

Brain Machine Learning Stock Ranking – Language Metrics on Company Filings Features

Product Summary

Brain Machine Learning proprietary platform is exploited to generate a daily stock ranking based on the predicted future returns of a universe of 3000 US stocks over a 21 and a 63 day time horizon.

The model implements a voting scheme of machine learning classifiers that non linearly combine a variety of features with a series of techniques aimed at mitigating the well-known overfitting problem for financial data with a low signal to noise ratio.

The features of this version of the model are based on the features contained in the Brain Language Metric on Company Filings dataset, extracted from the 10-K documents. Some examples are:

1. Financial sentiment
2. Percentage of words belonging to financial domain classified by language type, e.g. “constraining” or “litigious” language
3. Differences of metrics between documents (e.g. delta sentiment)
4. Differences of metrics (e.g. delta sentiment) and similarity metrics between documents (e.g. similarity with respect to “litigious” language).

The stock universe is represented by the 3000 US stocks with largest dollar volume and it is updated every year.

The model is trained and tested using a walking forward approach.

A history of approximately 10+ years is available as Free Trial for testing.

Prediction Weighted LS Portfolio

In the following graph we show the cumulative returns of a long-short portfolio built using the top/bottom quintile stocks of the out-of-sample ranking over a time horizon of 63 days and with quarterly rebalancing.



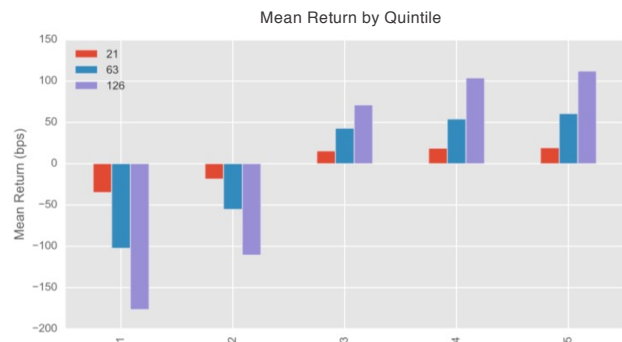
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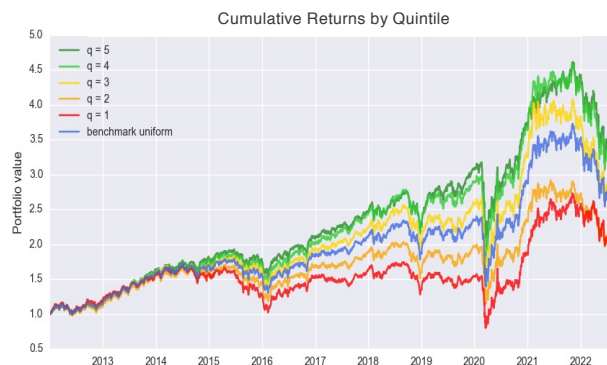
Returns Analysis by Prediction Quintiles

The following graph shows the mean forward returns, over the available historical data, of the investing universe stocks on different time horizons (with respect to an equally weighted benchmark) as function of the predicted ranking quintile (63 days time horizon).

It clearly appears that the highest predicted ranking quintile corresponds to the highest forward return, and vice versa the lowest prediction quintile corresponds to the most negative forward return following the characteristic “ladder shape”.



A portfolio including the stocks with the most positive prediction (top quintile, dark green line) shows, over the available timeframe, a larger cumulative return than the return of a portfolio composed of the stocks with most negative prediction (bottom quintile, red line). The blue line represents the whole universe with uniform weights.



Contacts

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