RavenPack

Fundamental Research

Extracting Value from Unstructured Big Data: Leveraged Loans

November 2019

Key Takeaways

RavenPack automatically scans over 19,000 news articles daily in order to gauge market sentiment for over 280,000 different entities, including financial assets, persons and places. Traditionally RavenPack has been used by equity investors to enhance investment decision-making but we are seeing growing demand on the fixed income side. **In this paper, we will discuss whether RavenPack news analytics can be applied to the leveraged loan sector, and if so, how it can add value to investors.**

Leveraged Loans

Leveraged loan issuers provide financing to heavily-indebted borrowers, and with a market valuation of roughly $1.3 trillion, the sector is larger than the high yield bond market.

Despite being an important asset class, the news volume is often relatively low because the companies in this space tend to be small or medium-sized. Given RavenPack heavily relies on news sources for its methodology this could have been an obstacle, however, after carrying out our research we conclude that whilst sample sizes are often small they are not prohibitive.

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1. A Historical Profile of the Leverage Loan Market

The market for leveraged loan transactions in the US took off in the 80s, before collapsing in the early 90s due to the recession. A slow recovery started in the mid-90s, but the market only started to take off again in the 2000s, driven mainly by securitization.

The financial crisis of 2007/2008 put a dampener on the market. Growth resumed in 2011, and in 2013 we already witnessed a new high. By April 2018, $1 trillion of outstanding loans was reached.

The majority of investors in the market are managers of portfolios of collateralized loan obligations (CLO) and retail investors through mutual funds and ETFs, however, hedge funds and institutional investors, such as banks and insurance companies, are also active in this space.

The European leveraged loan market also reached a new record in 2018, with the size of €180 billion outstanding. In contrast to the US, the retail investor base is very small and the market is driven by institutional investors. CLO issuance in Europe also hit a new post-crisis high last year.

2. Methodology: Issuer Recognition

The first step in our leveraged loans project was to establish how much of the market was already accessible on the RavenPack platform.

In order to do this, we uploaded a set of 100 larger European loan issuers and submitted the file for entity mapping to see how many of them would be recognized. Many of the names were reasonably well known by loan managers (e.g. Jacobs Douwe Egberts, Peer Holding III BV and Unitymedia Hessen GmbH & Co KG). Out of these 100 names, 42 were found to be already recognized and mapped by RavenPack.

For some of the missing companies, a parent or a holding company was available and could be chosen as a proxy. Certain companies had gone through name changes and only the new name was available in the database; in our example, Unitymedia was renamed to Liberty Global.

Certain names were missing altogether (e.g. Peer Holding III BV) and were submitted to be set up by the RavenPack support team.

Since RavenPack's data is version controlled, no backfilling or historical modification is done within a given version. Hence, any entities added were only available for sentiment analysis going forward. We could, however, make use of the Alerts function as this was available as soon as an entity was added to the database.

As the above worked rather well, we uploaded further lists of leveraged loan issuers that might be of interest for further analysis.

Below is a summary of the entities immediately recognized by the RavenPack mapping algorithm:

Type of List	Recognized
70 large leveraged loan issuers, mostly USD, e.g. T-Mobile USA Inc	73%
18 issuers which were recently in the news, e.g. Berry Global Group Inc	67%
42 issuers which defaulted in recent years, e.g. Ditech Holding Corp	59%
50 Top Loan Holdings in U.S. CLO Portfolios, e.g. ADT Corp	80%
50 Top Loan Holdings in European CLO Portfolios, e.g. Techem AG	62%

Entity recognition appeared to be working well and kept improving with every passing week.

Even if an entity was not recognized, there was value to be captured in the RavenPack data, as we will see later (see Case Study 3: Volume Analysis of Fieldwood).

3. Process of Uploading

The screenshot below shows how easy it is to upload lists of entities using RavenPack's intuitive platform functionality.

If entities are flagged as not already existing on the database users can contact RavenPack to have new entities added, simply by sending an email to support@ravenpack.com.

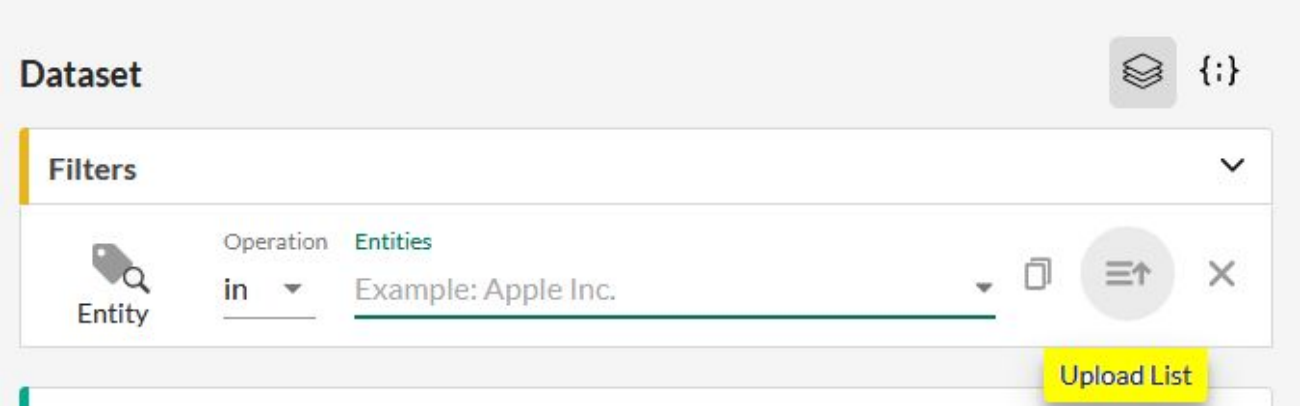

Figure 1: Uploading a custom list of entities to the dataset builder.¶

4. Sentiment for the Sector

RavenPack generates sentiment scores for both individual entities and groups - whether they be industry groups, sectors or asset-portfolios. Some of these already exist on the platform but users can also construct their own bespoke entity groupings in what are called 'Datasets'.

For the purposes of our leveraged loan white paper, we constructed a dataset for the leveraged loans sector which provides a generalized sentiment score for the whole market. A screenshot of the Dashboard which is available to all users of the platform is shown below.

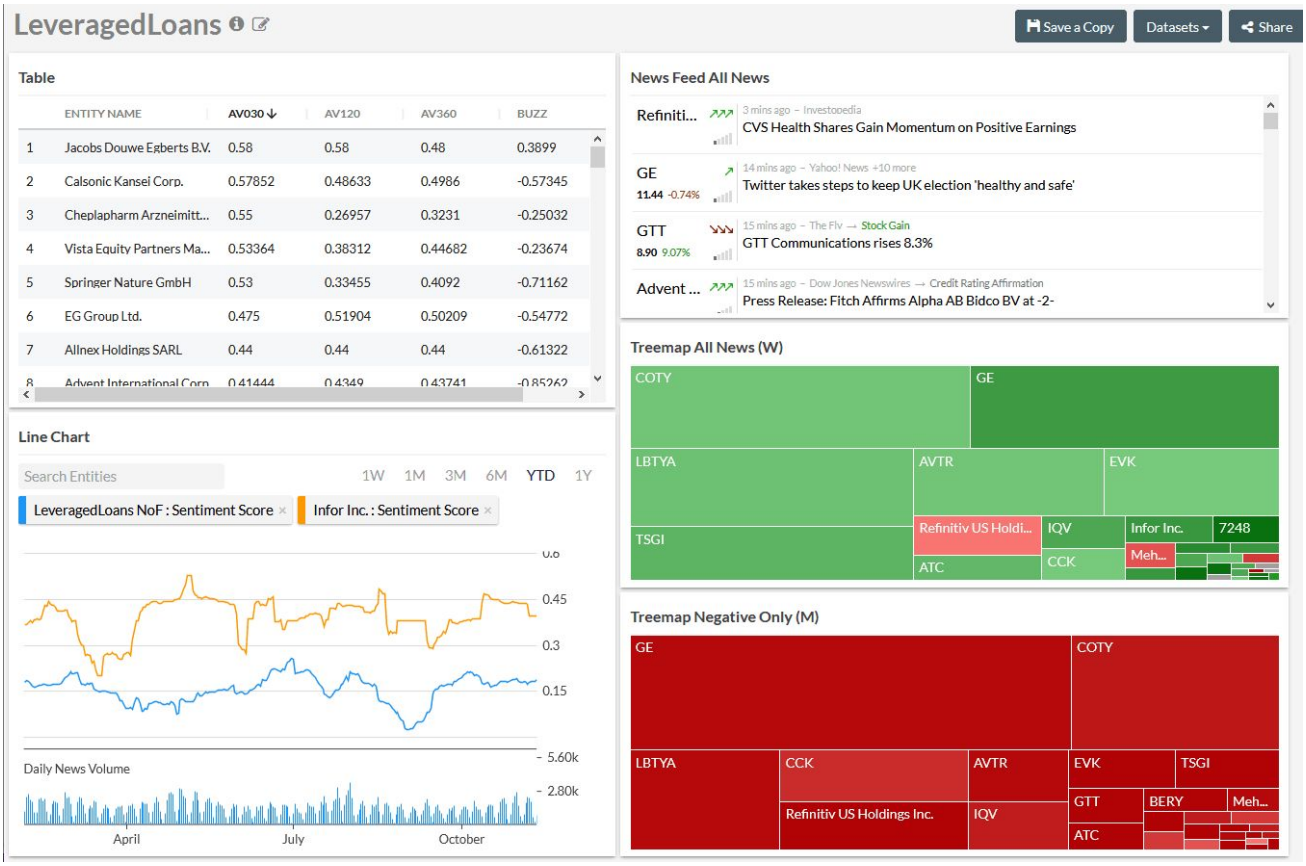

Figure 2: Example Dashboard for Leveraged Loans

The Dashboard is split into four main sections - the top left quadrant lists the individual ranked entities in the group according to sentiment, the bottom left quadrant shows a line chart of average sentiment over time for a selected entity or set of entities, the top right quadrant shows the actual news sources on which the sentiment score is based, and the bottom right quadrant a sentiment treemap for the composite entities.

Dashboards provide powerful insights through an intuitive user interface that can easily be shared with colleagues.

It is possible to drill down further to uncover more details about both the story and the company itself.

The treemap, for example, provides a way to visualize the companies generating the largest news volume and derived sentiment over a defined period. The size of each tile represents the overall news volume while the saturation of the box indicates how strongly positive or negative sentiment for that company is. Hovering over one of the boxes shows the actual sentiment score and the volume of articles around that particular company.

In the figure above the red treemap in the bottom right corner was set up with filters so that only negative events are displayed. This can be useful for risk-monitoring purposes.

5. Case-Study 1: Could RavenPack Have Alerted the Ditech Default?

Sometimes it can be useful to drill down and monitor specific companies within a sector.

Research shows that RavenPack sentiment can provide an early warning of impending negative events for companies and this is nowhere more useful than in the leveraged loans sector which is sometimes characterized as a 'canary in the coal mine' for wider asset market trends.

Using Ditech holdings as a case study we sought to test the idea that sentiment on the company could have forewarned of an impending default.

Ditech is a company that is well known by CLO managers and others who deal with leveraged loans. It is a provider of home loans, loan servicing and refinance products to consumers and institutional partners in the U.S. with close to 5,000 employees. It is run by Thomas Marano who was previously in charge of Bear Stearns's mortgage finance division.

The company is also well known for having defaulted at the beginning of 2019.

Without going too much into detail, we want to take a look at how the sentiment of the company, as measured by RavenPack's sentiment indicators, has developed over time, especially in the weeks before the default.

As Ditech is readily recognized as an entity by RavenPack, we can easily set up a dataset related to Ditech alone and a dashboard that contains a line chart with the development of its news sentiment over time. We have chosen the 30-day Strength Indicator as our measure of sentiment.

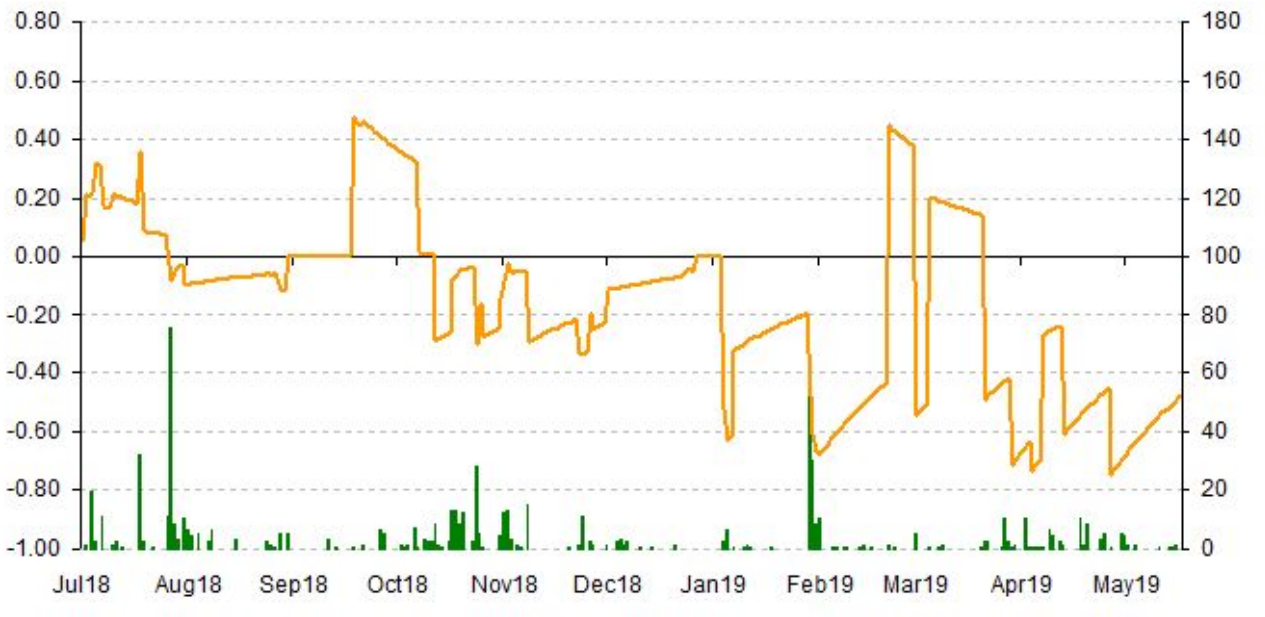

Figure 3: 30-day (Sentiment) Strength Indicator (left) and news count (right) for Ditech Holding Corp.

We can see is that news sentiment dips below zero in the beginning of August 2018 because of the earnings release (losses in Q2); then there is a short-lived recovery in sentiment at the beginning of October, but with a very low news count. By the end of October, sentiment moved back below zero and stayed low over the following few weeks without any major positive news. In December 2018, there were four negative and only one positive news story. Finally, the company defaulted on January 18, 2019, but the loan price still hovered in the 80s, albeit at very low liquidity. At the beginning of February, loan prices reached their lows before recovering slightly.

In the above chart, the sentiment indicator offers an objective, up-to-date picture of news sentiment, and a prolonged period with very little positive news is certainly a red flag for an investor watching out for a potential default.

6. Case-Study 2: Filtering for Relevance for TransDigm Group

TransDigm Group Incorporated provides another case study.

The company is one of the most widely held borrowers in CLO portfolios. It distributes and manufactures commercial and military aerospace components, has more than 20,000 employees and is part of the S&P 500 stock market index, yet it is not widely known outside of "loan circles".

A quick search on the Financial Times website shows a total number of only 9 articles mentioning TransDigm. Google News has many more results (ca. 18,000), while RavenPack has 38,752 entries, or around 2,000 per year.

To get a very broad sentiment score for TransDigm we can create a dataset for the company which will include every news source which mentions the company - in this case since January 2000.

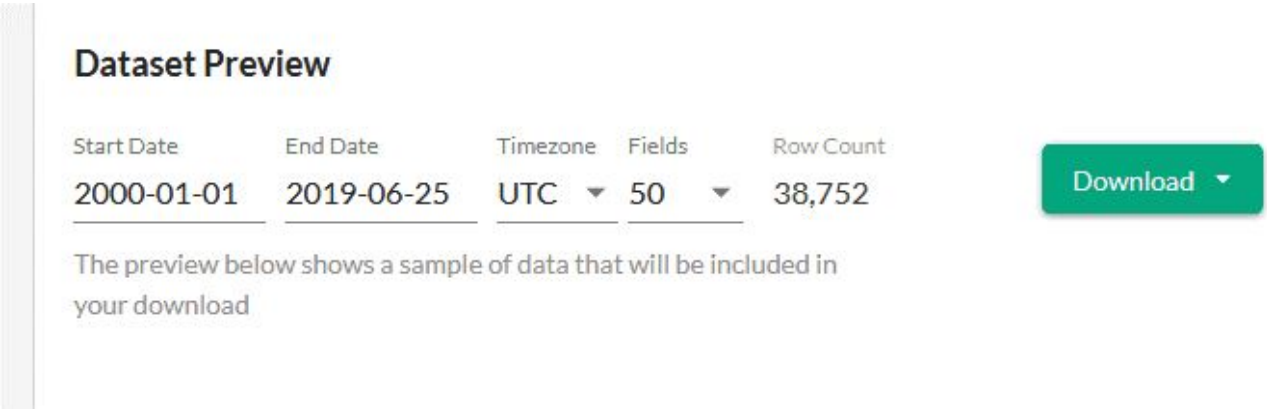

Figure 3: Filtering the entire database for the entity TransDigm Group Inc.

RavenPack allows us to filter the bulk entries for samples which include only certain preferential mentions of TransDigm.

Whenever TransDigm appears in a news article it is assigned one of over 6,800 different event categories which are organized in a hierarchical event taxonomy much like life on earth.

At the broadest level events are divided into 5 Groups - the equivalent of the 6 'domains' in the top-level taxonomy of life - for RavenPack these are Business, Economy, Environment, Politics, and Society. Society includes Civil Unrest, Crime, Health, and Legal Topics among others; the other Groups are fairly self-explanatory.

Although any type of event can have an impact on TransDigm, at this time we only want to focus on the sources which come under the 'Business Group' heading in the event taxonomy as these events seem to have the highest impact on asset prices. As such we can filter for Business, and when we do this we still gets more than 20,000 mentions of the company.

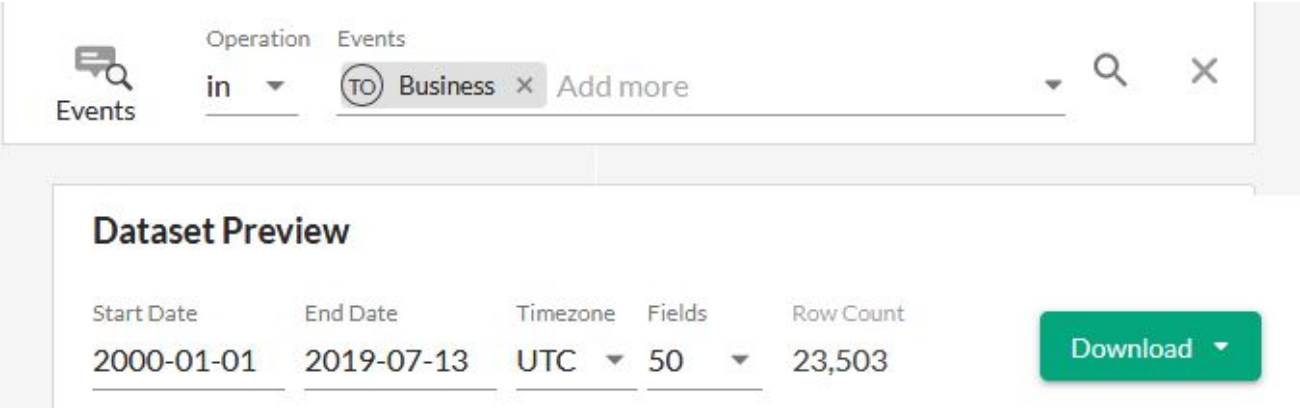

Figure 5: Filtering only for the Business Group still gives more than 20,000 hits.

Once we have decided on the Dataset which filters for the required sample we can create a Dashboard in order to conduct a more sophisticated analysis.

This can be done by clicking on Dashboards ➡ New Dashboard ➡ Custom ➡ Create Dashboard and then choosing the Line Chart widget to create a plot of TransDigm showing sentiment scores plotted over time from the sample of TransDigm filtered under Business Group.

Figure 6: Sentiment Score for TransDigm over the last 6 months.

We can see from the chart that overall the sentiment score has been on the rise.

At the same time, events like the reduction of investors' stakes at the beginning of March are recognizable as a small dip in the chart.

It is, of course, possible to refine the sentiment data that is calculated by applying certain ready-made functions like 'Strength' directly from the RavenPack Self-service platform, which uses exponential weighting to reduce the impact of old news.

Many functions allow the user to define a time window in days to choose the sensitivity of the indicator (e.g. the Strength Indicator with a 30-day window is much faster to react to news compared to the Strength Indicator with a 90-day window).

Other useful functions are available, such as the event count function, which counts the number of events on a given day. This allows for tracking of the amount of news "buzz" a company experiences, and in turn, could be useful to detect future market-moving events.

7. Case-Study 3: Volume Analysis of Fieldwood

Our third case study concerns Fieldwood, another name that is not well known outside of "loan circles". The Financial Times full text search only finds three stories with Fieldwood. It is one of the largest oil and gas explorers in the Gulf of Mexico, with over 1,000 wells and more than 500 operated platforms. It is infamous for being the largest energy loan default on record when it headed into bankruptcy at the beginning of 2018 for missing a payment.

Although the company was not recognized by RavenPack as an entity, we were able to get around the problem to a certain extent by using a different approach to searching for entries where it was mentioned. We did this by performing a full text search - in a similar way to how a search engine might look for an entity.

This was done by typing “Fieldwood” in the ‘Full Document’ filter function and selecting “Rollup” in the ‘Conditions’ tab, as shown in the screenshot below.

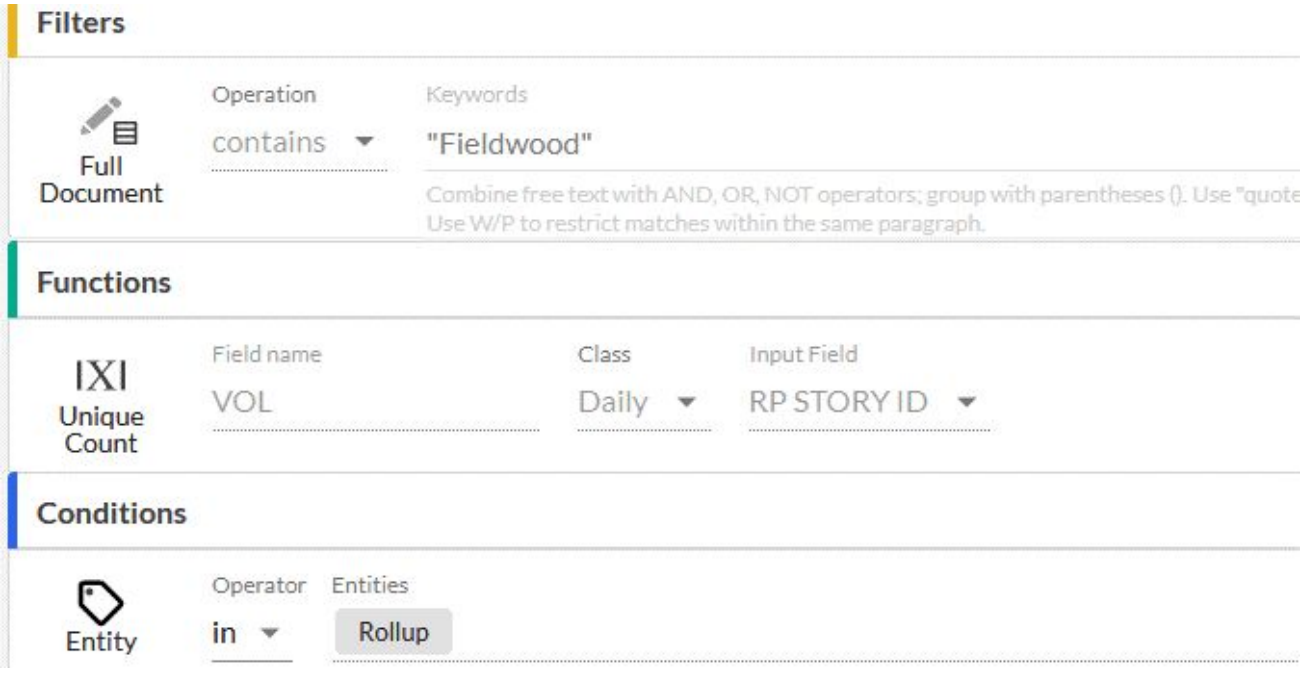

Figure 7: Full Text Search for Fieldwood and count of stories associated with Fieldwood.

The resulting search gave us a list of all the sources where Fieldwood was mentioned but no sentiment analysis. Due to the handicap, we were only able to see news volume without a sentiment score.

Yet even this single dimension still provided insights as can be seen in the chart below, created in Excel.

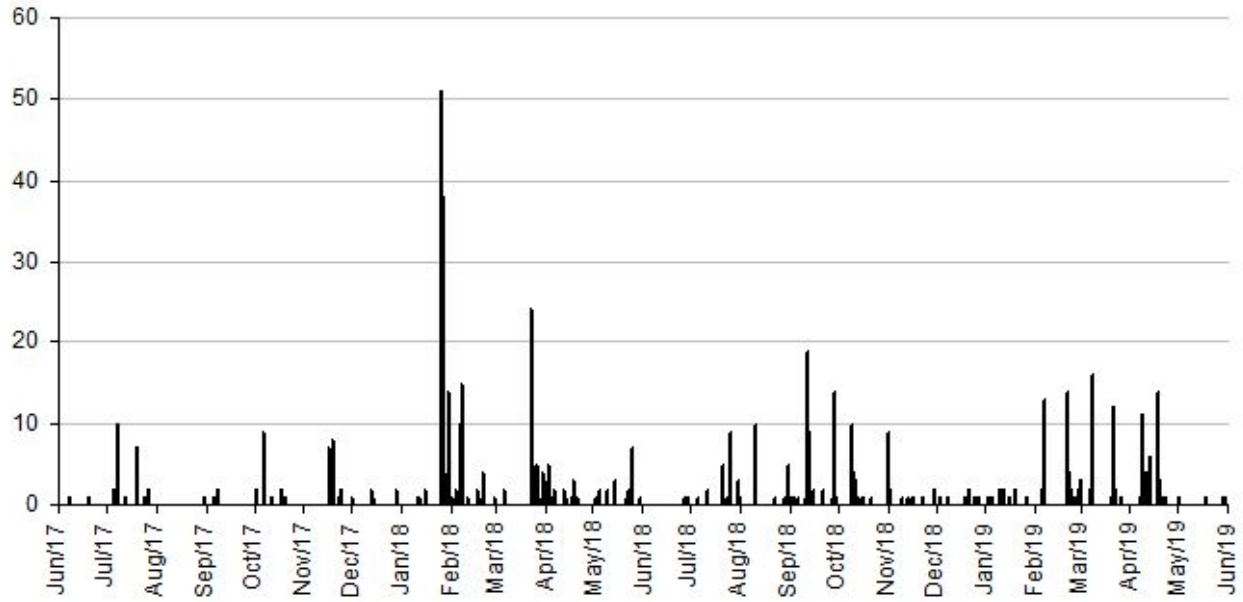

Figure 8: Fieldwood news volume over time (number of hits on a given day).

Volume shows a spike in February 2018, which does not come as a surprise, as this is when the company defaulted.

There are also other spikes in news volume, e.g. at the beginning of October in the context of an oil field development contract win. Additionally, there was increased news volume this year from the end of February until the end of April when prices were on a rollercoaster ride following discussions around a potential IPO and due to the announcement that the company would spend more in capital expenditure over the following 12 to 18 months than it had in the past five years combined.

Monitoring news volume is possible even for entities that do not exist in the database. Abnormal news volume can be an indicator of potential market moves. After an entity is set up by the RavenPack product team, it is possible to create alerts to be informed about increased news volume.

8. Conclusion

While RavenPack was traditionally geared more towards the quant community and has established firm roots in that area, these new features make the data equally interesting for discretionary fund managers.

The database of entities and events is substantial and contains many of the names that are relevant not only to equity and bond investors but to leveraged loan and CLO managers as well, with additional entities being added on a regular basis.

It is possible to create sentiment indicators and monitor news volume in real-time, as well as to be alerted when there are significant changes to those parameters. For names that do not exist in the database, it is possible to retrieve news volume data via full text search.

Many studies have shown that sentiment analysis adds incremental value for investors. With the latest version of RavenPack Analytics, it is easy for discretionary investors to extract that value as well.

Appendix: Platform features

Sentiment Data

The RavenPack platform produces an individual sentiment score per entity or set of entities over a scalable time-horizon which can then be used for analysis or strategy-building. Usually, it is not used as a stand-alone alpha generator but as an additive to structured data and other inputs.

Visual Platform

RavenPack data is presented in a powerful visual platform that enables users to quickly and easily take the pulse of the market. The platform can also be adapted by users to enable monitoring of specific areas of interest to them.

Advanced functionality means users can set up filters to monitor positive or negative news sentiment around specific entities or groups of entities, enabling them to quickly focus on what matters most.

Alerts

In addition, the platform has alert functionality which users can tailor to provide them with alerts when sentiment levels for specific entities rises above or below certain thresholds or when other selected criteria are met, such as volume or buzz.

Given RavenPack's speed and breadth - it reads over 19,000 news sources faster than the blink of an eye - alerts can sometimes provide investors with an information edge over the market, enabling them to react at the forefront of events, either avoiding negative price turns, or getting in at the beginning of more profitable moves.

Sentiment Score

A granular score between -1.00 and +1.00 with 2 decimal places that represents the news sentiment for a given entity by measuring various proxies sampled from the news. The score is determined by systematically matching stories typically categorized by financial experts as having short-term positive or negative financial or economic impact.

The strength of the score was determined by asking financial experts to classify entity-specific events in order to determine whether these events generally convey positive or negative sentiment and to what degree.

Their ratings are encapsulated in an algorithm that generates a range for each event within -1.00 to +1.00 where 0 indicates neutral sentiment, positive values indicate positive sentiment, and negative values indicate negative sentiment.

Relevance

For any news story that mentions an entity, RavenPack provides a relevance score. A score of 0 means the entity was passively mentioned while a score of 100 means the entity was prominent in the news story. Values above 75 are considered significantly relevant.

Event Relevance

The same as relevance for an entity but for an event within the taxonomy hierarchy instead. It is an integer between 0-100 which reflects the relevance of the event in the story.

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