Using unstructured data for financial market applications

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How are alternative data useful?

• A few examples:
  ▪ Measuring consumer behavior
    *Company earnings*
  ▪ Uncovering relations between companies
    *Competition strength*
  ▪ Understanding retail investor coordination (social)
    *Retail flow*
  ▪ Detecting and measuring emerging themes / narratives
    *Attention pricing*
Measuring Narratives

• What are the types of narratives?
  – Priced assets
  – Macroeconomic variables
  – Intangibles

• How to quantify narratives?
  – Media coverage

• Implications for price predictability

• Attention pricing
  – Investors price securities with limited attention
Monetary Policy – What’s the problem?

• What’s the problem looking at official communication?
  – NLP / communication feedback increases opacity
  – Inter-meeting periods

• Solution: Use media coverage to understand monetary policy
  – Aggregate views/interpretations of official communication
  – Ongoing daily indicators

Fed Monetary Tones Seem to Lead 3-Month Treasury Yields

Monetary Policy – Implications for Yields

• **Can monetary tone predict changes in yields?**

  – Yield reaction to monetary tone on non-FOMC meeting weeks tends to be more pronounced along the term structure

Monetary Policy – Individual Members

• **Measure individual member tone?**
  
  – Voting FOMC members display consensus during the height of the pandemic (Spring 2020)
  
  – Dispersion increased in the fall and currently consensus is formed among the members

The Relative Impact of Monetary Tones

• **Predictability of short-term interest rates:**
  
  – Average Fed tone (51%)
  
  – Powell independent voice (21%)
  
  – Sigma (28%)
The Narratives Dashboard

- Select, pre-determined narratives
Themes in the Time Series

• Quantifying narratives in the time series is key
  – Understanding information diffusion and narrative life cycle
  – Proxy for investor attention
  – Estimation of asset price exposures
Attention Pricing – Inflation Index

• How to build an inflation index?
  – Multiple challenges
    ▪ Inflation measurement; investor expectation
    ▪ Which stocks are exposed?

• Solution:
  – Inflation attention
    ▪ Asset prices are inflation-informative when inflation-attention is high
    ▪ Use inflation attention as interaction term to estimate exposures
  – Attention pricing models

Decile [10] Excess Return and CPI Inflation

[Graph showing the relationship between CPI Inflation and Decile [10] Excess Return over time]
Attention Pricing – Market-based Measure of ESG

• How to better identify climate friendly firms?
  – Estimate price movements during periods of high attention to climate
    ▪ Rolling regressions, per stock
    ▪ Identify market participant perception of climate friendly firms
  – Rank stocks in the cross-section and build basket portfolios
Creating Thematic Baskets with Alternative Data

• Systematic approach to basket formation
Final Remarks

- **Alternative data can be useful if used correctly**

- **Use case: measuring narratives**
  - Intangibles, low frequency
  - Security exposures
  - Attention pricing
  - Baskets

- **Plenty of more opportunities**