

# DO INVESTORS OVERREACT TO MANAGERIAL TONES?

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## ABSTRACT

This paper investigates whether investors overreact to managerial tones in financial statements and propose a new way to quantify the magnitude of overconfidence.

- I decompose managerial tones (textual signals) on multiple topics using a variant of Latent Dirichlet Allocation.
- Market reacts more to more informative signals, which have higher predictability about their future accounting counterparts.
- For S&P500 constituents, a simple counterfactual shows no evidence of overconfidence and overreaction.

## MOTIVATION

Managerial tones refer to the sentiments in corporate disclosure texts and are shown to be predictive of stock returns [1, 2]. Literature uses psychological biases (overconfidence) to explain this predictability. This paper tries to

- find some direct evidence on the existence of overconfidence.
- quantify the magnitude of the psychological bias.

## DISCUSSION

- Cross-sectional analysis indicates that overreaction is more salient for high-market-valuation firms.
- Overconfidence on public signals (managerial tones) leads to overreaction.
- The static setting only considers contemporaneous market reaction.

## REFERENCES

- [1] Tim Loughran and Bill McDonald. When is a liability not a liability? textual analysis, dictionaries, and 10-ks. *The Journal of Finance*, 66(1):35–65, 2011.
- [2] Fuwei Jiang, Joshua Lee, Xiumin Martin, and Guofu Zhou. Manager sentiment and stock returns. *Journal of Financial Economics*, 132(1):126–149, 2019.
- [3] Alex Edmans, Luis Goncalves-Pinto, Moqi Groen-Xu, and Yanbo Wang. Strategic news releases in equity vesting months. *The Review of Financial Studies*, 31(11):4099–4141, 2018.

## FRAMEWORK

- Intrinsic Value:  $v = \sum_{i=1}^N w_i f_i$ , where  $f_i \sim N(\mu_i, \sigma_i^2)$
- Public Signals:  $s_i = f_i + \varepsilon_i, \varepsilon_i \sim N(0, \sigma_{\varepsilon,i}^2)$
- Investors: bounded-rational and update beliefs by weighting between
  - Overconfidence scheme: (weight  $\chi$ ) ignore signal noisiness
  - Rational scheme: (weight  $1 - \chi$ ) follow Bayesian updating
- Equilibrium Price:  $p = \sum_{i=1}^N w_i [\chi s_i + (1 - \chi) s_i^*] + m * u$ 
  - $s_i^* = \frac{1}{1/\sigma_i^2 + 1/\sigma_{\varepsilon,i}^2} \left[ \frac{s_i}{\sigma_{\varepsilon,i}^2} + \frac{\mu_i}{\sigma_i^2} \right]$
- Implication
  - Investors' rationality implies zero coefficients on  $s_i$
  - Parameter  $\chi$  can be identified and proxy for investors' overconfidence.

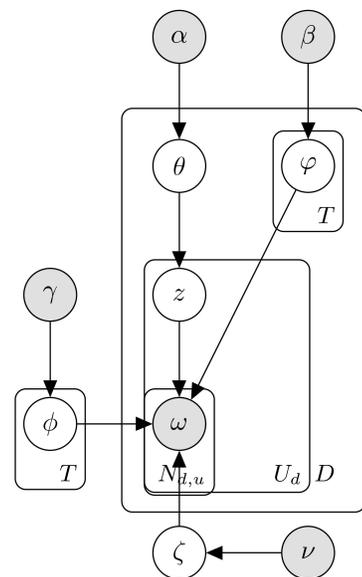


Figure 2: Topical Sentiment Analysis.

## MAIN RESULTS

Table 1: Counterfactual Experiments

Sample	(1)	(2)
Entire Sample	0.029	2.75
<b>Market Valuation</b>		
High	0.059	5.59
Middle	0.058	5.46
Low	-0.034	-3.21
<b>Size</b>		
Large	-0.005	-0.43
Medium	0.097	9.16
Small	-0.011	-1.06

This table reports the counterfactual experiments for full sample and subsample. Column (1) reports the number of basis points due to the existence of naive investors. Column (2) reports the number of basis points that naive investors overestimate compared to sophisticated investors.

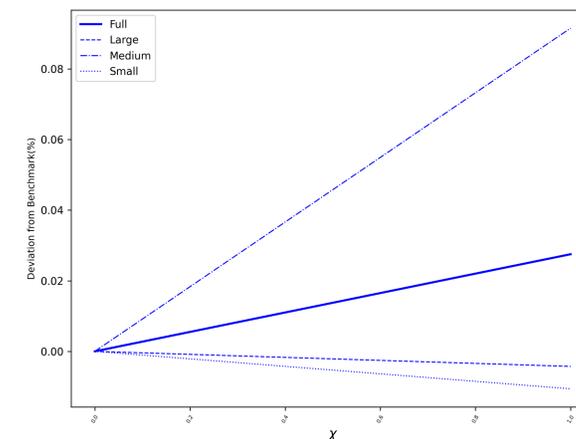
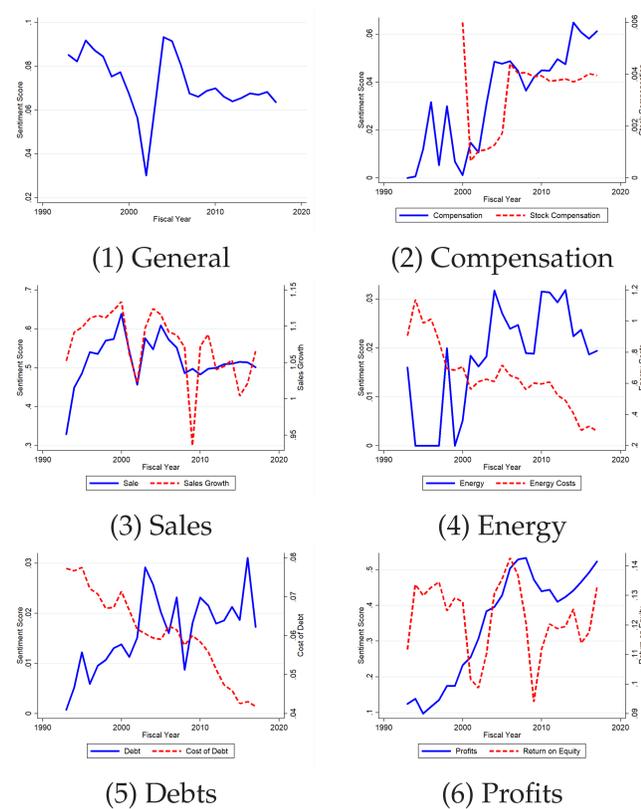
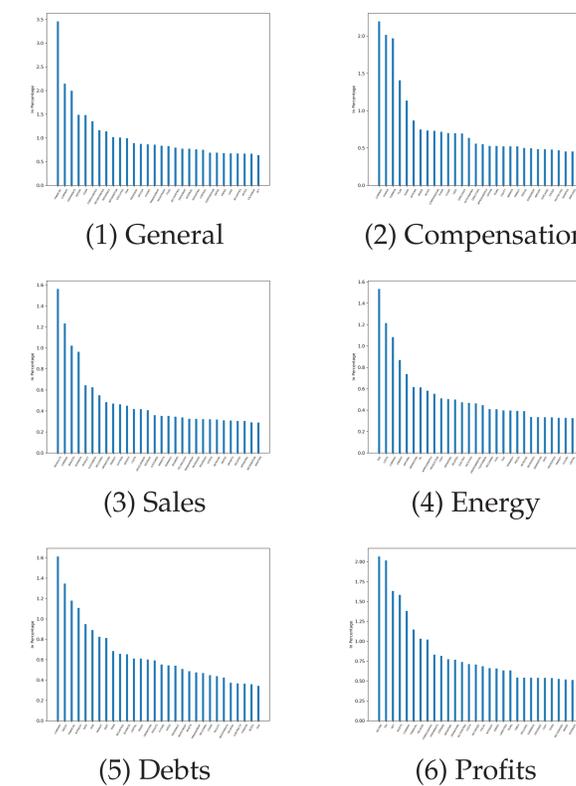


Figure 1: This figure shows how  $E[r_t - r_{t,\chi=0}]$  changes with  $\chi$ .

## SENTIMENTS



## TOPICS



## FUTURE WORK

- The sample can be extended to include 10-Q and earnings' call transcripts.
- Managers' disclosure decisions could be endogenized.