Discussion of "Narrative Momentum"

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Examples of Long and Short Stocks

A Rise in Narrative: "War Explosion"

- **Buy (Long): Lockheed Martin (LMT)**
  - Defense contractors benefit from increased demand for military equipment during geopolitical instability.
  - Positive beta to rising negative intensity of "War Explosion."
- **Sell (Short): Delta Airlines (DAL)**
  - Airlines are negatively impacted by rising geopolitical risks due to reduced travel demand and higher fuel costs.
  - Negative beta to rising negative intensity of "War Explosion."

Key Contribution

- Novel evidence of investor underreaction to economic narratives
- Stronger effect for slowly trending narratives
- Strategy tested over 2013–2023, using 347 narratives derived from MKT MediaStats using 23,000+ digital media sources

Main Results

- Long-short portfolio based on narrative beta changes generates annualized returns of 8.42%.
- Significant alpha of 7.30% (t-statistic: 2.42) over Fama-French 6-factor model.
- Results are robust to controlling for price momentum, factor momentum, and industry effects.

Comments: Methodological Innovation

- Novel approach to measuring firm-narrative exposure:

$$r_{i,w} = \alpha_i + \beta_{m,i} r_{m,w} + \beta_{n,i} \Delta \text{Intensity}_{n,w} + e_{i,w}$$

- Change in intensity:

$$\Delta \text{Intensity}_{n,t} = \frac{\sum_{k=t-1}^{t-6} \text{Intensity}_{n,k}}{6} - \frac{\sum_{k=t-7}^{t-12} \text{Intensity}_{n,k}}{6}$$

- Narrative intensity definition:

$$\text{Intensity}_{n,t} = \frac{\text{Number of negative articles about narrative } n \text{ at time } t}{\text{Total number of articles about narrative } n \text{ at time } t}$$

- Based on negative words from Loughran and McDonald (2011)
- How do you define negative articles? 50% of negative words or more?
- Scaled to [0,1] by definition (fraction of negative articles)

Methodology Overview

- **Step 1**: Compute Narrative Betas
  - Regress weekly stock returns on changes in narrative intensity (rolling 52-week window)
- **Step 2**: Rank Stocks by Beta Levels
  - Identify top 25 stocks with highest betas (long) and bottom 25 stocks with lowest betas (short) for each narrative
- **Step 3**: Aggregate Across Narratives
  - Use top 10 rising narratives and bottom 10 declining narratives
  - Equal or intensity-based weighting schemes

Methodology: Implementing the Strategy (December 2024)

1. **Calculate Narrative Intensity Changes:**
   - For each narrative, compute change in negative intensity:
   - Recent period (June-Nov 2024) minus earlier period (Dec 2023-May 2024)
2. **Estimate Stock Narrative Betas:**
   - Use weekly data from Dec 2023 to Nov 2024
   - Run regression: $r_{i,w} = \alpha_i + \beta_{m,i} r_{m,w} + \beta_{n,i} \Delta \text{Intensity}_{n,w} + e_{i,w}$
3. **Form Portfolios:**
   - For each narrative: Long top 25 stocks (highest $\beta_{n,i}$), short bottom 25 (lowest $\beta_{n,i}$)
   - Identify top 10 narratives with largest intensity increases
   - Identify bottom 10 narratives with largest intensity decreases

1. **Construct Strategy:**
   - Long: Equal-weight portfolios of top 10 rising narratives
   - Short: Equal-weight portfolios of bottom 10 declining narratives
2. **Hold for 6 months** (December 2024 - May 2025)

Comment: Replacing Change in Intensity with Autocorrelation

- Revised regression framework:

$$r_{i,w} = \alpha_i + \beta_{m,i} r_{m,w} + \sum_n \beta_{n,i} \text{Autocorrelation}_{n,t} + \epsilon_{i,w}$$

- Formula for autocorrelation:

$$\text{Autocorrelation}_{n,t} = \frac{\text{Cov}\left(\text{Intensity}_{n,\text{Recent}}, \text{Intensity}_{n,\text{Previous}}\right)}{\sqrt{\text{Var}\left(\text{Intensity}_{n,\text{Recent}}\right) \cdot \text{Var}\left(\text{Intensity}_{n,\text{Previous}}\right)}}$$

- Time periods used:
  - $\text{Intensity}_{n,\text{Recent}}$: Average intensity over $t-1$ to $t-6$.
  - $\text{Intensity}_{n,\text{Previous}}$: Average intensity over $t-7$ to $t-12$.
- Practical implications:
  - Captures narrative persistence across medium-term periods.
  - Provides a consistent framework for analyzing narrative momentum.
  - Highlights stable, long-lasting narratives that might better align with investor attention.

Comment: Make each beta pure play

- Revised regression framework:

$$r_{i,w} = \alpha_i + \beta_{m,i} r_{m,w} + \sum_n \beta_{n,i} \Delta \text{Intensity}_{n,w} + \epsilon_{i,w}$$

- Motivation:
  - Incorporating changes in intensity for multiple topics ensures pure play narrative exposure.
  - Controls for overlapping effects between related narratives (e.g., "war" and "inflation").
  - Use Lasso, Ridge Regression, or VIF to select narratives to handle multicollinearity and identify the most impactful narratives.
- Practical benefits:
  - Ensures robustness by accounting for correlated narratives.
  - Improves economic interpretation by isolating the impact of each narrative.

Comments: Theoretical framework

- **Cross-sectional variation:** Stronger effects for:
  - Narratives with smoother intensity changes (frog-in-the-pan hypothesis)
  - Narratives with higher prior intensity levels
  - Narratives with longer persistence (quarter-life)
  - What are these narratives?
- **Theoretical framework:** Underdeveloped explanation for persistence of narrative momentum
- **Economic Interpretation:**
  - Limited explanation of why specific narratives (e.g., inflation, war) drive stronger momentum.

Comments: Blackbox data

Data advantage:

- Vast dataset; rely on the MKT MediaStats data
- How is each narrative constructed? LDA? Word2Vec? What does it mean?
- What are the sources? English and non-English? How do you clean it?

Narrative selection: Potential forward-looking bias in 294 non-evergreen narratives

- Use topics from Bybee et al (2024) but the return is 2% lower
- Use 53 evergreen topic (only 15% of the total narratives)

Comment: Short sample period

Short sample period (2013-2023): Limits statistical power and generalizability

Beta estimation: 52-week rolling window may introduce substantial noise

- Longer windows (e.g., 104 weeks) could reduce noise but may be less responsive
- Alternative: Use shrinkage methods

Use longer data from one or two source

- Bybee et al (2024) use WSJ from 1980s
- Hirshleifer, Mai and Pukthuanthong use WSJ and NYT from 1860s
- Long-term data strengthens the inference of risk and return relationships.

Comments: How to apply?

- Sharpe ratio greater than 1.7?
- Utility gain
- Transaction costs
- Limit to arbitrage
- Turnover
- What kind of stocks? Small stocks? Liquidity - try on SP500 stocks and ETFs
- Machine learning rather than LM dictionary
- Shouldn't applicable narratives have a certain duration?

The Narrative Momentum Puzzle

- Strong results only from FX and Country Equity news reservoirs
  - FX reservoir: 7.15
  - General news reservoir: Insignificant or negative returns
- Limited data volume
  - FX: 443 articles/day on average
  - Country Equity: 573 articles/day on average
- Unexpected news sources
  - FX: "Various trade journals and specialized magazines"
  - Not traditional sources like WSJ or NYT stock market participants read
- Possible explanations:
  1. Investors correctly price General media but underreact to FX/Country Equity
  2. General media alone may not accurately reflect overall narrative attention
- **Key question:** Why do specialized FX/Country Equity sources predict stock returns better than mainstream financial news?

What should we do when both negative and positive narratives rise simultaneously?

Narrative Examples:

- **Negative Narrative: "War Explosion"**
  - **Short: Delta Airlines (DAL)**
    - Airlines are negatively impacted by geopolitical risks due to reduced travel demand and higher fuel costs.
    - Negative beta to rising negative intensity of "War Explosion."
- **Positive Narrative: "Consumption Growth"**
  - **Long: Delta Airlines (DAL)**
    - Airlines benefit from increased travel demand as consumer spending grows.
    - Positive beta to rising positive intensity of "Consumption Growth."

Implication:

- Conflicting signals can occur when the same stock is on the short side of one narrative and the long side of another.
- Requires careful disentangling of narrative effects to avoid diluting strategy performance.

Regression Framework: Controlling for Positive and Negative Narratives

Regression Model:

$$r_{i,t} = \alpha_i + \beta_{m,i} r_{m,t} + \beta_{n,i} \Delta\text{Negative Intensity}_{n,t} + \beta_{p,i} \Delta\text{Positive Intensity}^{\text{Residual}}_{M,t}$$

Residualization of Positive Narratives:

- Regress ΔPositive Intensity$_{M,t}$ on ΔNegative Intensity$_{n,t}$:

  $$\Delta\text{Positive Intensity}^{\text{Residual}}_{M,t} = \Delta\text{Positive Intensity}_{M,t} - \gamma \Delta\text{Negative Intensi}$$

- Include ΔPositive Intensity$^{\text{Residual}}_{M,t}$ in the regression to ensure that $\beta_{p,i}$ captures the pure effect of positive narratives independent of negative narratives.

Benefits:

- Reduces multicollinearity between positive and negative narratives.
- Enhances reliability and interpretability of $\beta_{p,i}$ and $\beta_{n,i}$.

Confusion Point: Positive vs. Negative Narratives

- **Main Strategy (Negative Narratives):**
  - Long: Stocks with positive beta to rising negative narratives
  - Short: Stocks with negative beta to rising negative narratives
- **Robustness Check (Positive Narratives):**
  - Long: Stocks with positive beta to rising positive narratives
  - Short: Stocks with negative beta to rising positive narratives
- **Potential Inconsistency:**
  - Stocks benefiting from rising positive narratives might be shorted in the main strategy
  - Paper does not fully address this apparent contradiction
- **Implications:**
  - Unclear how to reconcile positive and negative narrative effects
  - Raises questions about the economic interpretation of results

Comment: The paper's focus on negative narratives may oversimplify the complex relationship between narratives and stock returns.

FX and Country Equity News Leading General News

- Specialized nature of FX and Country Equity news
- More sophisticated and informed readership
- Faster reaction to global economic trends
- Potential for information to diffuse from specialized to general media
- General news may require more time for verification and contextualization

Why Focus on Rising Negative Narratives?

- Stocks benefiting from rising negative narratives (e.g., defense contractors) tend to outperform because investors underreact to long-term narrative trends.
- Positive narratives (e.g., "Economic Recovery") are less impactful in this framework due to weaker investor underreaction.
- Authors argue that negative sentiment is more salient and measurable using Loughran-McDonald dictionaries, leading to stronger results.

Comment: The rationale for focusing on rising negative narratives is clear but lacks deeper theoretical grounding on why positive narratives are excluded.

Annualized Returns and Alphas from Long-Short Strategies

Narrative Type	**Annualized Return (%)**	**t-stat**	**Alpha (%)**
Negative Narratives	8.42	2.79	7.30
Positive Narratives	–	–	–
Bybee Narratives (FX Reservoir)	6.42	2.10	5.78
Evergreen Narratives	8.42	2.57	7.15

Table: Annualized Returns and Alphas for Long-Short Strategies Using Intensity Instead of Beta Exposure.

Persistence of Profits

- Profits persist due to continual evolution of narratives
- New narratives emerge, existing ones evolve or fade
- Investors' limited attention and processing capacity
- Complexity of integrating narrative information into pricing models
- Potential limits to arbitrage (e.g., transaction costs, short-selling constraints)

Comparison: Lee et al. vs. Jiang et al. (JFE)

Similarities:

- Focus on media coverage and its impact on stock returns
- Use large-scale textual analysis of news articles
- Construct long-short portfolios based on media coverage
- Find evidence of investor underreaction to media information

Differences:

- **Scope:** Lee et al. focus on 347 specific narratives; Jiang et al. use broader media coverage
- **Methodology:** Lee et al. use narrative betas; Jiang et al. use abnormal media coverage
- **Time horizon:** Lee et al. focus on 6-month momentum; Jiang et al. on 1-month reversal and longer-term drift
- **Data source:** Lee et al. use proprietary MKT MediaStats; Jiang et al. use RavenPack

Key Insight: Both papers highlight the importance of media coverage in asset pricing, but approach it from different angles and time horizons.

Why Use Media Narratives Instead of Economic Variables?

Economic Variables as Alternatives:

- Persistent, broad, and impactful variables such as inflation, interest rates, consumption growth, and employment could directly explain stock market returns.
- These variables are measurable, have established economic theories, and are widely available.

Authors' Motivation for Using Media Narratives:

- Media narratives capture **market sentiment** and **investor attention**, which may not be fully reflected in economic variables.
- Narratives can represent **unexpected shocks** or evolving themes not yet captured by lagging economic indicators (e.g., geopolitical tensions, pandemics).
- Provide a **behavioral perspective**: Investors often react to how events are framed in the media rather than the events themselves.
- Enable analysis of **specific drivers** of market returns beyond generic economic factors.

Advantages of Media Narratives:

Practical Application: January 4th, 2025

Scenario:

- Rising Narrative: "WW III Explosion"
- Declining Narrative: "Inflation"

Strategy Implementation:

- **Long Positions:**
  - Stocks positively exposed to rising "WW III Explosion" narratives (e.g., Lockheed Martin, Raytheon).
  - Stocks negatively exposed to declining "Inflation" narratives (e.g., Walmart).
- **Short Positions:**
  - Stocks negatively exposed to rising "WW III Explosion" narratives (e.g., Delta Airlines).
  - Stocks positively exposed to declining "Inflation" narratives (e.g., Consumer staples firms).

Execution:

- Run regressions to estimate $\beta_{n,i}$ and $\beta_{p,i}$ using narrative intensities from 2024.
- Construct long-short portfolios based on the above rankings.