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Mean tweets and Wall Street: How Twitter changes supply chain considerations

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In 2017, Twitter was abuzz over the incident of United Express Flight 3411, where video footage showed a passenger being forcibly removed from an overbooked flight to Louisville International Airport. Later research would show that while a typical instance of overbooking would cause damages of around $1,000, the financial impact of the negative response—largely on social media—would cost United $800 million in market value in a single day.

But can social media reactions to supply chain glitches cause a similar response to a company's financial performance? While anecdotal evidence says yes, Poole College's Sebastian Heese and a team of researchers wanted to put it to the test.

Heese serves as a department head and Owens Distinguished Professor of Supply Chain Management at NC State's Poole College of Management.

"While there wasn't empirical evidence, there have been cases where it seems negative social media responses to supply chain issues can cause companies financial trouble," Heese explains." In 2017, for example, Apple had to delay the launch of its much-anticipated iPhone X due to assembly problems—something heavily discussed on Twitter. The company then experienced negative stock market returns following the delay."

To take a closer look at these issues, the research team set out to answer two questions—whether supply chain glitches lead to a reaction on Twitter and whether the response on Twitter associated with supply chain glitches influence the relationship between a supply chain glitch and stock market returns.

The team collected data using an aggregator of social media and Twitter data, Crimson Hexagon, to measure Twitter reactions to publicly traded firm supply chain glitches, comparing them to a baseline of Twitter activity for firms who did not experience a supply chain glitch during the same time. They measured Twitter reactions by looking at both tweet volume and tweet sentiment. They identified supply chain glitch news announcements from the Wall Street Journal and the Dow Jones Newswire, and then finally collected firm financial and stock market data from Thomson Reuters.

Merging all four sets of data, the team captured the sentiment of more than 2 billion tweets related to 150 companies and 213 supply chain glitches occurring between 2013 and 2017.

Their findings?

"As expected, we found supply chain glitches prompt significant declines in a company's stock price of the firm, and that there is significant Twitter reaction to supply chain glitches in both tweet volume and tweet sentiment," Heese says. "We found that tweets increase significantly in volume, and they become more negative when firms experience a supply chain glitch. We also demonstrated that Twitter reaction associated with a glitch influences the relationship between glitches and stock market returns, and tweet volume and tweet sentiment worsen the relationship between a glitch and the stock market return."

While previous research has demonstrated that investors lower stock prices following supply chain glitches, the team believes their research adds another layer of nuance to the issue, showing that social media in general, and Twitter in particular, creates a "forum for individuals to be made aware of and voice their sentiment about supply chain glitches" and that this voice has a significant impact on company's financial performance.

The paper, "Does social media elevate supply chain importance? An empirical examination of supply chain glitches, Twitter reactions, and stock market returns," is published in the Journal of Operations Management.

More information: Christoph G. Schmidt et al, Does social media elevate supply chain importance? An empirical examination of supply chain glitches, Twitter reactions, and stock market returns, *Journal of Operations Management* (2020). [DOI: 10.1002/joom.1087](https://doi.org/10.1002/joom.1087)

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