Does Competition Between Experts Improve Information Quality:

Evidence From the Security Analyst Market

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ABSTRACT:

This paper studies the effect of strategic interaction on the quality of information provided by experts. I estimate the incentives and the information structure of security analysts who compete to make earnings forecasts. Security analysts are rewarded for being more accurate than their peers, which creates competition. This reward for relative accuracy leads analysts to distort their forecasts to differentiate themselves, but also disciplines them to be less influenced by the prevailing optimism incentive. I structurally estimate a contest model with incomplete information that captures both effects, adapting the estimation of common value auctions using indirect inference. My model disentangles the payoff for relative accuracy from the payoffs for optimism and absolute accuracy.

Using the model, I conduct counterfactuals to evaluate policies that reduce the importance of relative accuracy in analysts' payoff. I simulate the effect of these policies on the quality of information. I find that the disciplinary effect dominates in the current market: the reward for relative accuracy reduces individual and consensus forecast errors by 33.29% and 58.45% respectively. Meanwhile, this improvement is at a cost of increasing individual and consensus forecast variances by 3.77% and 4.37% due to the distortionary effect. For each security, it is optimal to have moderate competition between the covering analysts, because more competition generates more aggregate information but also intensifies the distortionary effect.

DATA:

- **Main: Institutional Brokers' Estimate System (IBES)**
- **1984 - 2016 yearly forecast of EPS by analyst-security**

MODEL:

Timeline

Analyst i: Receive private signal S_i → Make forecast X_i → Receive reward $u(X_i, X_{-i}, Z)$

Common knowledge: the number of analysts N — Earnings Z is realized

Payoff Function

$$u(X_i, X_{-i}, Z) = \sum_{k=1}^{N} \gamma_k(N) 1(\#\{j\ s.t. |X_j - Z| \le |X_i - Z|\} = k) + \gamma_c (X_i - Z)^2 + \gamma_o X_i$$

Relative Accuracy: payoff for having the k-th smallest forecast error; Absolute Accuracy ($\gamma_c (X_i - Z)^2$); Optimism ($\gamma_o X_i$)

REDUCED-FORM EVIDENCE:

Analysts' payoffs depend on relative accuracy

- $|X_{ijt} - Z_{jt}|$ increases with N_{jt} (security j, year t)

Reward for the top, not punishment for the bottom

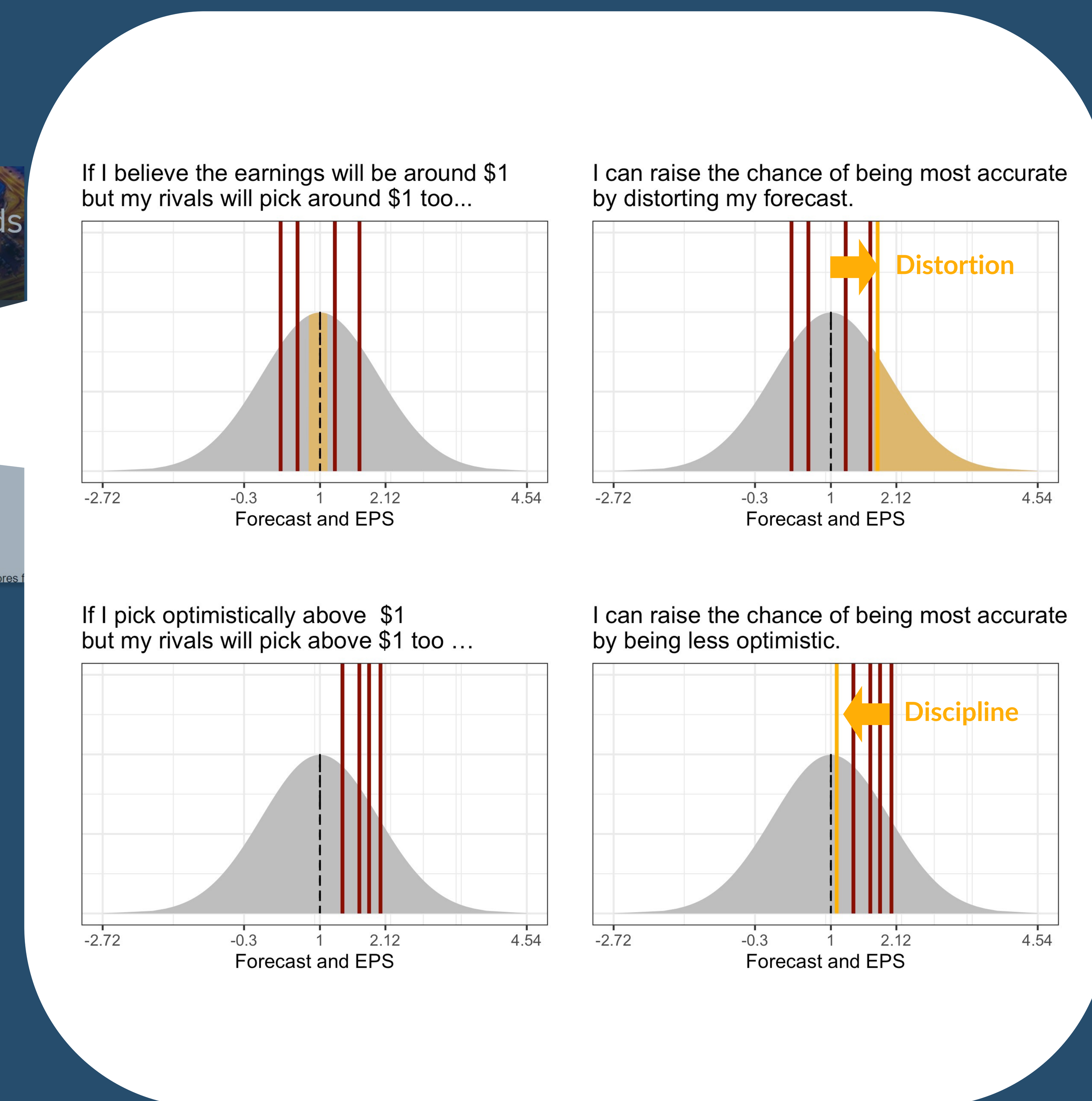
- X_{ijt} becomes more correlated with Z_{jt} when N_{jt} is higher

	$\lvert X_{ijt} - Z_{jt} \rvert$			X_{ijt}	
	OLS	2SLS		OLS	2SLS
$\log(N_{jt})$	0.033 (0.005)	0.061 (0.008)	$\log(N_{jt}) \times Z_{jt}$	0.026 (0.004)	0.025 (0.004)

Note: Analyst-security FE, year FE, lag instruments as controls. Security and analyst characteristics included for robustness checks. Only key variables are displayed.

Evidence shows analysts are rewarded for being *the most accurate* and for being *optimistic*.

How does that affect their strategy?



Financial analysts strategically distort their forecasts of security earnings to out-perform their peers.

[Click here for paper]

IDENTIFICATION:

The payoff function is identified from the variation in forecast strategy with the number of analysts N.

Example: winner-takes-all. Bigger increase in forecast error with N → Higher reward for the most accurate

ESTIMATION:

I fully solve the model for candidate parameters and match model outcomes to reduced-form correlations via **indirect inference/simulated method of moments.**

Auxiliary Regressions

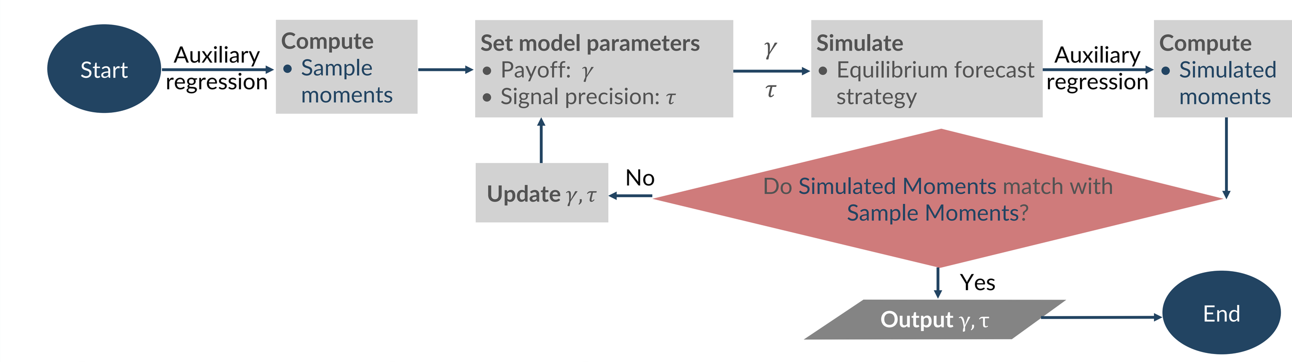
I regress $X_i, X_i - Z, 1(X_i > Z), |X_i - Z|$ on functions of Z and N and use the coefficients as moments.

Parametric Specifications

- $S_i = Z + \epsilon_i$, where $\epsilon_i \sim N(0, 1/\tau), Z \sim N(0,1)$
- Payoff function: reward for the most accurate. Results are robust with added parameter to capture convexity.

COMPUTATION DETAILS:

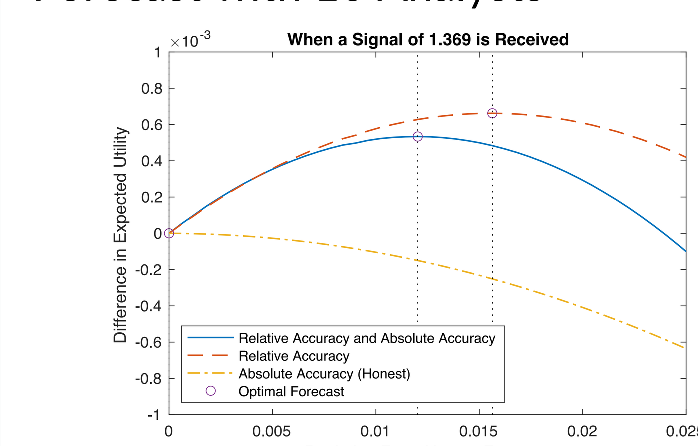
I solve the model by numerically solving the first order conditions at discretized state and signal points, and interpolate to generate model outcomes that are matched in estimation.



EQUILIBRIUM STRATEGY:

Example: Analysts' Problem Without Optimism

Difference in Expected Utility When Deviating from Honest Forecast with 10 Analysts



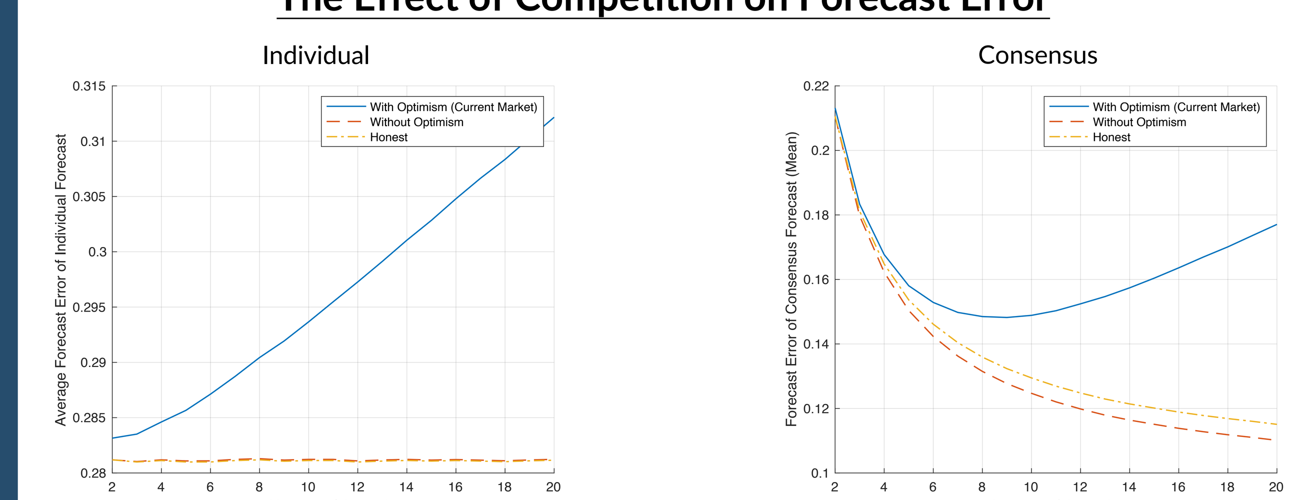
Analysts deviate in the direction of their signals without optimism

MAIN COUNTERFACTUALS:

The Effect of Payoff for Relative Accuracy on Information Quality

	Individual		Consensus	
Spec.	Avg. Forecast Err.	Forecast Var.	Forecast Err.	Forecast Var.
W/o Opt.	0.262 (0.09%)	1.813 (1.69%)	-3.371 (-2.63%)	12.387 (1.67%)
W/ Opt. (Current)	-0.150 (-33.29%)	0.004 (3.77%)	-0.239 (-58.45%)	0.032 (4.37%)

The Effect of Competition on Forecast Error



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