Investor (Mis)Reaction, Biased Beliefs, and the Mispricing Cycle

Rutgers Business School
Newark and New Brunswick

Azi Ben-Rephael, Steffen Hitzemann, Yuanyuan Xiao

Rutgers Business School, Rutgers University

Abstract

We construct a new measure that captures the disparity between the market reaction to earnings information and the earnings surprise (“Return-Earnings Gap”, “REG”). High REG scores positively predict analyst forecast errors and firm mispricing (overvaluation) scores, especially for build-up anomalies. Analyst forecast errors are slower to converge when REG provides confirming information. In turn, REG is positively predicted by analyst forecast errors and higher mispricing, leading to a continuation of firm overvaluation over a few quarters. Overall, our results reveal how the market’s (mis)reaction feeds back into the belief formation of analysts, which partially explains the slow correction of firm mispricing.

*R*eturn-*E*arnings *G*ap (*REG*)

For each earnings announcement of firm i on day t, we independently sort all earnings announcements over the past year (including day t) by their daily characteristics-adjusted abnormal return ($DGTW$) and their earnings surprise ($AdjSUE$) into 1,000 bins. We denote the relative rankings of its $DGTW_{i,t}$ and $AdjSUE_{i,t}$ as $Rank_{i,t}^{DGTW}$ and $Rank_{i,t}^{AdjSUE}$, respectively. We then define REG as follows:

$$REG_{i,t} = \frac{Rank_{i,t}^{DGTW} - Rank_{i,t}^{AdjSUE}}{(1{,}000-1)+(1{,}000-1)}$$

The REG measure ranges from -0.5 (the most negative gap) to 0.5 (the most positive gap).

REG and Formation of Beliefs

The gap between market reaction and firm’s earnings information measured by REG is consistent with a reflection of **investors’ beliefs**:

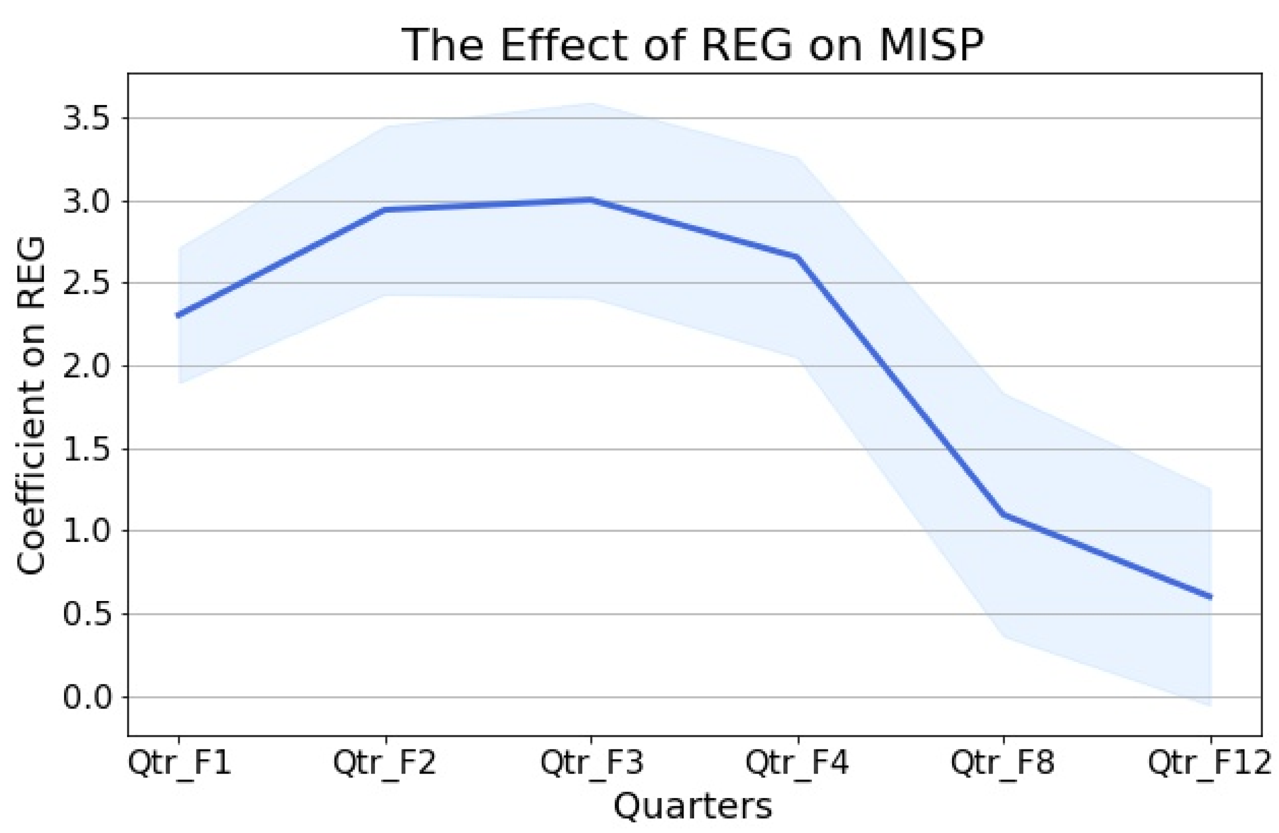
- Overall, the observed stock price reaction on the earnings announcement day is permanent.
- Institutional investors’ net buying is positively and significantly correlated with REG, reflecting their beliefs.

The market reaction to earnings information feeds back into and distorts the analysts’ expectation formation:

- A rise in REG leads to an increase in the next quarter’s analyst forecast errors.
- Analyst forecast errors are slower to converge when REG provides confirmatory information (21.38% – 45.96% larger than the disconfirmed).

Mispricing Cycle: SYY MISP

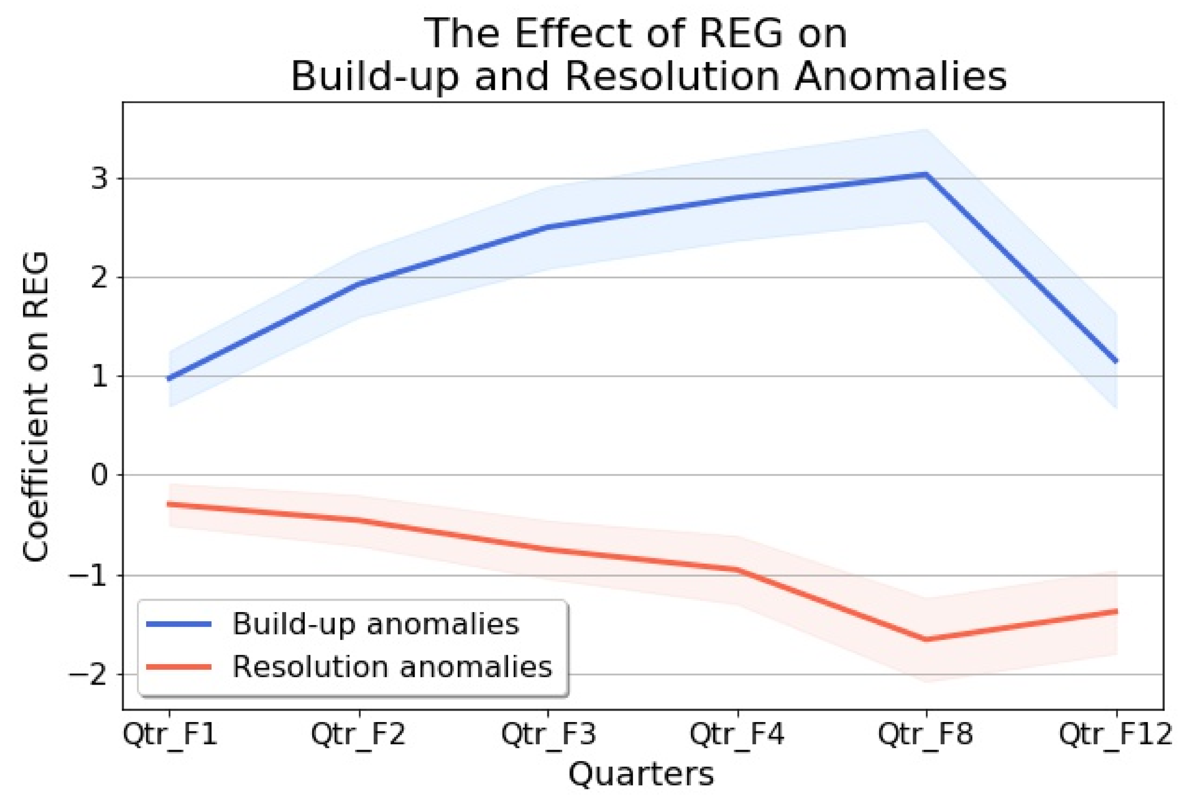
Exploring the effect of REG on Stambaugh, Yu, and Yuan (2015) $MISP$ scores, REG positively affects a stock’s degree of mispricing in the subsequent quarters.



- The effect gradually escalates and peaks in the 3rd quarter following the earnings announcement.
- After that, it attenuates and then decays sharply to be no longer significant after 12 quarters.

Mispricing Cycle: Build-Up and Resolution Anomalies

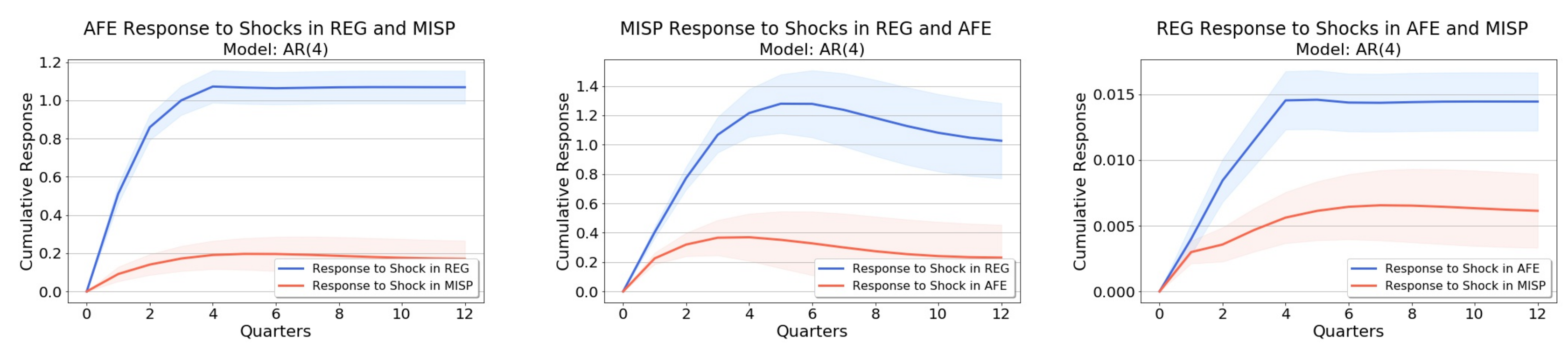
To further explore the impact of REG on stock mispricing, we extend our analysis to anomalies within different clusters: build-up and resolution anomalies. The effects of REG on the new mispricing scores $MISP_{BUILD}$ and $MISP_{RES}$ show a stark difference.



- Build-up anomalies: A high REG intensifies the mispricing and it takes up to 2 years to reach its peak.
- Resolution anomalies: A high REG predicts the resolution of stock mispricing.

Dynamic Interrelation

To investigate the dynamic interrelation among REG, AFE, and $MISP$ we use a VAR and plot the impulse responses of REG, AFE, and $MISP$ to a one-standard-deviation shock to each other.



- Higher REG leads to greater AFE and $MISP$.
- In turn, greater AFE and $MISP$ also lead to higher REG.

→ A dynamic amplification effect

Conclusion

1. We construct a new measure capturing investors’ (mis)reaction to earnings information.
2. We show that investors are likely to take into account the (biased) actions of other investors when forming their expectations. Consequently, expectations formation across investors is a dynamic process, which feeds back and results in an amplification effect of investors’ initial bias.
3. We find that an increase in REG leads to higher mispricing scores, which keep rising for three quarters before they decay. This effect is especially pronounced for build-up anomalies, for which the mispricing scores take two years to reach the peak before attenuating.