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Using Network Analysis to Evaluate Financial Contagion and Risk

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Description

Risk management requires a deep understanding of financial insecurity during financial disasters. Market players frequently use risk indicators. Designers show the findings of an investigation on the lead-lag relationship between financial connectedness and risk indicators. These indicators are derived from derivative products, which are used to evaluate market anxiety and fear subsequently, estimate market systemic risk. The ability of time-varying network statistics drawn from more than 1300 stocks traded on foreign stock markets to predict risk the empirical results are in favour of using network statistics to forecast risk factors.

Even though significant financial instability may be unavoidable during crisis times, there has been debate over how financial organisations should evaluate systemic risk, or the risk of a potential financial crisis or significant financial incident leading to a significant breakdown of financial systems. Investors' intentions to manage risk have been strengthened by the recent financial market volatility brought on by the COVID-19 pandemic, and they are now more conscious of the value of effective systemic risk controls. Systemic risk is primarily sourced from financial spread. Transferring financial risk from one organisation to another can result in serious issues. It makes sense to use network analysis, which has been used to study co-

authorship, social networks, and epidemiology, to measure and predict financial contagion and systemic risk.

The literature also seems to support the use of analysis tools to analyse the financial epidemic. A practical method for evaluating the effects of financial contagion and systemic risk in financial markets is to measure the connectivity of financial networks. One of the best markers for estimating systemic risk in the financial markets is financial connectedness, which is related to financial contagion. The interdependence of financial organisations and the integration of the global financial system during a crisis cause the risk associated with the crisis to spread across various markets globally. Such catastrophes reveal the theoretical connections between risk, financial stability, and system connectivity as well as the risk that a risk spillover impact will affect the entire financial system.

Network analysis is therefore frequently employed in financial study. The formation and transmission of information within a system is described by a network, which is made up of individual nodes and edges that join them. Financial interconnectedness and systemic risk can be reflected in financial network features. Volatility gauges are frequently employed to monitor market risk and apprehension. Volatility is closely linked to systemic risk and can be used as an indicator to represent systemic risk. It has the potential to transmit systemic risk and exacerbate the financial market crisis.

Measuring systemic risk or evaluating connectivity. Only a small number of those studying connectedness measurement have quantified systemic risk; the majority has concentrated on how to measure connectedness and how insightful connectedness markers are. When it came to systemic risk measurements, few individuals were concerned with the connectedness. Increased knowledge of the global stock market's systemic danger as well as the interconnectedness of the financial system. Using correlation networks with edges based on asset return relationships, the degree of interconnectedness was calculated. There were able to better understand how connectedness represents systemic risk in times of crisis by using the causality test to determine the relationship between interconnectedness and systemic risk in the financial system.