secondary contributors, including Azali, M. and Chan, T-H., demonstrate a consistent but more modest impact with H-indexes of 2, indicating valuable specialized contributions that have yet to reach the citation density of the leading tier. While this distribution reflects a concentration of influence among a few core experts, the lower scores of early-career researchers must be contextualized, as the H-index inherently favors longer career spans and may not fully capture the quality of recent, high-impact work (Aftab et al., 2024). Furthermore, acknowledging the limitations of the H-index is crucial, as it does not account for author placement, self-citations, or the interdisciplinary breadth of research—shortcomings that necessitate the use of complementary metrics for a holistic evaluation of academic achievement (Tay B.H, 2024).

Most Relevant Authors

The "Most Relevant Authors" graph visualizes the most prolific scholars in the research field of Ringgit Malaysia fluctuations, ranking them based on their total volume of published documents within the Scopus-indexed dataset. This visualization serves to identify the intellectual leaders whose consistent output has shaped the domain's development, with the x-axis quantifying publication count and the y-axis identifying specific authors. The data reveals that Baharumshah, A. Z. is the preeminent contributor with six documents, followed by Lau, W-Y. with

four, and a secondary tier of scholars including Chin, L., Hadi, A. R. A., Masih, A. M. M., and Zainudin, Z., each contributing three publications. The pivotal work of these leading contributors centers on the empirical modelling of exchange rate behavior, particularly examining the Ringgit's predictability and its cointegration with macroeconomic variables during crisis periods (Kogid et al., 2009). Their research focus frequently explores the nexus between currency volatility and the manufacturing sector, as well as the long-term determinants of the Ringgit's value relative to major global currencies (Quadry et al., 2017). The concentration of publications among these key figures indicates a consolidated intellectual core, where their collective findings provide the theoretical and empirical benchmarks for modern risk assessment and exchange rate policy analysis in Malaysia (Naeem, 2022; Tay B.H, 2024).

Figure 6: Most Relevant Authors

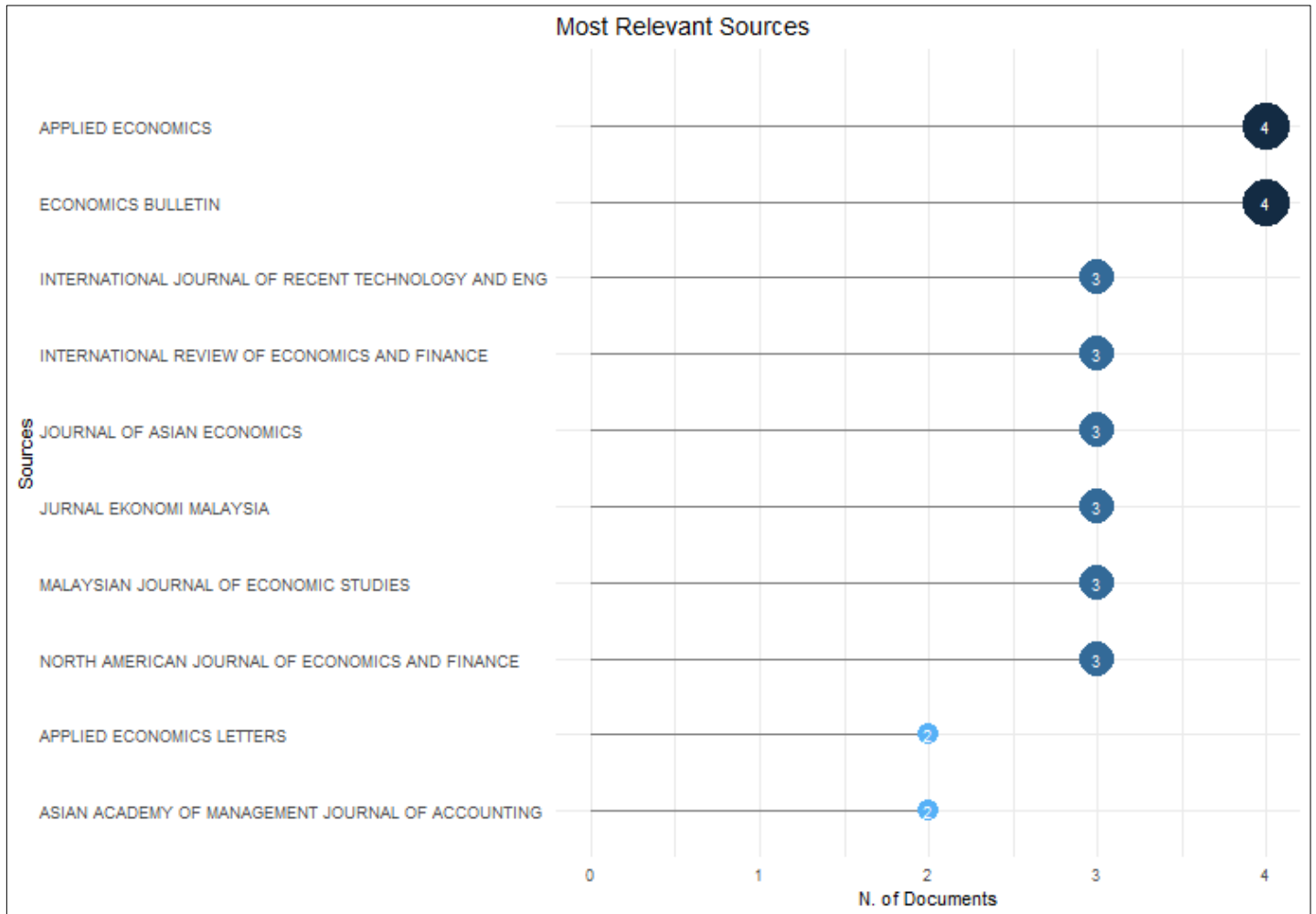


Most Relevant Sources

The "Most Relevant Sources" graph provides a specialized ranking of the primary editorial outlets facilitating scholarly discourse on Ringgit Malaysia fluctuations, measuring productivity through document volume per source. The distribution is led by Applied Economics and Economics Bulletin, each contributing four documents, which signifies a core research focus on empirical econometric modelling and the macroeconomic determinants of exchange rate stability (Naeem, 2022). Mid-tier sources, including the International Review of Economics and Finance, Journal of Asian Economics, and Jurnal Ekonomi Malaysia, highlight a strong regional emphasis and a specific interest in Asian financial integration and contagion effects (Kogid et al., 2009; Quadry et al., 2017). Niche or outlying sources such as the International Journal of Recent Technology and Engineering suggest emerging interdisciplinary applications, specifically the integration of technical engineering perspectives into currency volatility analysis. Overall, the distribution reveals a field that is intellectually grounded in traditional macroeconomics but increasingly characterized by a multi-scalar approach, ranging from localized Malaysian

studies to broad international finance frameworks (Tay B.H, 2024). This diversity suggests that future research will likely continue to converge at the intersection of regional policy and global technological shifts.

Figure 7: Most Relevant Sources



Most Global Cited Documents

Table 1 details the most globally cited documents within the research dataset, measuring total citation counts to evaluate the scholarly impact and dissemination of foundational frameworks in the field. Citation impact is a significant metric because it identifies the core theoretical models and empirical methodologies that have historically anchored academic discourse. According to the data, the leading publication in terms of raw citations is Durand et al. (2011), which garnered 67 citations for its examination of investor fear, the Fama-French factors, and market volatility. However, within the specific context of regional macroeconomics, the foundational frameworks are firmly established by Wu (2000) and Chinn (2000), with 58 and 57 citations, respectively. Wu (2000) introduced critical vector error correction (VEC) models to explore the asymmetric effects of exchange rates on stock prices, while Chinn (2000) provided a pivotal early assessment of purchasing power parity and currency overvaluation leading up to the Asian Financial Crisis.

Beyond these leading texts, the core thematic groupings of the highly cited papers focus heavily on crisis mechanics, exchange rate predictability, and market volatility modelling. Foundational papers such as Jomo (1998) concentrate on the conditional volatility of the Malaysian ringgit and the macroeconomic policy failures associated with historical financial debacles. A temporal shift is evident when comparing these older works to more recent highly cited publications. While the foundational documents are deeply anchored in regional crisis-centric evaluations, contemporary research pivots toward advanced methodological applications and broader systemic risk assessments. For instance, recent highly cited studies like Zhou et al. (2020) employ time-varying parameter vector autoregression (TVP-VAR) to model the impact of geopolitical risks on market dynamics, and Al-Khazali et al. (2012) evaluate martingale difference processes to test modern exchange rate predictability.

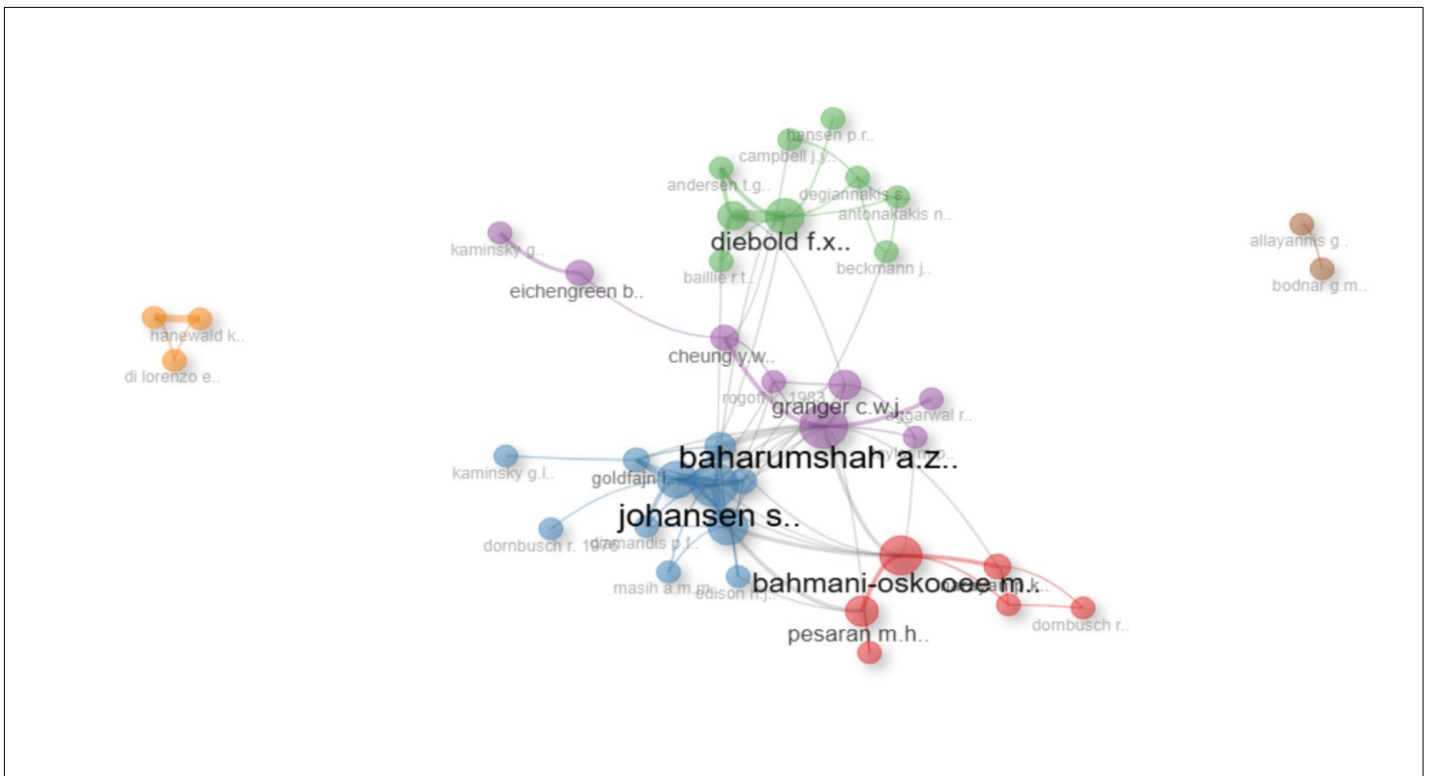
Table 1: Most Global Cited Documents

Paper	Total Citations
DURAND RB, 2011, FINANCIAL MANAGEMENT	67
ZHOU M-J, 2020, RESOURCES POLICY	65
TSAI W-H, 2009, OMEGA	62
WU Y, 2000, JOURNAL OF ECONOMICS AND FINANCE	58
CHINN MD, 2000, EMERGING MARKETS REVIEW	57
TADAJEWSKI M, 2009, JOURNAL OF MACROMARKETING	43
TSE YK, 1997, PACIFIC BASIN FINANCE JOURNAL	42
GRØNTOFT T, 2010, JOURNAL OF CULTURAL HERITAGE	34
JOMO KS, 1998, CAMBRIDGE JOURNAL OF ECONOMICS	32
AL-KHAZALI OM, 2012, INTERNATIONAL REVIEW OF ECONOMICS AND FINANCE	30

Co-citation Network

The co-citation network visually maps the intellectual structure of Ringgit Malaysia research by identifying pairs of documents that are cited together, thus revealing the foundational relationship between past studies. The center of the network is anchored by highly prominent foundational nodes, specifically Baharumshah, A. Z., Johansen, S., and Granger, C. W. J., whose historical significance lies in establishing the cointegration and causality frameworks essential for modelling currency fluctuations (Kogid et al., 2009). The network is organized into distinct thematic clusters: a large red-coded empirical grouping centered on Bahmani-Oskooee and Pesaran that focuses on ARDL modelling for trade-related exchange rate dynamics (Quadry et al., 2017), and a green-coded theoretical cluster involving Diebold that addresses volatility forecasting (Naeem, 2022). Disconnected outliers and isolated clusters, such as the orange and brown nodes, signify fragmented methodologies or critical research gaps in niche areas like revenue management that lack integration with core macroeconomic theories. Over time, the network reveals an overall trajectory that has evolved from a tight focus on post-crisis recovery toward a more diversified yet fragmented landscape that increasingly explores regional "connectedness" and modern volatility spillover effects (Tay B.H, 2024).

Figure 8: Co-citation Network



CONCLUSION

The bibliometric analysis of Ringgit Malaysia (MYR) fluctuations from 1996 to 2026 reveals a scholarly landscape deeply anchored in historical crises yet transitioning toward modern volatility modeling. The research trajectory is characterized by a mature document average age of 11.6 years, with publication peaks traditionally tied to reactive macroeconomic shifts such as the 1997 Asian Financial Crisis and the 2005 de-pegging event (Kogid et al., 2009; Quadry et al., 2017). Thematic evolution demonstrates a shift from "Motor Themes" focused on real exchange rates and regional trade balances toward "Emerging Themes" involving high-frequency daily data and stock return correlations, reflecting a growing reliance on algorithmic finance (Aftab et al., 2024; Naeem, 2022). However, methodological critiques highlight significant limitations in current studies, particularly regarding the scalability of cointegration tests and the resistance of traditional models to capture "Digital Volatility". Practical challenges, such as data infrastructure costs and the workload associated with multi-currency risk assessment, remain persistent barriers to implementation. Consequently, future directions must address research gaps in digital financial integration, with scholars recommended to prioritize interdisciplinary frameworks that bridge the gap between historical econometric foundations and proactive, technology-driven risk management (Tay B.H, 2024).

The bibliometric analysis of Ringgit Malaysia (MYR) fluctuations from 1996 to 2026 summarizes an overarching research scope focused on the transition from historical crisis management to contemporary digital volatility. The study recap highlights a mature field with a document average age of 11.6 years, emphasizing the intellectual evolution of the currency's discourse (Kogid et al., 2009; Naeem, 2022). To move the field forward, the author suggests actionable future recommendations, specifically prioritizing interdisciplinary collaborations that bridge traditional econometric foundations with proactive, AI-driven risk management frameworks (Quadry et al., 2017). Ultimately, these takeaways provide a structured roadmap for researchers to address unresolved challenges in Malaysia's evolving monetary landscape amidst shifting global economic paradigms.

While this bibliometric analysis provides a comprehensive overview of the intellectual structure surrounding Malaysian Ringgit fluctuations, several limitations within both the methodology and the examined literature must be acknowledged. Methodologically, the reliance on the H-index to evaluate local author impact presents inherent constraints. This metric naturally favors researchers with extended career spans and fails to account for nuanced factors such as author placement, self-citation practices, or the interdisciplinary breadth of an individual's academic portfolio.

Addressing these limitations establishes a clear scope and strategic roadmap for future scholarly inquiry. Moving forward, researchers should prioritize the development of interdisciplinary frameworks that successfully bridge the gap between historical exchange rate determination models and proactive, technology-driven risk management. There is a critical need to integrate advanced forecasting tools, high-frequency daily data, and artificial intelligence into established econometric models to better understand real-time market connectedness and systemic contagion. Additionally, future bibliometric evaluations in this domain should employ complementary impact metrics alongside the H-index to ensure a more holistic, equitable assessment of academic contributions and global collaborative networks.

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