

# DANMARKS NATIONALBANK

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Hard to “talk the market up”

## The market can see through media framing

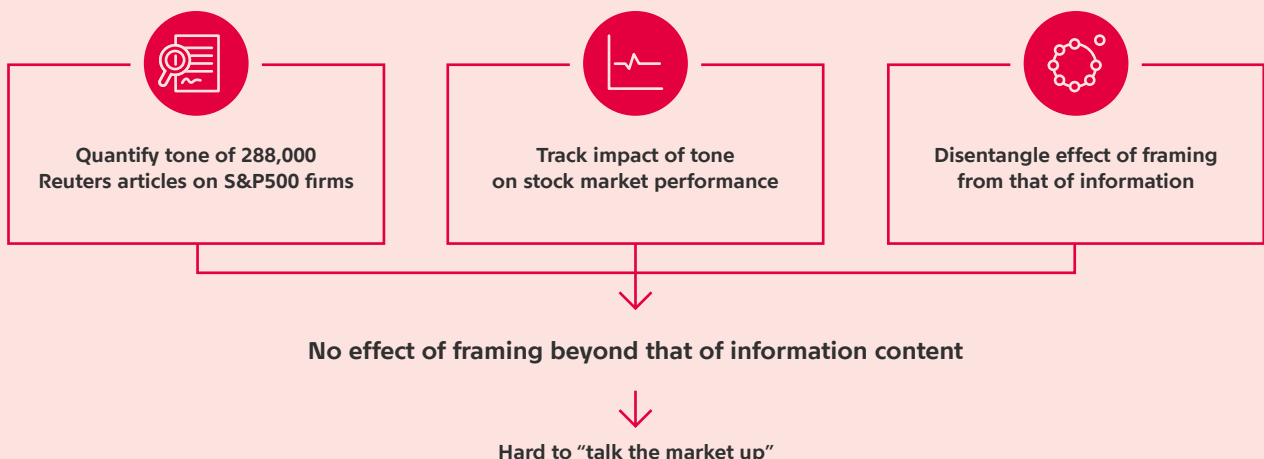
Stock market investors react only on the objective facts and not the spin in media articles, a new working paper from Danmarks Nationalbank shows on Friday.

While the tone of an article does predict a company's stock market performance in the short run, the effect is only due to the pure informational content in the article, and not the framing of that article, the working paper shows. It is based on the study of the impact of more than 288,000 news articles on the U.S. stock market.

To get to the conclusion the researchers firstly used computer algorithms to process the language of each article to be able to attach a score to it indicating its level of optimism or pessimism. The score was then related to the market performance of the mentioned stocks around the time of publication.

The scores were the result of specific words holding a specific value in the financial context and grammar constructs. For example, the sentences “the CEO fears market developments” and “the CEO does not

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fear market developments” would be scored respectively as pessimistic and optimistic.

Not surprisingly this work showed that those shares that were mentioned in optimistic stories rose more than the rest of the stock market on the day of publication, while those that were mentioned in pessimistic articles fell more than the market.

Next, the research team isolated variation in the tone of articles that is independent on their informational content, exploiting a combination of unsupervised machine learning algorithms and econometric approaches.

The idea behind this approach is best explained with an example. Imagine that articles about Novo Nordisk are more often about personal data protection than articles about Vestas. The Cambridge Analytica scandal, which has nothing to do with Novo Nordisk, but a lot to do with personal data protection,

happens. If the change in the tone of data protection spills over to the whole article corpus, then a new article about Novo Nordisk would be framed relatively more pessimistically than a new article about Vestas.

While the external variation in tone is a robust predictor of the tone of an article, it is completely unrelated to the performance of a company in the stock market. The market sees through media spin, and can filter informational content from irrelevant tone, the working paper shows. It does however also emphasize the fundamental role of financial journalists in uncovering and gathering information for the functioning of financial markets.

The analyzed articles were published between 2000 and 2018 by the Reuters news agency, one of the world’s main suppliers of news for stock investors, and were all about companies in the large U.S. stock index S&P 500.

## ABOUT NEWS



News are news articles based on analyses, working papers or other longer texts from Danmarks Nationalbank. News primarily

address journalists, politicians, government officials, specialists and others who want to be updated on current topics.

The news article consists of a Danish and an English version. In case of doubt regarding the correctness of the translation the Danish version is considered to be binding.

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