Economists find that vaccine companies influence each others' stock prices

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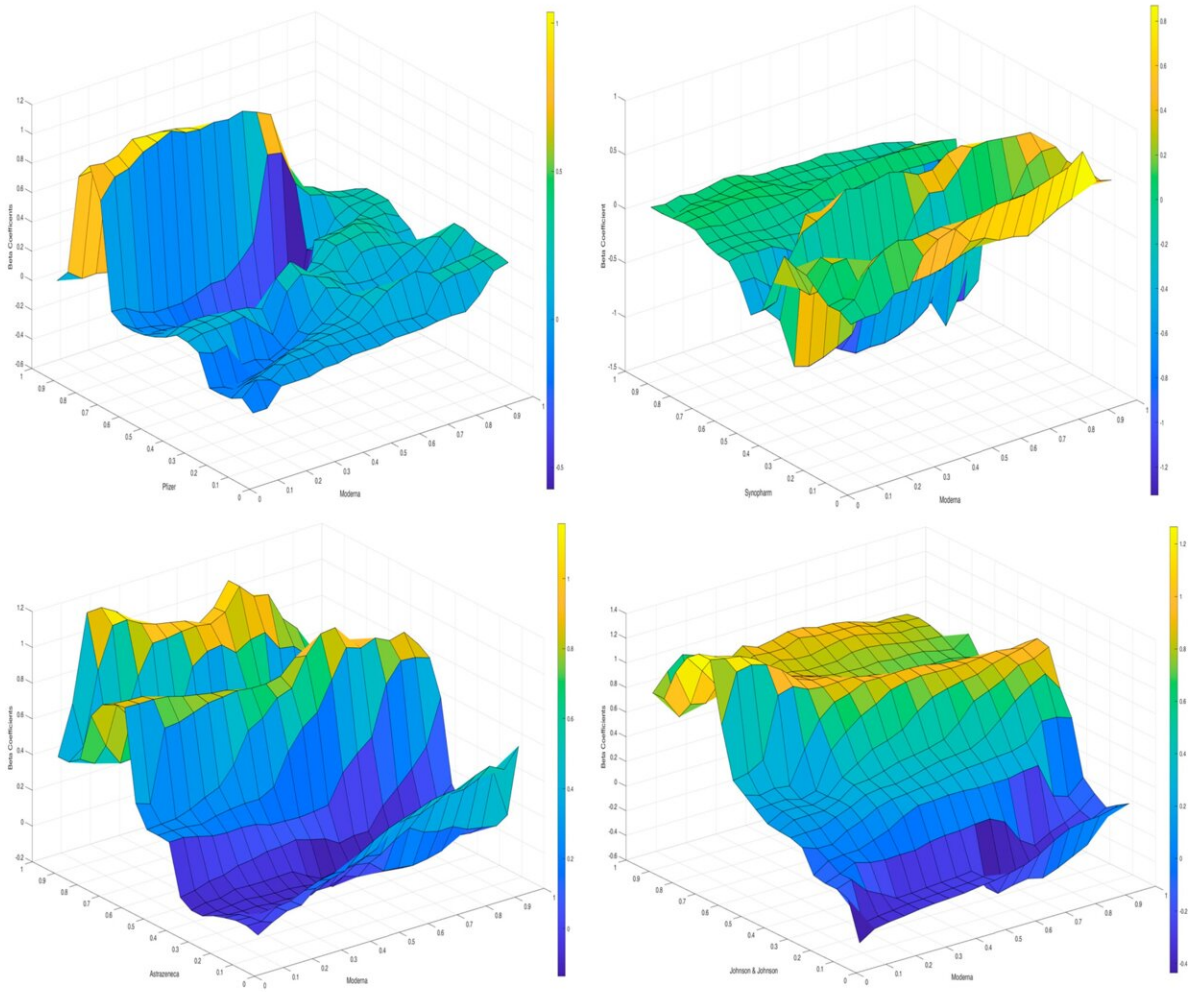

From Moderna to the other respective markets. Credit: *Mathematics* (2022). DOI: 10.3390/math10152812

COVID-19 vaccine companies influence each other's stock prices as well as market volatility, a team of scientists has found. It turned out that some companies (e.g., British-Swedish and American) have more influence, while others (e.g., Chinese) have less. Such conclusions were reached by economists who analyzed the stock price of major vaccine companies: Moderna, Pfizer, Johnson & Johnson, Sinopharm and AstraZeneca. They tracked the indicators in dynamics: before and after the vaccine release. The results of the study were published in the journal *Mathematics*.

"The pandemic has set a high level of uncertainty. Investors during crisis periods, including emergencies of uncertainty regarding infections, only consider risk seeking for safer assets, thus increasing the connectedness among relatively safer stocks. In particular, investors are likely to invest more in the vaccine-producing companies that are the most prosperous and safest during the pandemic. And in 2020-2021, we saw an increase in investment in vaccine companies, which increased the value of their stock. The start of vaccine production created a positive sentiment among investors. They saw the stocks of manufacturing companies as safe and high-yield investments, a kind of promise of potential success in tough times," says Kazi Sohag, research co-author, associate professor at the Ural Federal University (UrFU) Department of Economics.

The application of sophisticated econometric techniques, for instance, the TVP-VAR dynamic connectedness allows researchers find that stock volatility or significant events at one company affect another vaccine manufacturer and affect its stock price. As examples of such events scientists cite the creation of vaccines, the start of mass production and sales of the drug in foreign countries and other events. In doing so, the volatility of one company is transmitted to the other, and an increase in the stock price of one producer affects the decline in the stock price of the other.

"For example, the increase in the total connectedness index (TCI) from the second quarter of 2021 is induced by the vaccine release at the end of 2020–the beginning of 2021," says Kazi Sohag. "It is noteworthy that Moderna appears as the most prominent net volatility transmitter, whereas Sinopharm is the highest net volatility receiver, transmitting no net volatility."

The authors of the study note that AstraZeneca and Moderna "feel" the market volatility more than others, but they are also the most visible source of volatility. Moderna has more influence on Pfizer and the least on Johnson & Johnson. The only company that affects Moderna is AstraZeneca. Sinopharm on the one hand receives side effects of volatility from Moderna, Pfizer, AstraZeneca and Johnson & Johnson, and on the other hand contributes the least to volatility, and does not pass on volatility to other companies and the market. Consequently, Sinopharm is the receiver with the highest volatility.

Stock market volatilities can be induced by such exogenous factors as critical political decisions, referendums, economic crises, stock and bond market uncertainty, high inflation, and crude oil and natural gas price fluctuations, experts explain. At the same time, developed stock markets transmit a spillover effect to emerging stock markets. And emerging markets lack the power to transmit volatility to other markets.

Note that scientists from Russia (UrFU), the United States (Drexel University), Vietnam (University of Economics Ho Chi Minh City), and Great Britain (Northumbria University) took part in the study. The researchers plan to add state vaccine manufacturers, in particular Sputnik V, to the sample.

More information: Kazi Sohag et al, Dynamic Connectedness among Vaccine Companies' Stock Prices: Before and after Vaccines Released, *Mathematics* (2022). DOI: 10.3390/math10152812

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