Research Question

Media

– An avenue through which information is gathered, processed, and disseminated to a public of economic agents
– Large amount of data are generated by media daily

Academic research has found that media coverage can predict returns
– Mainly focused on individual stocks and US aggregate equity
– Predictability and reversal vary

We study the interaction of media and asset prices
– Individual stocks
– Aggregate equity markets
– Currencies
How Does the Media Interact with Asset Prices?

How to measure optimism / pessimism?

– Asset prices is one indicator
– Look at media sentiment!

We advance a simple concept:

When return and sentiment reinforce one another
– There is unusually high optimism, which results with overreaction
The Power of the Media

• Wealth of information

• A careful examination of the data and the correction for various effects

<table>
<thead>
<tr>
<th>General Media</th>
<th>Specialized Media</th>
<th>Corporate Communications</th>
<th>Social Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What is the <strong>world</strong> saying?</td>
<td>• What is the <strong>industry</strong> saying?</td>
<td>• What are <strong>companies</strong> saying?</td>
<td>• What are <strong>people</strong> saying?</td>
</tr>
</tbody>
</table>
The Data

Countries
• FX and Equity indices
  12 developed market currency: AUD, CAD, CHF, DKK, EUR, GBP, ILS, JPY, NOK, NZD, SEK, SGD
  +2 developed market equity: HKD, USD
  17 emerging markets: ARS, BRL, CLP, CNY, COP, EGP, IDR, INR, MXN, MYR, NGN, PHP, PLN, RUB, THB, TRY, ZAR

Media Coverage
• Currencies
• Equity indices

Other Asset Classes
• Large-cap stocks
• Commodities

Sentiment Scoring
• Textual analysis
The Data – Cont’d

Number of articles covering firms

FX / Country articles by year

Number of articles by country of source (FX, Country)

FX / Country articles by source type

- USA
- UK
- India
- Australia
- Hong Kong
- Canada
- South Africa
- Singapore
- New Zealand
- Japan
- South Africa
- Philippines
- Malaysia
- UAE
- Pakistan
Brexit Vote (June 23, 2016)
1-day abnormal country equity sentiment

• Prior to Brexit vote, sentiment seemed mostly positive

• Once ‘Leave’ was announced, global sentiment turned sharply negative, with UK, European countries, the Americas and Australia leading the way

• In contrast, Russia and China exhibit a positive sentiment shock
US Presidential Election (Nov 8, 2016)
1-day abnormal FX sentiment

- The extent of the results became clear only after midnight ET. Therefore, media on 11/8/2016 does not reflect the surprising results whereas media coverage on 11/9/2016 reflect the full extent of the results.

- While world sentiment turned negative overall, a few countries displayed positive sentiment, notably, Russia and Turkey.
French Presidential Election (April 23, 2017)
1-day abnormal country equity sentiment

• The results of the first round indicated strong performance of Emmanuel Macron, the center-leaning candidate, alleviating concerns of anti-European pressures

• Other than a few exceptions (e.g., Portugal, Poland), country equity sentiment reacted positively
Tests using Portfolio Returns

• First examine the relative autocorrelation in the different markets

• Form 10-day-ladder portfolios based on past weekly returns

• Then, add past weekly media sentiment

• Sample: March 2013 – April 2017
10-day-ladder portfolios sorted by past weekly return and sentiment

<table>
<thead>
<tr>
<th>Media</th>
<th>FX Developed(^1)</th>
<th>Country Equity(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low Return</td>
<td>High Return</td>
</tr>
<tr>
<td>Low Sentiment</td>
<td>+2.09% [2.07]</td>
<td>-1.38% [-1.56]</td>
</tr>
<tr>
<td>High Sentiment</td>
<td>+0.84% [0.94]</td>
<td>-1.55% [-1.75]</td>
</tr>
<tr>
<td>Reversal</td>
<td>-2.93% [-1.79]</td>
<td></td>
</tr>
<tr>
<td>Add Sentiment</td>
<td>-3.64% [-2.06]</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Sentiment measured from FX media; \(^2\) Sentiment measured from FX and country equity media
Portfolios in event time: FX - Developed

Reinforcement effect

• High return and high sentiment leads to low return
• Low return and low sentiment leads to high return
Let’s look at Brexit again

- Look at past weekly sentiment
- Reinforcement effect apparent
Individual Stocks

10-day-ladder portfolios

<table>
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<tr>
<th>Media</th>
<th>Low Sentiment</th>
<th>High Sentiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Sentiment</td>
<td><strong>2.43% [2.27]</strong></td>
<td>-1.32% [-1.40]</td>
</tr>
<tr>
<td>High Sentiment</td>
<td>1.43% [1.39]</td>
<td><strong>-2.55% [-2.38]</strong></td>
</tr>
<tr>
<td>Reversal</td>
<td></td>
<td>-2.51% [-1.38]</td>
</tr>
<tr>
<td>Add Sentiment</td>
<td></td>
<td><strong>-5.00% [-2.38]</strong></td>
</tr>
</tbody>
</table>

- Results are therefore robust to large-cap stocks
Additional Analysis

• Calculation of risk-adjusted returns (per asset class)

• Cross-sectional regressions using quartile dummies

• Different types of media

  ➢ Strong in local media

• Effect is stronger for large caps, highly covered by the media

• Delayed overreaction in emerging FX and commodities
Summary and Conclusion

• Media is a fruitful avenue for research

• Reinforcement effect in financial markets

• Robust results