

Discussion of “Are Uncertain Firms Riskier?”
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Brief Summary

- ▶ **key motivation**: to explore the heterogeneity, are some firms more prone to aggregate uncertainty changes?
- ▶ a very interesting and extremely enjoyable paper
 - exploits a **high dimensional dataset** for better measurement of *firms'* exposed uncertainty at the cross-section.
- 1. builds on the very unique and powerful data that aggregates a firm's individuals' attention allocation to topics (some are related to uncertainty), by time and by the IP domain
- 2. finds that more "uncertain" firms exhibit greater efforts to mitigate risk (hedging), to commit to compliance, but cut investments and hiring
- 3. positive spread of high-minus-low ARA-sorted (tf-iaf adjusted measure of relative attention) portfolio, though pricing error spanned by the Fama and French (2015) five-factors

Some Background on “Uncertainty”

► theoretical concepts

1. mean-preserving spread changes, i.e. changes in the *2nd moment* (Abel and Eberly, 1994 AER; Bloom, 2009 ECMA)

- $y_{i,t} = A_t n_{i,t}$ with $A_t \sim \mathbf{N}(\bar{A}, \sigma_A^2)$ with $\sigma_A \uparrow$

2. Knightian uncertainty

- unknown or less clear on the distribution $F(A_t)$

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► empirical measures

1. 2nd moment measures: TFP volatility/VIX/stock market return volatility/forecast dispersion/information treatment measure (Kumar, Gorodnichenko and Coibion, 2023 ECMA)

2. based on forecast errors: Jurado et al. (2015 AER)

3. survey-based subjective uncertainty: subjectively assigned probabilities (Altig et al., 2022 JoE)

4. uncertainty-linguistics: EPU/topic clustering measure (Baker et al., 2016 QJE; Hassan et al., 2019 QJE)

Roadmap of Comments

- ▶ firm-specific uncertainty vs. firm's exposure to aggregate uncertainty
- ▶ fundamental riskiness vs. reallocating attention over business cycles
- ▶ measurement and aggregation issues
- ▶ result interpretation
- ▶ additional details

Comment 1. Rising Firm Riskiness vs. Rising Firm Risk Exposure

- ▶ suppose we have two components of total uncertainty $x_{i,t} = A_t z_{i,t}$, so that $y_{i,t} = x_{i,t} n_{i,t}$
 - aggregate A_t and idiosyncratic risk $z_{i,t}$ (Bloom, 2009 ECMA)
 - suppose firm hiring/investment/financing decision $n_{i,t} = \theta_i \bar{A} \bar{x} - \gamma_i [\sigma_A^2 + 2\rho_{A,z} \sigma_A \sigma_z + \sigma_x^2]$
 - risk sensitivity to aggregate uncertainty increases from different sources
$$\left| \frac{dn_{i,t}}{d\sigma_A} \right| = 2\gamma_i (\sigma_A + \rho_{A,z} \sigma_z)$$
- ▶ so far, $ARA_{i,t}$ is assumed to be all about γ_i going up
 - matters a lot what this $ARA_{i,t}$ really measures

Comment 1. Rising Firm Riskiness vs. Rising Firm Risk Exposure

- given the risk sensitivity to aggregate uncertainty increases from different sources
$$\left| \frac{dn_{i,t}}{d\sigma_A} \right| = 2\gamma_i(\sigma_A + \rho_{A,z}\sigma_z)$$
- ▶ interesting to check if σ_z goes up in mid of jumps in σ_A conditional on shock correlations $\rho_{A,z} > 0$
- ▶ **question**: are these high ARA firms simply getting relatively riskier in mid of rising EPU?
- ▶ **question**: are they reading more of uncertain topics (high ARA) as they are more risk sensitive for uncertainty jumps?
- ▶ **testable**: do we see rises in firm's "own uncertainty" $\sigma_z \uparrow$?
 - e.g. stock return volatility/option price volatility in mid of heightened uncertainty
 - Hassan et al. (2019 QJE): firm-level political risk correlated with stock return volatility
 - Alfaro, Bloom, and Lin (2023 JPE): firm-level credit constraint connected to aggregate uncertainty changes
 - perhaps, employees' more attention/reading correlated with their degree of shirking and idling, reflective of the employers risk?

Comment 2. Mechanism on the Attention Changes

- ▶ **Question 1:** what drives the diverging $ARA_{i,t}$ across firms on average
- ▶ **Question 2:** larger or smaller dispersion of attention during periods of changing aggregate uncertainty?
 - if it's not about the firm-specific uncertainty, ARA differences may reflect the information processing sophistication across individuals within? or simply across different firms?
 - Kacperczyk, Nieuwerburgh, and Veldkamp (2016, ECMA): investors pay attention to aggregates in bad times and to idiosyncratic investment opportunities during good times (rational attention allocation)
 - Bloom et al. (2018 ECMA): uncertainty heightened in economic downturns
- ▶ **testable 1:** differences in human capital or information technology across firms deliver ARA cross-firm heterogeneity?
- ▶ **testable 2:** if it's rational to pay attention to aggregates during high uncertainty periods, do all firms' ARA go up even if there is still a dispersion?

Comment 3. Measurements

1. by construction, uncertainty topics are financial-related
 - the labelled uncertainty topics are derived from articles from policy/economic/finance news source (WSJ, FT, Economist)
 - interesting to see if individuals are reading other types of uncertainty related to their business/technology/innovations, e.g. risk to “RNA sequencing”; GPU chips manufacturing uncertainty
2. aggregation issues
 - employee’s attention to uncertainty?
 - managers’/board’s attention to uncertainty? (often features on these guys, Bloom (2018 JEP))
 - visitors?
 - duration of viewing as weights? short and frequent clicks; too long of time counted if the browser is simply opened and inactive
 - multiple operating locations and multiple units within a corporation: location-based uncertainty confounds the firm’s uncertainty (see Bakkensen and Barrage, 2022 RFS for flood risk at the coastal area)?

Comment 4. Results Interpretation

- ▶ reading vs. actions
 - not clear if mentioning of “cost of capital”, “Basel II” \Rightarrow mitigating risk efforts?
 - not clear if mentioning of “derivatives”, “swap”, “market risk” etc. \Rightarrow hedging efforts
- ▶ reverse causality?
 - so far, the regressor ARA is lagged by one week (IV, more distant lags)
 - firms that are constrained of the credit from investing and hiring, and with high cost of capital are more likely to be prone to uncertainty?
- ▶ to strengthen the literature contributions
 - perhaps explores more on the asset pricing implications
 - Fama-French 5 factor model pricing spans the “alpha”
 - additional explanations can be helpful here

Additional Details

- ▶ ARA decomposition into two margins, tf and iaf , once removing the tf part, do we see larger correlations between iaf component with the aggregate uncertainty, e.g. EPU?
- ▶ asymmetries: check ARA's correlation with heightened vs. reduction in aggregate uncertainty
- ▶ to further highlight the importance and contribution of the rich and power of data

I learned millions and truly enjoyable reading

Best of Lucks!