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What is Newsworthy? Theory and Evidence

Based on BFI Working Paper No. 2024-67, "What is Newsworthy? Theory and Evidence," by Luis Armona, Harvard University; Matthew Gentzkow, Stanford University; Emir Kamenica, University of Chicago; and Jesse M. Shapiro, Harvard University

The events that news outlets select for coverage can be largely explained with a statistic that captures how unexpected they are, suggesting that reporting may be less biased than it appears.

Are news outlets biased towards reporting negative events, or do negative events tend to be more newsworthy? Answering this and related questions requires objectively measuring how newsworthy different events are. In this paper, the authors tackle this challenge, developing and applying a scoring rule which they use to test for bias in news reporting.

The authors' approach is best understood in two steps. First, they use historical data on a set of relevant variables including stock market returns, unemployment rates, precipitation levels, and United States military casualties to construct a statistic called the **continuous ranked probability score** (CRPS), which quantifies how unexpected an event is given previous events. For example, if the historical data indicate that stock market returns typically fluctuate within a set range, a day with an exceptionally high or low return would generate a high CRPS. Moreover, CRPS would be less sensitive to extreme returns in volatile periods, when extreme returns are the norm. The authors interpret events with high CRPS values as especially newsworthy.

Next, the authors assess whether actual news coverage aligns with their CRPS values. Using summaries of nightly television news broadcasts from 1968 through 2013, they analyze whether events observed in their historical data with high CRPS values generated relatively more news coverage (compared to events with lower CRPS values). They find the following:

- Events with higher CRPS values are more often reported. This includes obvious patterns, such as that broadcasts are more likely to report on the stock market when the stock return is very high or very low, or that broadcasts are more likely to report on unemployment when the unemployment rate is high. These also include more subtle features, such as that extreme stock returns become less newsworthy when volatility is high, or that unemployment becomes more newsworthy when there is a large change relative to the previous unemployment rate.
- Without accounting for the authors' CRPS values, there appears to be a bias

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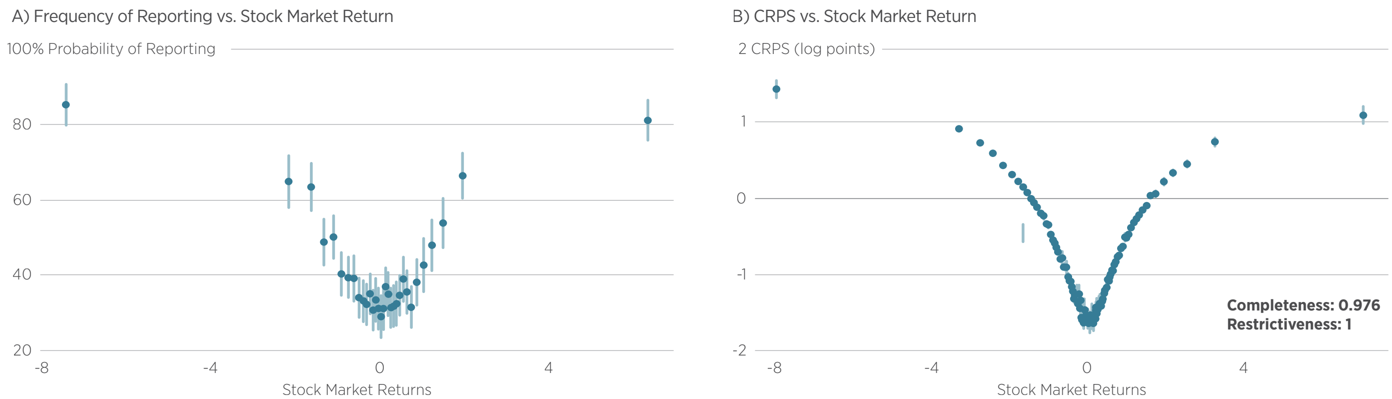
Continuous ranked probability score: A measure of how surprising an event is compared to what was expected

Figure 1 · Reporting on Stock Returns



Note: This pair of figures illustrates the relationship between stock market returns and the probability of reporting, compared to the continuous ranked probability score (CRPS). The top figure shows the frequency of reporting for different levels of stock market returns, and the bottom figure shows the relationship between stock market returns and the CRPS (measured in log points), highlighting how more extreme returns lead to higher CRPS scores. In both graphs, the vertical bars show the 95% confidence intervals.

towards reporting negative news (e.g., rising unemployment rates). Once CRPS is controlled for, however, this apparent bias towards negative news significantly decreases, suggesting that much of the observed bias is due to the newsworthiness of the events.

The authors also investigate an apparent bias among news outlets to report more on US military casualties in Iraq than in Afghanistan using data on deaths in both countries between 2003 and 2013. Without controls, reporting on casualties in Iraq is 10.1 percentage points more likely than reporting on casualties in Afghanistan. When the authors account for the newsworthiness of casualty events using their CRPS values, however, the estimated bias falls to -0.9 percentage points and becomes **statistically insignificant**.

The upshot is that events are more likely to be reported in the news when they are unusual. This research is related to prior work from UChicago economists who use similar methodology to measure the value of new information, and to decide which articles are more valuable for publication in scientific journals.[1] At a time when claims of media bias are pervasive, this study is the first to create a simple measure of newsworthiness that combats these allegations. This research demonstrates that what often appears as biased reporting may largely stem from the surprising nature of the news itself. The authors hope other researchers will use the approach established here in future studies of biased reporting in the news and other domains.

[1] Frankel, Alexander, and Emir Kamenica. "Quantifying Information and Uncertainty." American Economic Review 109, no. 10 (October 1, 2019): 3650–80. doi.org/10.1257/aer.20181897; Frankel, Alexander, and Maximilian Kasy. "Which Findings Should Be Published?" American Economic Journal: Microeconomics 14, no. 1 (February 1, 2022): 1–38. doi.org/10.1257/mic.20190133.

Statistically insignificant: When observed effect or difference in a study is plausibly due to chance rather than a true effect

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