UNC KENAN-FLAGLER BUSINESS SCHOOL

Expectations in the Cross Section:

Stock Price Reaction to the Information in Bias and Analyst-Expected Returns

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The Paper in a Nutshell...

$$\overline{R}_t^A = \mathbb{E}[R_{t+1}|\mathcal{F}_t^M] + \mathbb{E}[R_{t+1}|\mathcal{F}_t^A] - \mathbb{E}[R_{t+1}|\mathcal{F}_t^M] + \overline{R}_t^A - \mathbb{E}[R_{t+1}|\mathcal{F}_t^A]$$

- The market-based expected return can be inferred by the investor
- The analyst's information component captures the (potential) improvement in estimating expected returns due to her superior information
- The analyst's bias captures how her reporting deviates from the rational expectation giving her information set
- The investors should update his expectation once $\overline{R}_t^A$ is reported. However, he should only react to the information component, not to the bias

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Estimating the Bias

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- Note that the investor can only observe the spread
  $S_t = \overline{R}_t^A - \mathbb{E}_t[R_{t+1}|\mathcal{F}_t^M]$
  not the information or the bias separately (depend on $\mathcal{F}_t^A$)

- Projecting the spread onto $\mathcal{F}_t^M$ yields
  $S_t = \mathbb{E}[S_t|\mathcal{F}_t^M] + \epsilon_t = \mathbb{E}[\mathrm{Bias}|\mathcal{F}_t^M] + \epsilon_t$

- So, the investor has an estimate for the bias,
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Bayesian Updating of Expected Returns

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$$\mathbb{E}[R_{t+1}|\mathcal{F}_t^M, \overline{R}_t^A] = (1-\theta)\cdot\mathbb{E}[R_{t+1}|\mathcal{F}_t^M] + \theta\cdot(\overline{R}_t^A - b_t)$$

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  2. Prices are not expected to change: $\widehat{\mathbb{E}}[P_{t+1}|\mathcal{F}_t] = P_t$

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Main Result

$$\mathbb{E}[R_{t,t+n} | \mathcal{F}_t^M, \overline{R}_t^A] = \delta_n \cdot i_t + \gamma_n \cdot b_t$$

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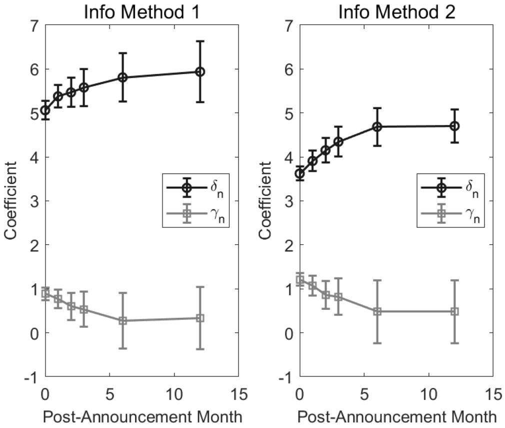

Outline

The Paper

Comments

Final Remarks

Assumptions 2 and 3

- Assumptions 2 and 3 effectively imply $\mathbb{E}[R_{t,t+n}|\mathcal{F}_t^M] = 0$ and that is why you do not need to control for $\mathbb{E}[R_{t,t+n}|\mathcal{F}_t^M]$ in:

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- Inconsistent methodology: uses $\mathbb{E}[R_{t+1}|\mathcal{F}_t^M]$ to get b_t, but then assumes $\mathbb{E}[R_{t,t+n}|\mathcal{F}_t^M] = 0$ for the test
- Correlation between $\mathbb{E}[R_{t+1}|\mathcal{F}_t^M]$ and i_t or b_t is a problem
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- Use this test (with your $\mathbb{E}[R_{t+1}|\mathcal{F}_t^M]$, not from Kelly et al)

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- Use this test (with your $\mathbb{E}[R_{t+1}|\mathcal{F}_t^M]$, not from Kelly et al)

Assumptions 2 and 3

- Assumptions 2 and 3 effectively imply $\mathbb{E}[R_{t,t+n}|\mathcal{F}_t^M] = 0$ and that is why you do not need to control for $\mathbb{E}[R_{t,t+n}|\mathcal{F}_t^M]$ in:

$$\mathbb{E}[R_{t,t+n}|\mathcal{F}_t^M, \overline{R}_t^A] = \delta_n \cdot i_t + \gamma_n \cdot b_t$$

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- Inconsistent methodology: uses $\mathbb{E}[R_{t+1}|\mathcal{F}_t^M]$ to get b_t, but then assumes $\mathbb{E}[R_{t,t+n}|\mathcal{F}_t^M] = 0$ for the test
- Correlation between $\mathbb{E}[R_{t+1}|\mathcal{F}_t^M]$ and i_t or b_t is a problem
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Assumption 3

- Assumption 3 is needed beyond $\mathbb{E}[R_{t,t+n}|\mathcal{F}_t^M] = 0$ (even in the model with discounting)

- You need $\mathbb{E}[P_{t+1}|\mathcal{F}_t^M] - \mathbb{E}[P_{t+1}|\mathcal{F}_{t-1}^M]$ to be zero (or orthogonal to b_t, i_t) because otherwise returns might be responding to this information as opposed to b_t, i_t

- But price updates are likely to be endogenous to information arrival

- A price update for Google when nothing happens probably has a different informativeness than a price update after Google announces a new technology

- You should at least provide robustness in which $\mathbb{E}[R_{t+1}|\mathcal{F}_t^M] - \mathbb{E}[R_{t+1}|\mathcal{F}_{t-1}^M]$ is controlled for in the regressions

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Alternative i_t Measure

- For the $\bar{i}_t$ measure, the assumption is that the bias contained in the "stale" prices is the same as the one contained in the updated prices
- Can you check this assumption by showing that $\widetilde{R}_t - \overline{R}_t$ does not systematically over/under predict for different subgroups of stocks?
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Other Comments...

- Double sorted portfolios to control for $\mathbb{E}[R_{t+1}|\mathcal{F}_t^M]$ and $\mathbb{E}[R_{t+1}|\mathcal{F}_t^M] - \mathbb{E}[R_{t+1}|\mathcal{F}_{t-1}^M]$
- Use NYSE Breakpoints for value-weighted portfolios and exclude microcaps for equal-weighted portfolios (Hou, Xue, and Zhang (2017))
- Underreaction to i_t is stronger among smaller stocks while overreaction to b_t is stronger among larger stocks. Why?
- Overreaction disappears in the second half of the sample (as investors learn) while underreaction remains strong. What can we learn from this?
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Outline

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    - Show that $\bar{i} = \widetilde{R}_t - \overline{R}_t$ does not contain any bias
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