

Relationship between the COVID-19 Pandemic and Global Supply Chains: An Empirical Study^{*}

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Abstract : This study investigates the effect of the COVID-19 pandemic on supply chain disruptions across six nations, utilizing weekly data from February 1, 2020, to February 1, 2022. The analysis employs a Dynamic Conditional Correlation Generalized Autoregressive Conditional Heteroskedasticity (DCC-GARCH) model to examine the relationships between COVID-19 case trends and supply chain performance. The findings indicate that the pandemic's impact intensified significantly after March 2020, following the World Health Organization's declaration of COVID-19 as a global pandemic. Results show a high dynamic conditional correlation between total COVID-19 cases in Europe and the United Kingdom, with the correlation reaching 1 between March 1, 2020, and February 1, 2022. This correlation was notably stronger than that between the United Kingdom and China, likely due to geographical proximity. Additionally, the correlation between total cases in Europe (TC_EUR) and supply chain performance in China (SC_CN) was initially low at the start of the pandemic. However, it increased steadily until June 2020, peaking at around 50%, before declining in subsequent months.

Keywords: Supply Chain, COVID-19 Pandemic, DCC-GARCH

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