The Role of Media in the Stock Market

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News and Finance Conference
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Roles of Financial News

- Attracts attention
  - To important current events

- Conveys information
  - About the macroeconomy, industries, and firms
  - About politics, laws, and regulations

- Influences beliefs
  - Provides compelling interpretations of events
News Selection and Promotion

- Thousands of events occur around the world every day.
- Investors notice and recall a small subset of these events:
  - Humans have finite attention and imperfect memories.
- Media focuses attention and aids memory by exploiting cognitive heuristics:
  - Investors attend to salient stimuli that stand out.
  - They recall memories that are easily available.
    - Journalists try to find or construct dramatic stories.
Anatomy of a Headline

- **Salience**
  - Big and bright
  - Evocative language
    - Strips, churn, squirm

- **Availability**
  - Story-telling
  - Last-minute standoff
  - Wild ride

- **Drama**
  - Unprecedented

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S&P Strips U.S. of Top Credit Rating

Unprecedented Downgrade Comes After Last-Minute Standoff; Treasury Says Decision Is ‘Placed by a $2 Trillion Error’

Markets Go On Wild Ride

As the Financial World Churns, Traders Squirm

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Investor Overreaction

- Attention promotes overreaction
  - “Nothing is as important as you think it is while you’re thinking about it.” - Daniel Kahneman, Nobel laureate

- Stories about the stock market direct investor attention

- Do investors overreact to such stories?
  - Need to measure a news story’s content to test this idea
Staying “Abreast of the Market”

- Many journalists (and traders) offer explanations of why the market moved—with the benefit of hindsight

Fed policy
Housing market
Oil supply

Exchange rates
Innovation
War

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A Simple Content Measure

- Tetlock (2007, *JF*) measures the frequency of positive and negative words in a daily column
  - *Wall Street Journal*, “Abreast of the Market” column
  - Negative words in the Harvard psychosocial dictionary include:
    - “fear,” “worry,” “disappoint,” “collapse,” “flaw,” and “ruin”
  - Compute the relative frequency of both word categories
    - E.g., *negativity* = negative words / total words

- Stock price drops are *correlated* with negative words

- Does the market respond appropriately to these words?
Example: Quantifying Content

- **WSJ “Abreast of the Market” column on Feb 17, 2009**
  - Headline: *Market’s ‘Hope Balloon’ Loses Air; Tepid Upturns Haven’t Stopped the Slide*
  - Financial markets are supposedly driven by two competing forces: *fear* and greed. *Fear* just made another *grab* for the steering wheel.
  - **Disappointment** with the government’s planned credit-market bailout and *concerns* that the $787 billion stimulus plan won’t jolt the economy fast enough snuffed out the budding stock-market rally. Now investors are *worried* that stocks could fall back to their November *lows* -- and possibly even farther.

- **Method:** Compute negativity in each day’s column
  - E.g., 9 negative / 82 words = 11.0% -- much higher than usual
Negativity Predicts DJ Index

Cumulative Returns on the DJ Index (Basis Points)

Days After the Initial Negativity Shock

Prices drop by 7 bps on day 1

Prices fully rebound by day 4

Cumulative Returns on the DJ Index (Basis Points)

Cumulative Returns on the DJ Index (Basis Points)

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Reactions Are Linked with Beliefs

- Journalists’ powerful techniques influence beliefs
  - Use evocative imagery
  - Use emotional language
  - Focus on people

- Study of *WSJ* “Abreast of the Market” (1970-2007)
  - Different journalists write the column each day
  - Journalists differ in their writing styles (e.g., optimism)
  - Stock prices increase after days with an optimistic author
  - See Dougal, Engelberg, Garcia, and Parsons (2012, *RFS*)

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Which News Is Informative?

- It’s difficult to distinguish news from noise
  - The broad stock market (S&P 500) is in the news every day
  - But individual firms only sometimes make the news
    - Depends partly on whether important and relevant news occurs

- “It’s amazing that the amount of news that happens in the world every day just exactly fits the newspaper.”
  - Jerry Seinfeld
Information in Firm News

- Much financial news is genuinely informative
  - Often relates to the future earnings of firms’ businesses

- Tetlock et al. (2008, *JF*) analyze firm news
  - *DJ* newswire and *WSJ* stories about S&P 500 firms
  - Most news about firms doesn’t make the front page
  - Compute negativity scores for these firm-specific stories
  - Examine outcomes before and after negative stories
    - Firms’ earnings
    - Firms’ stock prices
Fundamental Content Is Important

- Coverage patterns suggest earnings news is important
News Content Predicts Firm Earnings

Cumulative Standardized Unexpected Earnings

Fiscal Quarter Relative to News Release

Positive News

Negative News

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Brief Underreaction to Information

Trading Day Relative to Story Release

Cumulative Abnormal Returns (in Basis Points)

- Difference WSJ
- Difference DJNS
- Positive WSJ
- Positive DJNS
- Negative WSJ
- Negative DJNS

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Underreaction to Earnings News

- Focus on stories that mention “earnings”

Cumulative Abnormal Returns (in bps)

Trading Day Relative to Story Release
Interpreting Firm News

- Investors can’t attend to all relevant news
- They underreact to relevant news that’s not featured
- Underreaction increases with news relevance
  - Stories about earnings are especially predictive of firm value

- Do investors overreact irrelevant news?
New News vs. Stale News

- News often arrives in sequences of related stories
  - Inattention to initial news could cause investors to react to subsequent (partially) stale news as if it were brand new

- Theory: Market prices should react more to new news
  - Practice: “People everywhere confuse what they read in the newspapers with news” – A.J. Liebling

- Tetlock (2011, \textit{RFS}) study of stale news about firms
  - Data: DJ news archive from 1996 to 2008
  - Staleness = similarity of a story to previous stories about the firm
    - E.g., 90 words overlap / 150 words = 60% staleness
Extreme Case of Stale News

- Consider market activity in United Airlines’ stock
  - United Airlines filed for bankruptcy in 2002
    - Two published studies of the market reactions to this event

- 2002 United bankruptcy story was new
  - ~100% stock price decline; no rebound

- The firm exited bankruptcy in 2006
  - On Sept. 7, 2008, United’s stock market cap is $1.6B
United Stock on Sept 8, 2008

- Google News posts a 6-year-old Chicago Tribune story about United’s 2002 bankruptcy
  - United’s stock falls 76% within minutes
    - The stock rebounds but remains down 11% on the day
Reactions to Stale News

- Stock prices react less to stale stories
  - Presumably, stale stories are less informative

- Still, prices overreact to stale stories
  - Price reactions to stale stories tend to reverse
Key Lessons from Research

- Bidirectional links between media and markets

- Market prices reflect both news and noise
  - Overreact to non-information
    - Sensationalist news that grabs investor attention
    - False or stale news when investors aren’t paying attention
  - Underreact to genuine information
    - Substantive news—e.g., news about earnings
    - News that’s not featured—e.g., firm news in the back pages
Closing Remark

- Amount of news and ability to process it have increased
  - Links between media and markets are constantly evolving

**Dow Jones News Archive Size over Time**

- Monthly News File Size
- 3-Year Trailing Moving Average

File Size in Megabytes of Monthly Dow Jones News (Log Scale)

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