

Investment and Subjective Uncertainty

Based on BFI Working Paper 2022-149, ["Investment and Subjective Uncertainty,"](#) by Nicholas Bloom, Stanford University; Steven J. Davis, Chicago Booth; Lucia Foster, US Census Bureau; Scott Ohlmacher, Federal Reserve Board; and Itay Saporta-Eksten, Tel-Aviv University

Investment is strongly and robustly negatively associated with higher uncertainty; uncertainty is also negatively related to employment growth and overall shipments (sales) growth; and flexible inputs like rental capital and temporary workers show a positive relationship to uncertainty.

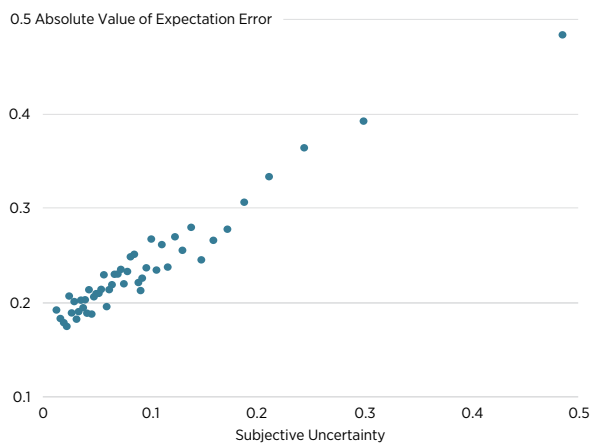
What is the impact of uncertainty on investment? Without understanding how uncertainty is perceived by managers, this question is difficult to answer. The literature often uses proxies like stock-market volatility, sales and investment volatility, implied-volatility, earnings calls, SEC

filings, newspapers, or various macro measures of uncertainty. However, none of these measures provides a direct measure of managers' actual subjective uncertainty.

This new paper addresses that gap by describing the first results of an ambitious survey of business expectations conducted in partnership with the US Census Bureau as part of the Management and Organizational Practices Survey (MOPS). MOPS is the first large-scale survey of management practices in the United States, covering more than 30,000 plants across more than 10,000 firms. Thus far, it has been conducted in two waves, for reference periods 2010 and 2015, with results from a third wave for reference year 2021 scheduled for publication in 2023. The sample size and high survey response rate, the use of the establishment within the firm as the response unit, the ability to link to other Census Bureau data, and comprehensive coverage of manufacturing industries make the MOPS dataset unique.

As part of the 2015 MOPS, the authors asked questions regarding plant-level expectations of own current-year and future outcomes for

Figure 1 • Sales Uncertainty is Strongly Predictive of Forecast Errors



Notes: The 2017 expectation errors are calculated as the difference between realized and expected growth rates of sales. For expected growth rate, the authors use as base year the MOPS 2015 quantity, and for 2017 the 2017 forecast. Subjective uncertainty is the S.D. of the reported subjective distribution of sales growth from MOPS 2015.

shipments (sales). The survey questions elicit point estimates for current-year (2016) outcomes and five-point probability distributions over 2017 (next-year) outcomes, yielding a much richer and more detailed dataset on business-level expectations and subjective uncertainty than previous work, and for a much larger sample. Please see the working paper for more details, but through an analysis of forecasts and outcomes, the authors determined that managers provided well-considered responses. The authors find three stylized facts (or broad tendencies that summarize the data):

- Investment is strongly and robustly negatively associated with higher uncertainty, with a two standard deviation increase in uncertainty associated with about 6% reduction in investment.
- Uncertainty is also negatively related to employment growth and overall shipments growth, which highlights the damaging impact of uncertainty on firm growth.
- Flexible inputs like rental capital and temporary workers show a positive relationship to uncertainty, showing how firms switch from less to more flexible factors at higher levels of uncertainty.

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