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FINANCIAL NETWORK DYNAMICS IN MALAYSIAN MARKETS: EXPLORING BURSA INDICES INTERDEPENDENCIES FROM 2019 TO 2023

(*Dinamik Rangkaian Kewangan di Pasaran Malaysia: Meneroka Kebergantungan Indeks Bursa dari 2019 hingga 2023*)

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ABSTRACT

This study examines the structural characteristics of financial networks within Malaysia's key indices from 2019 to 2023. It specifically analyzes returns and investigates the topological properties of these networks, focusing on how indices representing different sectors interact and evolve across time. By exploring these dynamics, the research aims to provide a deeper understanding of market behavior and the relative influence of each sector. Utilizing historical price data, the study calculates the returns for 13 distinct indices, employs the Triangulated Maximally Filtered Graph (TMFG) method to construct the financial networks. To capture the interrelationships and overall network structure, several important metrics are examined, including degree centrality, closeness centrality, betweenness centrality, clustering coefficients, and influence strength. The findings indicate that 2020 experienced the highest volatility, primarily attributed to the economic disruptions caused by the global pandemic. Notably, indices such as .KLCM (Consumer Products & Services) and .KLIP (Industrial Products & Services) consistently emerged as highly influential and well-connected within the network, highlighting their pivotal roles. Analysis of clustering coefficients reveals fluctuating levels of cohesion among sectors, with a notable decline in 2022, suggesting shifts in inter-sector dependencies. In summary, this study highlights the dynamic and ever-changing characteristics of financial networks, demonstrating how specific indices gain prominence over time. The findings provide a deeper understanding of market behavior and sectoral relationships as well as valuable input for enhancing risk management approaches and optimizing investment strategies.

Keywords: financial network; Bursa Malaysia; Bursa Indexes

ABSTRAK

Objektif kajian ini ialah mengkaji ciri-ciri struktur rangkaian kewangan dalam indeks utama yang tersenarai di Bursa Malaysia sepanjang tempoh 2019 hingga 2023. Secara khusus, kajian ini meneliti kadar pulangan dan mengkaji topologi rangkaian ini, dengan memberi tumpuan kepada bagaimana indeks yang mewakili pelbagai sektor berinteraksi dan berkembang dari masa ke masa. Dengan menganalisis dinamik ini, kajian ini bertujuan untuk memberikan pemahaman yang lebih mendalam mengenai tingkah laku pasaran dan pengaruh relatif setiap sektor. Dengan menggunakan data harga sejarah, kajian ini mengira pulangan untuk 13 indeks yang berbeza, dan menggunakan kaedah Triangulated Maximally Filtered Graph (TMFG) untuk membina rangkaian kewangan. Hubungan antara sektor dan struktur keseluruhan rangkaian dinilai menggunakan beberapa metrik kritikal termasuk keutamaan darjah, keutamaan kedekatan, keutamaan pengantara, pekali pengelompokan, dan kekuatan pengaruh. Penemuan kajian ini menunjukkan bahawa tahun 2020 mengalami risiko tertinggi, yang sebahagian besarnya disebabkan oleh gangguan ekonomi yang berpunca daripada pandemik global. Indeks seperti .KLCM (Produk & Perkhidmatan Pengguna) dan .KLIP (Produk & Perkhidmatan lndustri) sering muncul sebagai pempengaruh. Analisis terhadap pekali pengelompokan pula menunjukkan tahap kohesi antara sektor yang berubah-ubah, dengan penurunan ketara pada tahun 2022, mencadangkan perubahan dalam kebergantungan antara sektor. Kesimpulannya, kajian ini menekankan sifat dinamik dan berubah-ubah rangkaian kewangan, di mana indeks tertentu semakin berpengaruh dari masa ke masa. Hasil kajian ini memberikan pemahaman yang lebih mendalam mengenai tingkah laku pasaran dan interaksi antara sektor, tetapi juga memberikan input yang bernilai untuk memperbaiki amalan pengurusan risiko dan strategi pelaburan.

Kata kunci: rangkaian kewangan; Bursa Malaysia; Indeks Bursa

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