How do analysts forecast earnings and what do they do with these forecasts?

Mark T. Bradshaw
CARE Conference
April 8, 2006
Hearsay

- “Every paper this semester has been on analysts”
  - Chicago GSB faculty (various), seminar, 2005

- “No analyst papers”
  - Ron Dye, Emory, 2006

- “Long in the tooth”
  - John Hand, FARS meeting, 2006

- “You have been given the topic held in the most disdain by researchers”
  - Jeff Abarbanell, recent phone conversation
Assigned questions

1. How do analysts forecast earnings?
2. What do they do with these forecasts?

Prelude of conclusions:

- We don’t really know
- Are we on track to find out?
Caveat

- Not a literature review
- Many comments applicable to other research

Reviews in print

  - incl. discussions by J. O’Hanlon, J. Thomas, P. Brown, and M. Zmijewski
Why did we study analysts?

- Early research on valuation and ERCs
  - Expectations drive prices
  - Time-series earnings models

- Analysts’ forecasts deemed a better substitute
  - Fried and Givoly (1982)
Why do we still study analysts?

- **Data availability**
  - *FirstCall-I/B/E/S, Value Line, Zacks, others*

- **Distributions to analyze**
  - *Forecast accuracy, bias, dispersion, etc.*

- **Correlations to compute**
  - *forecasts and prices, forecasts and _____, etc.*

- **Our interest in how capital markets operate**

- **Birth of a new literature**
  - *Analysts as an economic agent*
  - *Incentives, information processing, use of accounting data, etc.*
Schematic

Covered decisions:
- Prices
- Firm-specific
  - Financials
  - Managers
  - Suppliers
  - Customers
  - Competitors
- Calls and visits
- Industry knowledge
- Macroeconomic

Information → Analysis

Communication (Formal)
- Reports (forecasts, rec.)
- Morning notes/calls
- Marketing trips

Communication (Informal)
- Brokerage clients
- Comments to the press
- Management access
- Meetings/conferences
- Special services

Ability, incentives, integrity/professionalism, responsiveness, etc.
Schematic

**Information**
- Prices
- Firm-specific Prices
- Financials
  - Managers
  - Suppliers
  - Customers
  - Competitors
  - Calls and visits
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**Ability, incentives, integrity/professionalism, responsiveness, etc.**
Incomplete timeline

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<tr>
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<td>Easterwood &amp; Nutt JF1999</td>
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<td>Bradshaw, Richardson, &amp; Sloan JAR2001</td>
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- 1968: Cragg & Malkiel JF1968
- 1968: Elton & Gruber MS1972
- 1975: Barefield & Comiskey JBR1975
- 1978: Fried & Givoly JAE1982
- 1990: O’Brien JAR1990
- 1990: Stickel JAR1990
- 1993: Francis & Philbrick JAR1993
- 1999: Michaely & Womack RFS1999
- 1999: Mikhail, Walther, & Willis AR1999
- 1999: Philbrick & Ricks JAR1991
- 2003: Hong & Kubik JF2003
- 2003: Gu & Wu JAE2003
- 2004: Basu & Markov JAE2004
- 2005: Raedy, Shane, & Yang CAR2006

Analysts vs. time-series models

- Analysts’ incentives

Refinements/extensions
#1 “Analysts’ forecasts are optimistic”

- **What forecasts?**
  - Quarterly, annual, growth, target prices

- **At what horizon?**
  - Months, years

- **Selection bias**
  - Absence of bad news
  - Longer time to downgrades

- **Data issues**
  - Actual earnings
  - 1992
  - ‘Tail asymmetry’ (Abarbanell and Lehavy JAE2003)
#2 “Analysts are better than time-series models”

- Again, horizon is important
  - *Information vs. timing advantages*

- **Define ‘better’**
  - 16% vs. 19%?

- **Other forecasting literature concludes opposite**
  - *Interest rates (Belongia 1987)*
  - *GDP (Loungani 2000)*
  - *Recessions (Fintzen and Stekler 1999)*
  - *Turning points of business cycles (Zarnowitz 1991)*

- **With/without management assistance**
  - *Soffer, Thiagarajan, and Walther (2000)*
#3 We think we know how analysts forecast

- **Correlations**
  - *Contemporaneous public information ⇔ Forecast error*
  - *Most studies take the form,  \( \text{Forecast Error} = \alpha + \beta X \)
    - where \( X = \)Past \( \Delta \)earnings, \( \Delta \)prices, or forecast errors
    - Financial statement variables, footnotes
    - Management forecasts
    - Macroeconomic variables, etc.
  - *Associations, not behavior*

- **Do we believe analysts forecast like we teach our MBAs to forecast?**
  - *Top-line forecasts, line-items, net=EPS forecast*
  - *Role of management forecasts*
#4 “Analysts’ forecasts are inefficient”

- **Over- vs. underreaction**
  - Past earnings, past prices, past forecast errors
  - Financial statements, management forecasts, etc.

- **“Not fully” conclusions**
  - Instead of measuring $\text{corr}(AV, V_{of\_l})$ we measure $\text{corr}(AV, V_{of\_l})$
    where $V_{of\_l}=V_{of\_l}+\text{error}$
  - Correlations based on latter $<< 1$

- **Data issues problem (again)**
#5 Limited evidence on what analysts do with forecasts

- **Trade-off accuracy for optimism**
  - *Francis and Philbrick (1993)*

- **Earnings explain price forecasts**
  - *Bandyopadyhay, Brown, and Richardson (1995)*

- **More accurate forecasts \(\Rightarrow\) more profitable recommendations**
  - *Loh and Mian (2005)*

- **P/E multiples**
  - *Previts et al. (1994), Bradshaw (2002)*

- **PEG heuristics**
  - *Bradshaw (2004)*

- **Emphasis on qualitative factors**
  - *Barker (1999), Asquith, Mikhail, and Au (2005)*
#6 Most research ignores analysts' multi-tasking

- Schipper (1991)

- Analysts provide numerous (quantitative) data points
  - *Earnings forecasts (quarterly, annual)*
  - *Recommendations*
  - *Growth projections (of earnings)*
  - *Target prices*
  - *Risk ratings*

- Exceptions
  - *Prior slide*
  - *Recent attempts to penetrate the black box*
Unscientific/imperfect measure of single variable vs. multi-tasking analyses

- ABI/INFORM Global search of abstracts within ‘Scholarly Journals’
  - analyst+earnings 867 articles
  - analyst+recommendation 149 articles
  - analyst+long+term+growth 54 articles
  - analyst+target+price 14 articles
  - analyst+earnings+recommendation 27 articles
  - analyst+earnings+long+term+growth 22 articles
  - analyst+earnings+target+price 3 articles
  - analyst+earnings+recommendation+long+term+growth 1 article
#7 Analyst data are helpful for capital markets literature

- e.g., PEAD, IPO/SEO, value/glamour, accruals, etc.
#8 “Analysts are dominated by conflicts of interest”

- **Investment banking**
  - *Forecasts of affiliated analysts are too optimistic*

- **Curry favor with management**
  - *Analysts are most optimistic when they are less likely to be held accountable*
  - *Analysts censor negative views on a firm*

- **Trade generation incentives**
  - *Smaller brokerages issue more optimistic forecasts and recommendations*

- **However, reputation matters**
## Prior results on affiliation effects

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Everyone is optimistic around IPOs and SEOs

Stock recommendations

Target price forecast errors
#9 We may be focusing on the least important activities

- Accountants like measurement

- Measurement is ‘easy’ for:
  - Earnings forecasts, forecast revision, forecast error
  - Returns
  - Stock recommendations, etc.

- Measurement is not so easy for:
  - Analysis of strategy, industry dynamics, competition
  - Assessment of quality of management
  - Providing management access
  - Being accessible/responsive
  - Performing special services
## What consumers of analyst research want

*(Institutional Investor Rankings)*

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## What consumers of analyst research want (cont.)

(*Institutional Investor Rankings*)

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What consumers of analyst research want (cont.)

**(Institutional Investor Rankings)**

| (#2) Integrity/professionalism       | 0.13 |
| (#3) Accessibility/responsiveness   | 0.12 |
| Management access                   | 0.11 |
| Timely calls and visits             | 0.07 |
| Communication skills                | 0.06 |
| Financial models                    | 0.05 |
| Management of conflicts of interest | 0.04 |
| Special services                    | 0.01 |

| (#1) Industry knowledge          | 0.00 |
| Primary market services           | 0.00 |
| Market making                     | -0.02|
| Written reports                   | -0.02|
| Quality of sales force            | -0.04*|
| Servicing                         | -0.05|
| Earnings estimates                | -0.06*|
| Stock selection                   | -0.10***|
First, Larcker and Lessig (AR1983)

- Experimental task: ‘BUY’/’NO-BUY’ decision on 45 stocks
- Linear models vs. retrospective process tracing for predictive validity and cue importance identification

Findings
- Both had reasonable predictive validity
- Measures of cue importance often dissimilar

If research goal is prediction of judgment,
- Either method is reasonable;
  linear model preference given lower cost and complexity

If research goal is understanding what information is used and how it is used,
- “[A] process tracing procedure seems to be required”
#10 Empirical financial researchers eschew alternative methodologies (cont.)

- Multi-method research strategies
  - Archival studies that go beyond regressing forecast error on __________
  - Surveys/interviews
  - Process tracing methods
  - Transcript or content analysis
  - Experiments

- Well-known criticisms
  - Small sample sizes
  - Non-rigorous methodologies
  - The ‘Descriptive’ denigration

- Costly, messy, or simply new
  - Mayew (2006) is a recent example
Conclusion

- We have learned a lot
- Analyst-specific research focuses on a narrow set of analyst outputs to draw conclusions about
  - what they do; and
  - how they do it and how well they do
- Focus of our research has been
  - mostly restricted to variables that can be quantified
  - typically on one variable in isolation
  - disproportionately on a possibly low importance activity (i.e., earnings forecasts)
- Studies that attempt to penetrate the ‘black box’ have (in the past) received less attention
- Interesting juncture
  - $1.4B settlement
  - NASD2711/NYSE472
  - Independent research requirement
  - Trend towards paying for coverage
“That is not to say, however, that researching the ‘same old’ issues using the ‘same old’ methodologies will be informative. For example, it is unlikely that another study …

[correlating forecast errors and _FILL IN THE BLANK_] … will provide any useful insights.”

“It will, naturally, become more and more challenging to identify interesting questions and to design interesting and meaningful empirical tests.”

Mark Zmijewski, 1993