

12 INSIGHTS FROM 2021 TO USE IN **2022**



RavenPack

EXPLORE OUR INSIGHTS

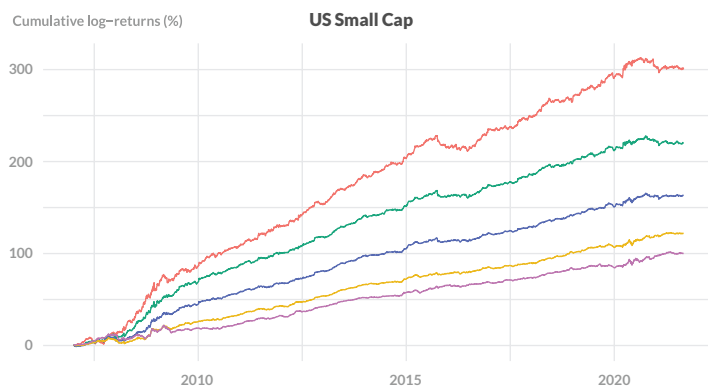
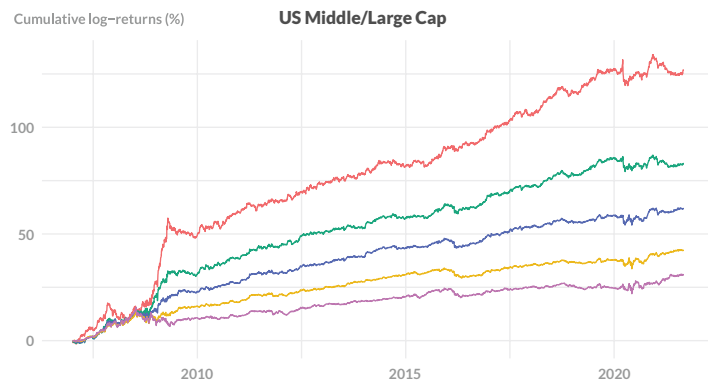
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The last two years illustrated the need for refinement and adaptability in investment strategies, and 2022 seems poised to amplify the trend.

Faced with uncertainty over macroeconomic factors, supply chain risk, and volatile markets, investors are sourcing insights from more elaborate analytics, and multidimensional sentiment has emerged as a reliable signal to enhance style in fixed-income, anticipate macro trends, uncover more alpha during earnings season, and even monitor ESG events that impact valuation and asset allocation.

To help you make the most of these evolving market conditions, we have gathered 12 insights from 2021 research that can be leveraged in 2022.

To find out how you could implement the data with your model, conduct your own research, or to know more about our data solutions, contact us at info@ravenpack.com.



Decay Length λ (days) — 15 — 10 — 21 — 63

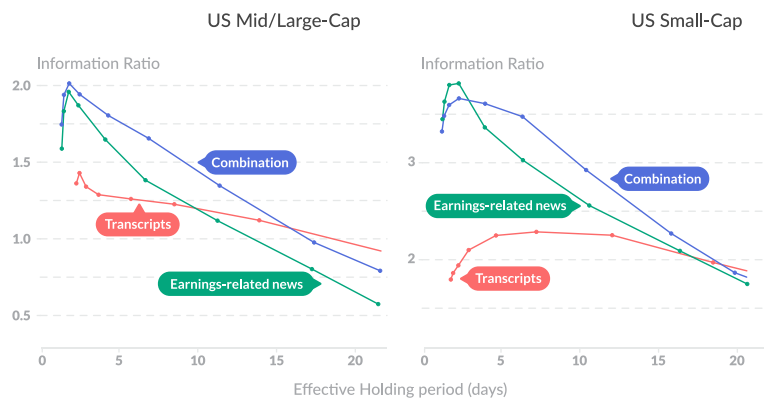
▲ Cumulative log-returns for U.S. Mid/Large (top) and U.S. Small Cap companies (bottom) for the Full Combination signal over several decay lengths when applying exponential signal smoothing. Source: RavenPack

01 Uncover Alpha with Earnings Calls Transcript Data

Every quarter, earnings calls provide investors with an opportunity to gain additional insights into company performance. The discussion of financial results between executives and investors discloses hard information that is widely used in the fundamental analysis of a company.

Incorporating Earnings Calls transcript data provides an opportunity to uncover additional alpha. We built three independent trading signals from the data, and found that:

- Document Sentiment is a strong standalone signal, with Information Ratio (IR) above 1.1 for US Mid/Large Caps and upwards of 2.0 for Small Caps over holding periods of up to 1 week, or above 1.0 and 1.7 for holding periods of about 1 month.
- Combined with two other signals, Event Sentiment and a Transparency Score, the IR increases to 1.4 for US Mid/Large Caps and 2.3 for Small Caps for shorter holding periods. Monthly holding period IR for U.S. Small-Caps increases to 2.0.
- Combining transcripts data with RavenPack News Analytics enhances the performance of US strategies across nearly all holding periods, providing a valuable addition to existing datasets.



▲ Combining earnings-related news events and earnings call transcripts signals compared to the individual signals using different smoothing decays. Source: RavenPack

02 Combine News and Earnings-Call Transcripts

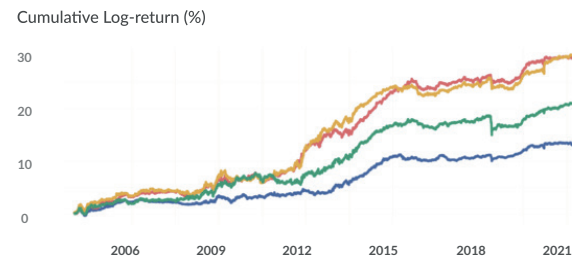
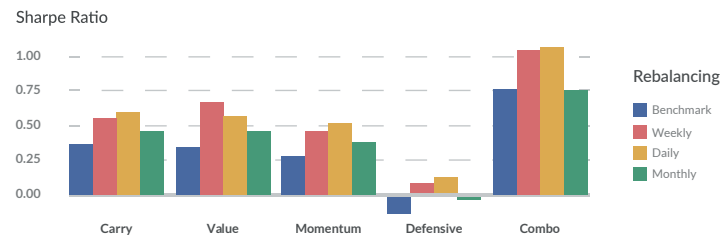
When focusing on earnings-related news, **signals based on quarterly sentiment change provide more long-term value than raw sentiment.** For US Mid/Large-Cap companies, the Information Ratio improves from 0.4 to 1.2 for a two-week holding period, while for US Small-Caps, the Information Ratio increases from 0.5 to 1.9 at a monthly horizon.

Earnings news and earnings call transcript signals complement each other and the

combination outperforms the individual signals for up to three week holding periods for US Mid/Large-Caps and for up to one month for Small-Caps.

For an effective holding period of 10 days, the Information Ratio of the combined strategy rises from 1.2 to 1.4 for US Mid/Large-Caps, and from 2.6 to 3.0 for Small-Caps.

03 Enhance Style with Sentiment for Developed Markets Sovereign Bonds Investing



▲ Sharpe ratios of sentiment-enhanced styles and cumulative excess returns of combined strategy. Source: RavenPack

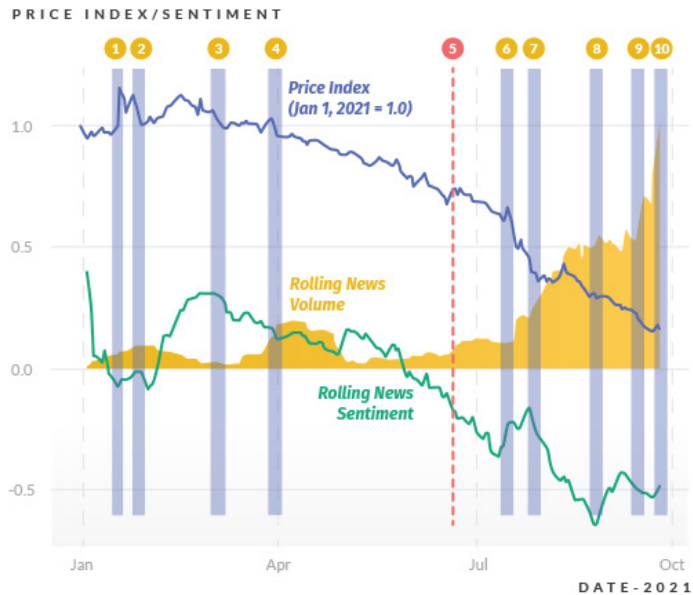
Real-time news sentiment can significantly enhance the performance of traditional value, carry, momentum, and defensive style factors in the cross-section of developed market sovereign bonds.

With interest rates in developed markets currently hovering at historic lows, a long-only exposure to developed markets sovereign fixed income may prove challenging in the years ahead. Style investing offers an alternative way of capturing returns uncorrelated with traditional assets, and has recently been extended to bonds.

Standard style factor performance can further be enhanced with tilts based on real-time sentiment analytics. RavenPack research constructed cross-sectional, dollar

and duration neutral long-short portfolios for value, carry, momentum, and defensive styles as our benchmarks, and showed that combining them into an equal-weighted strategy resulted in substantial portfolio diversification benefits.

Applying economic news sentiment tilts to benchmark portfolio weights, RavenPack also found that this more dynamic style implementation significantly improves risk-adjusted performance across all four styles, in different country universes and at daily, weekly, and monthly rebalancing frequencies. With weekly rebalancing, sentiment boosts the Sharpe ratios of the combined style strategies from 0.77 to 1.08 for the sample of 18 countries, and from 0.43 to 0.69 for the sample of the 6 sovereigns with the most liquid bond futures markets.



▲ Negative News Sentiment Deepens, as markets weigh Evergrande's Impending Collapse as another Lehman moment. Source: RavenPack

04 Track Sentiment from Multilingual Resources

Evergrande's stock price plunged as a result of the company's unsustainable debt levels. In the same vein, the firm's sentiment deteriorated throughout the year amid an increase in news volume.

RavenPack tracked events and sentiment relating to Evergrande from over 40,000 sources of news, filings and transcripts in 13 languages using RavenPack Edge. Negative news sentiment deepened as markets weighed Evergrande's impending collapse as another Lehman moment.

1 January 18 - 20:30:23.054
Event Category: debt redemption

Evergrande redeems \$16B bonds early

2 January 31 - 23:54:31.658
Event Category: revenue guidance

Homebuyers cool to Evergrande project; Weak sales at Emerald Bay a stark contrast to successes at rival launches

3 March 2 - 17:43:06.110
Event Category: revenues down

恒大上月銷售額 按年跌 32%
Evergrande's sales fell 32% last month

4 March 31 - 19:58:45.966
Event Category: earnings down

恒大賣樓超標 盈利倒跌 53%
Evergrande's profits fall by 53%

5 June 22 - 08:52:29.945
Event Category: credit rating downgrade
credit rating outlook negative

Fitch Downgrades Evergrande and Subsidiaries, Hengda and Tianji, to 'B'; Outlook Negative

6 July 19 - 08:24:56.280
Event Category: legal issues plaintiff

China Evergrande to Sue China Guangfa Bank Over Asset Freeze

7 July 27 - 01:05:03.708
Event Category: dividend suspended

中國恒大決定取消特別分紅方案
China's Evergrande Decides to Scrap Special Dividend Plan

8 August 19 - 17:32:17.012
Event Category: bankruptcy fears

Evergrande pode entrar em falência se não resolver elevado endividamento, alerta Pequim
Evergrande can go bankrupt if he does not solve high debt, says Beijing

9 September 14 - 04:04:39.855
Event Category: revenues volume down

Indebted developer China Evergrande says property sales continue to drop, warns again it could default

10 September 24 - 04:07:24.774
Event Category: coupon payment failed

恒大債務風波 | 據報恒大疑走數未如期支付6.5億元
Evergrande Debt Turmoil | It is reported that Evergrande has failed to pay 650 million yuan in interest

LABOR MARKET SENTIMENT



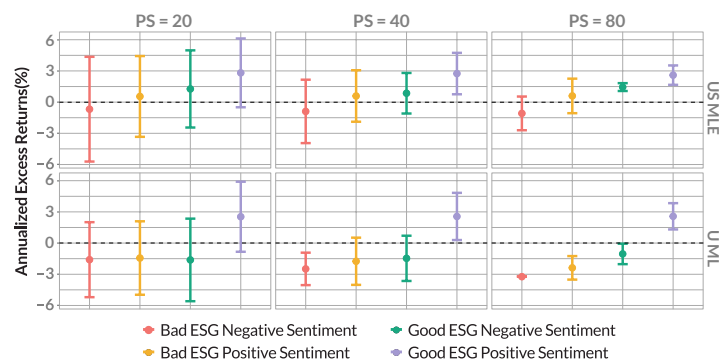
▲ Anticipating the Next NFP Surprise? Labor Market Sentiment could have forewarned the last big miss. Source: RavenPack

05 Sentiment Helps Anticipate Non-Farm Payroll Surprises

RavenPack constructed and backtested a Labor Market Sentiment index using RavenPack News Analytics, and found that it adds value in forecasting NFP surprises. The US economy was expected to have added nearly 1m jobs in April, but what came out on the 7th of May was a meagre +266k. **News sentiment could have helped see** the negative NFP surprise coming.

The Labor Market Sentiment indicator created leverages granular event taxonomy to filter news related to the Labor Market

(employment, unemployment, jobless claims, nonfarm payrolls, hirings, layoffs, etc. events) and uses the RavenPack Composite Sentiment Score (CSS) to capture the sentiment of a given document constructed by combining various natural language processing techniques. The direction of the score is determined by looking at emotionally charged words/phrases and has been trained to match their short-term impact on large-cap stocks share prices.

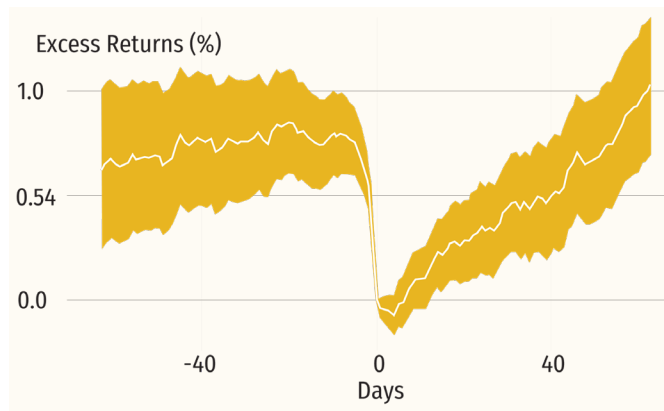


▲ Companies with 'Good ESG' ratings and positive sentiment outperform 'Bad ESG' and negative sentiment. Source: RavenPack

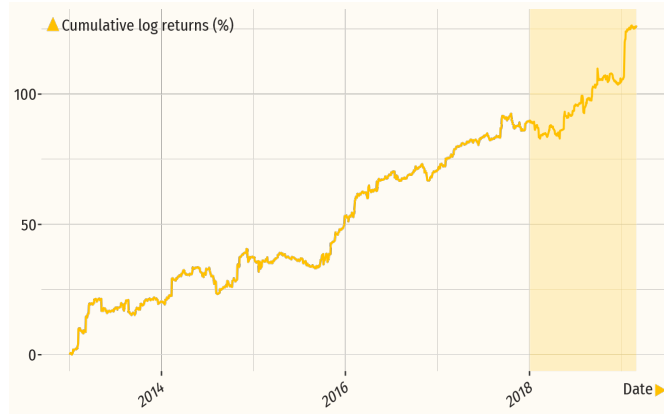
06 Sentiment Emerges as a Strong Overlay Signal for ESG

Do companies with higher ESG ratings outperform their lower-rated peers? **RavenPack tested the theory** by randomly selecting companies with MSCI ESG ratings categorized as either good or bad and found that:

- "Good ESG company" distributions outperformed the market across mid and large-cap stocks in Europe and the US. "Bad ESG company" distributions underperformed on a relative basis.
- Adding a sentiment overlay, stocks with positive sentiment outperform those with negative sentiment - both across "Good" and "Bad" ESG companies
- The results were consistent across different portfolio sizes (PS = 20, 40, or 80).



▲ Schematized market reaction to headlines containing “fraud” or “scandal.” Source: RavenPack



▲ Cumulative excess returns of strategy taking advantage of the short-term sell-off following “controversy” events with negative sentiment. Source: RavenPack

07 ESG Controversies Monitoring Helps Anticipate Market Reactions

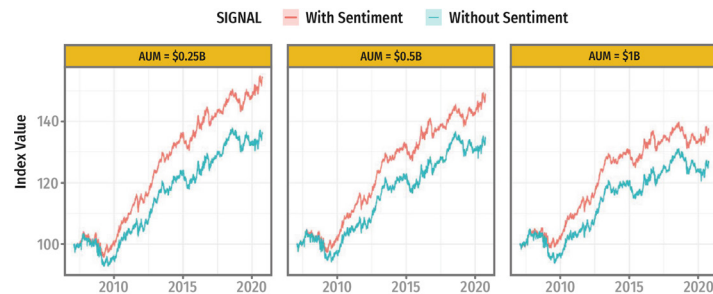
Systematically monitoring for controversies across a portfolio empowers investment managers to react to changes in sustainability risks in a timely fashion. Analyzing the historical impact of similar events can also help managers decide how to manage the risk associated with evolving situations.

RavenPack analyzed the average performance of fraud and scandal events across the top 3,000 companies in the U.S. based on market capitalizations. **RavenPack’s research shows** that stocks involved in such events took a significant intraday hit and continued trading lower for several days. However, they also observed an apparent overreaction in selling, leading to a price reversal over subsequent months. The tendency of stocks to react uniformly creates a repeating market pattern that informed investors could use to respond to negative ESG news strategically.

By adjusting their investment strategy, they can capitalize on these moves. For example, in the case mentioned above, it might be prudent to delay selling a stock that had just experienced an ESG controversy, as the price is likely to drift higher to more attractive levels.

Researchers at Monash University in Australia found the same market overreaction pattern with a subsequent drift higher following most other types of reputationally damaging ESG news. Their research included events like litigations, labor and regulatory issues, crime, security, pollution, lapses in corporate responsibility, and adverse health-related events.

08 Use News Sentiment as a Factor to Enhance Quantitative Investment Strategies for APAC Stocks



▲ Cumulative performance of the APAC multi-factor indices for a monthly rebalancing frequency and different levels of AUM, including 5bps of one-way transaction costs. We compare results for the index that includes the news sentiment factor and the one that does not. Source: RavenPack

RavenPack **looked into** whether news sentiment — aggregated from online news stories and social media posts — could enhance a traditional multi-factor Asia Pacific (APAC) equities portfolio quantitative investment strategy (QIS).

Researchers began by constructing a News Sentiment Index to analyze the effectiveness of sentiment on its own. The Index used sentiment measured over a variety of smoothing periods, ranging from 1 week to 90 days (3 months) to analyze the impact of both short-term and longer-term sentiment.

The results were overall promising. The index smoothed over a 90-day period, with monthly rebalancing, delivered an IR above 0.7 and an Annualized Return above 400bps for an AUM of \$1B, with an Annualized Turnover under 1500%.

GOING FURTHER

Researchers also evaluated whether the signals derived from sentiment could enhance a multi-factor QIS. The traditional multi-factor framework for Asian markets consisted of Momentum, Low Size, Low Volatility, Growth, Value, and Quality factors. An analysis using MSCI's GEM3 model factor exposures framework suggested sentiment was fairly uncorrelated to other factors, "especially over the short aggregation windows, which correspond to the fastest signals." According to Peter Hafez, Chief Data Scientist at RavenPack. This held out the promise sentiment could add value.

With the addition of sentiment, multi-factor models showed consistent improvement. As an overlay to a \$1B AUM strategy, sentiment increased the IR by 64%, from 0.45 to 0.74, and the Annualized Return by 35%, from 167bps to 225bps. A further advantage of the multi-factor approach was the lighter turnover and slightly larger portfolio sizes.

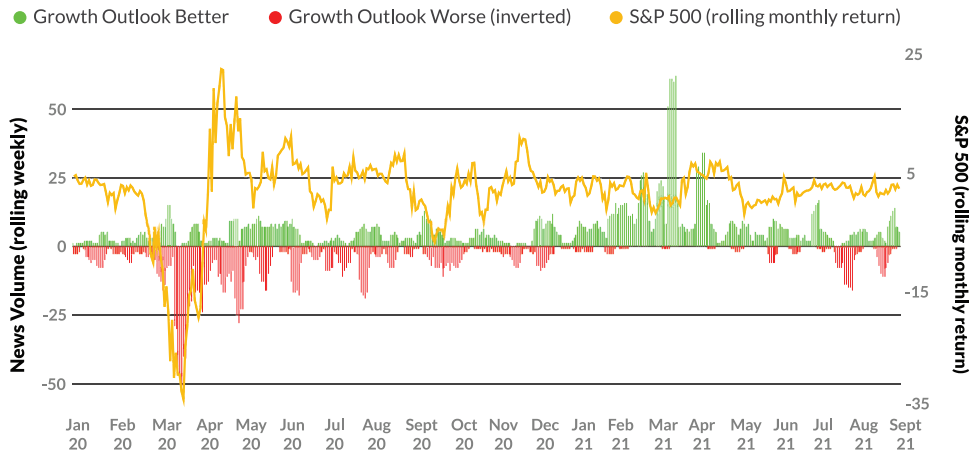
09 Track the Battle between Better vs Worse Growth Outlooks

Numerous economists were cutting growth forecasts for 2021 amid worries about the delta variant and consumer spending. **Systematically tracking the battle** between the growth better vs growth worse narratives helped understand how markets are pricing them.

Unfolding the growth outlooks of better vs. worse from January 2020 for the US:

- Covid concerns rising of the US growth worse narrative
- Green vs red waves coinciding with reopening vs lockdowns and good vs bad vaccine news
- US fiscal stimulus and vaccinations progress boost growth outlook
- Delta variant fears emerge under the most recent red increases

However, the underlying pace of growth expected for 2021 and beyond remains solid and several Fed officials (e.g. Rosenberg, Bullard) have expressed their confidence in the US economic recovery and the need for tapering.



Late Feb 2020 - Early March 2020
Rising Covid concerns

From May 2020 to August 2020
Reopenings vs Lockdowns.
Good vs Bad vaccine news

From November 2020 to December 2020
Mixed 2021 Outlook season. Hopes vs Concerns

From January 2021 to March 2021
US fiscal stimulus passage.
2021 Outlook upgrade

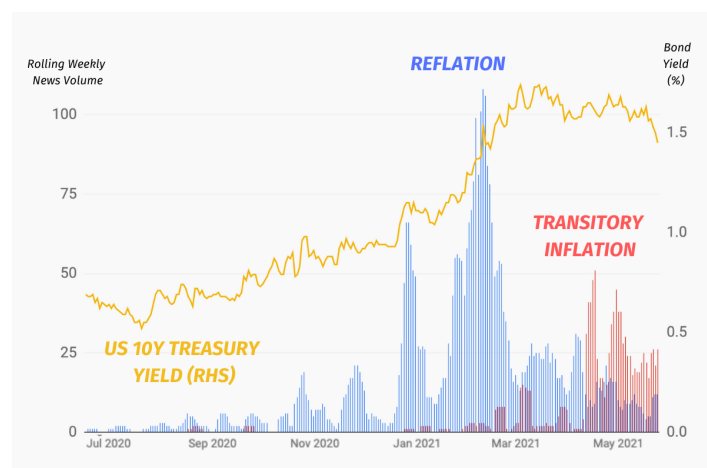
From April 2021 to June 2021
Re-opening schemes.
Vaccinations rollouts

From July 2021 to September 2021
Delta variant fears rising

▲ **Tracking the battle between better vs worse growth outlooks.**

Source: RavenPack

10 Track Macro Narratives that Drive Markets

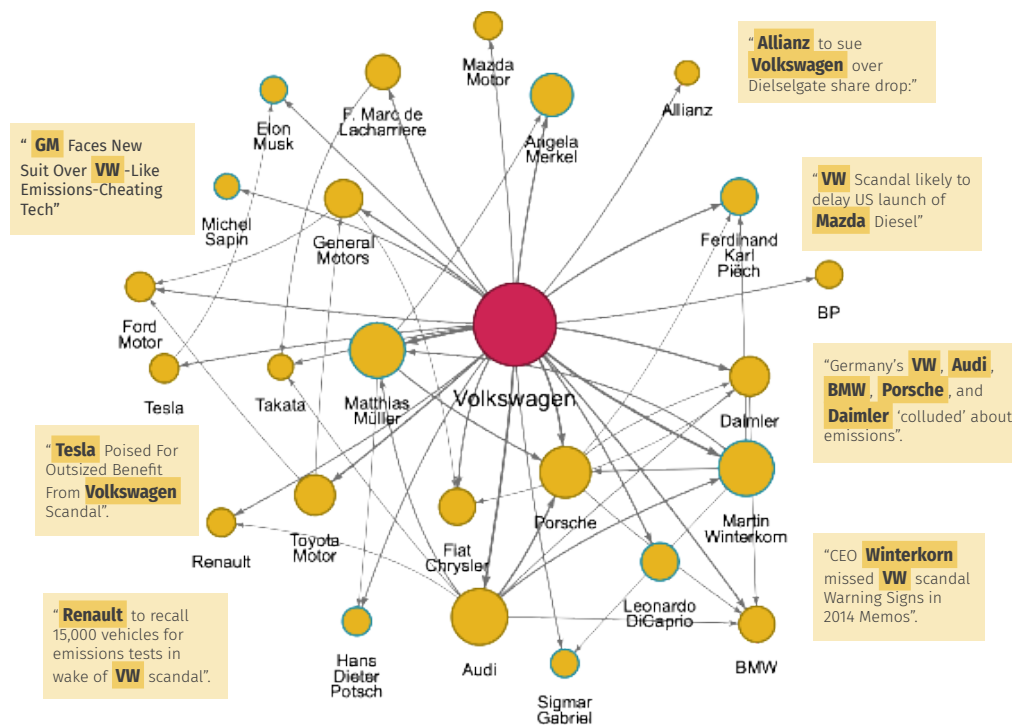


▲ Track Macro Narratives that Drive Markets. Source: RavenPack

Tracking the importance of the “reflation” and “transitory inflation” narratives in market commentary in real time provided insights to investors perplexed by a pullback in US Treasury yields after a spike earlier in the year that had been attributed in part to expectations for a lasting resurgence in inflation.

Researchers at RavenPack could observe the reflation narrative began gaining momentum in the summer of 2020, peaking in late February and early March, before the 10-year Treasury note yield TMUBMUSD10Y, 1.421% peaked out in late March just shy of 1.80%. On June 10, when the core consumer-price index came in at a stronger-than-expected 0.7% monthly rise, bond yields continued to decline, in line with the transitory inflation narrative.

After mid-June the reflation and transitory inflation narratives seemed to be oscillating in importance. The reflation narrative rose around the release of June CPI data on July 13, which again came in much hotter than expected. The 10-year yield initially moved higher, but then fell back, in line with a fall in reflation concerns.



▲ Network graph for the ‘Dieselgate’ scandal. Source: RavenPack

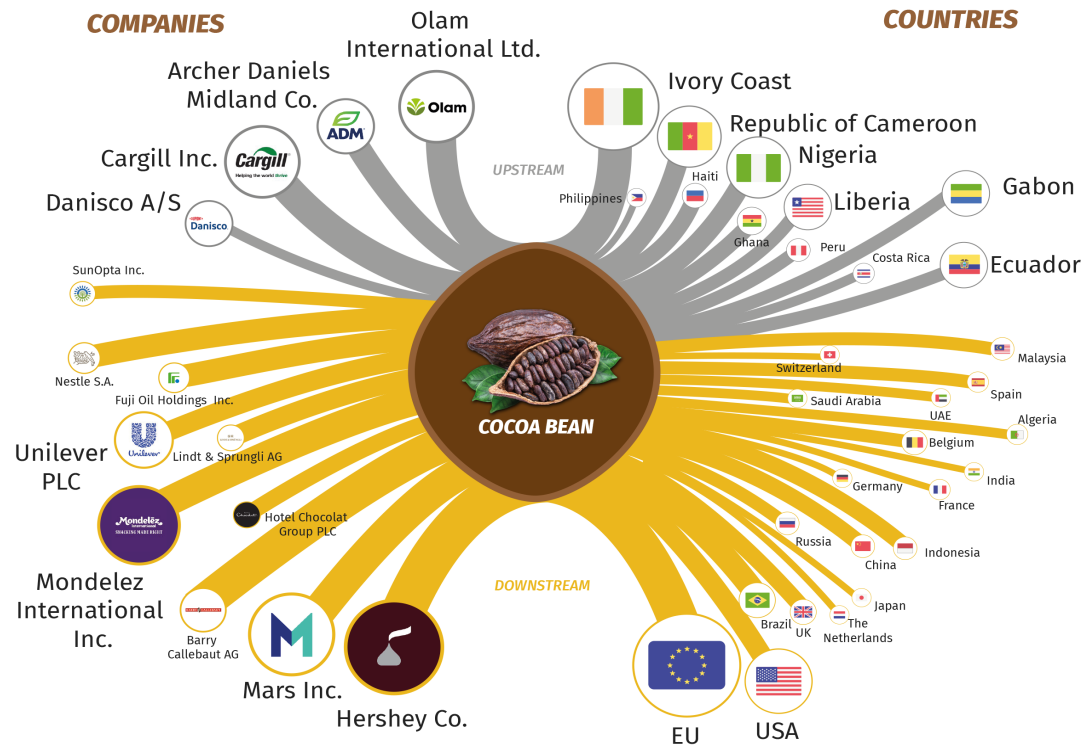
11 Network Graphs Unlock Knowledge that Can Inform Risk Strategies

Sentiment data, along with other alternative datasets, is commonly used by asset managers to achieve market-beating returns, yet it remains widely underutilised within risk management. **RavenPack examined several examples** of topical events that have impacted markets globally, and how news data can be incorporated within business practices to prevent and mitigate risk in real-time.

Specifically, researchers observed that:

- Risk practitioners are increasingly using a Data Mosaic approach to incorporate a variety of data sources into their risk modeling processes, including news analytics data.
- Many alternative data sources, such as news analytics, consistently add additional explanatory dimensionality into such mosaics.
- Constructing networks of related entities by searching for their co-mentions in the news can help identify hidden risks by association.

12 News Co-Mentions Networks Can Help You Connect Corporate and Macro Risks



▲ Connect Corporate & Macro Risks. Source: RavenPack

Co-mentions networks based on millions of structured media records can help monitor a company’s competitive landscape and Supply Chain Risk dynamically, systematically track macro events that can disrupt production upstream and demand strength downstream, and map the most prominent, and uncover emerging stakeholders, in the trade of a commodity.

Networks can also be expanded to include not just companies, but also commodities and places in order to associate single companies to broader macro risks. Searching for companies co-mentioned with the commodity Cocoa, for example, naturally picks up the likes of Hershey Co., Barry Callebaut, Mondelez Intl, Mars, Ferrero, Nestle, Cargill, and Olam Intl – all companies operating in the chocolate and snack food business – either upstream or downstream. Searching for places co-mentioned with the commodity picks up The Ivory Coast, Brazil, Cameroon, Nigeria, and Ghana – all Cocoa producing countries. Constructing and monitoring networks that link entities together like this, can help

to systematically track potential supply-chain risk, and disruptive events like natural disasters or war & conflict – in this case within Cocoa producing countries.

Similar networks can be created for any of the 12 million entities that we monitor, falling into the following categories: companies, people, products & services, places, organizations, or commodities. The insights acquired via these networks can be tailored to particular use-cases based on the needs of the client. Given the immense amount of data obtained from news, identifying these connections must be done through the network graph to achieve scale.

Leverage these Insights in 2022:

Try RavenPack Edge

Released in 2021, RavenPack Edge collects, reads, and analyzes billions of documents to help businesses better monitor and mitigate emerging risks. Capable of understanding content in 13 different languages, Edge can extract insights from all types of documents—from short news articles to complex legal filings.

RavenPack Edge monitors any information published on over 12 million entities including public and private companies and organizations, key executives and political figures, and many other topics of interest.

Earnings Intelligence

Earnings drive momentum on equity markets. Uncover more alpha before, during, and after earnings announcements with a 360° insights solution.

To uncover more opportunities during earnings seasons, RavenPack has identified the composite dataset that gives you more visibility over what influences stock prices.

RavenPack Earnings Intelligence combines signals from separate sources augmented with sentiment and thematic analytics for a powerful alternative that removes the limits of isolated vendor data.

Every time one of these entities is mentioned across 40,000 sources of curated content, Edge calculates the relevance, sentiment, or novelty of the information, and pushes these analytics to subscribers in real-time. Whether the content is written in English, Arabic, Mandarin, or any other major language, the new platform can make sense of it all to deliver comprehensive analytics to end users.

For more information, visit: www.ravenpack.com/edge

WHY IT WORKS

- **Driven by research:** models illustrate how combining earnings-related news, call transcripts analytics, and even insider transactions, delivers signals that outperform benchmarks during earnings season
- **Higher frequency:** Earnings Intelligence combs through documents and news for references to over 12 million entities and over 7,000 event categories, and makes contextual sense of it at event time, and as a company-specific trend over multiple earnings seasons
- **Multiple horizons:** short-term and long-term signals available to adapt to your trading style
- **Cohesive:** a single reference data service across all signals to deploy faster and eliminate mapping errors

For more information, visit: www.ravenpack.com/earnings-intelligence

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