Predicting Company Outperformance

By: Sameer Ahmed, Trevor Allison, Madeleine Cope, Sanyam Jain, Teagan Milford, and Laurenz Pehl

Overview

- <u>Goal</u>:
  - Scrape text data from 10-K filing, 7A-Management Discussion Section from 10-15 companies in the Industrial sector over 10 years.
  - Wanted see if the topics talked about by certain companies over time predicted high stock return
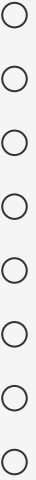
- <u>Why it Matters:</u>
  - Stock analysts look for many ways to gain a competitive advantage in predicting future price movements.
  - With every firm receiving the same information, creative models/solutions are key to gaining an advantage over competitors.
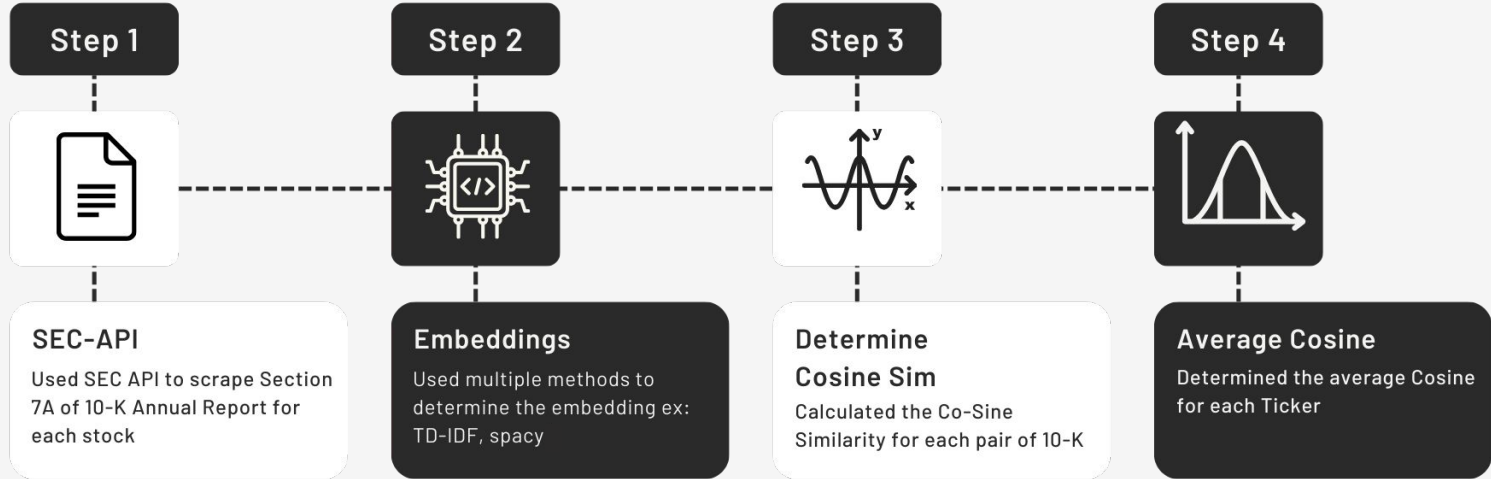
Hypothesis

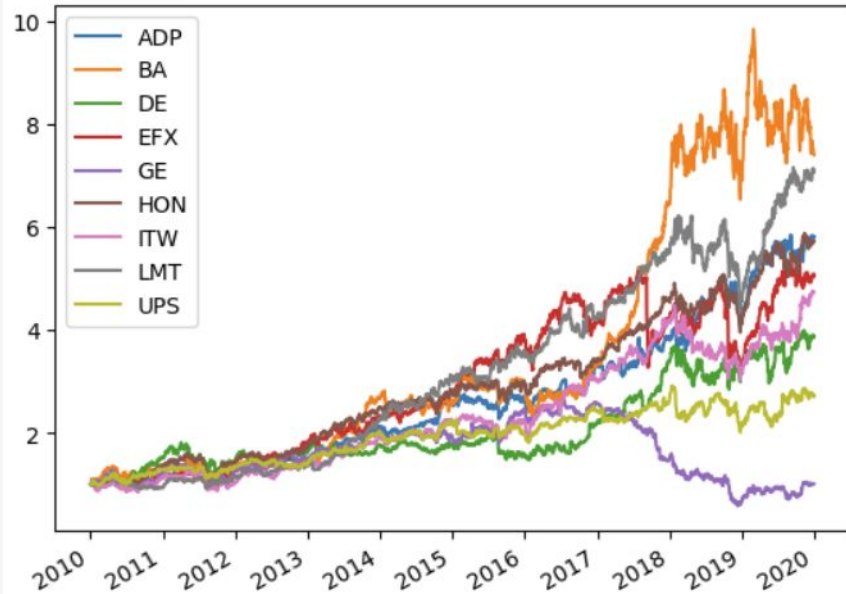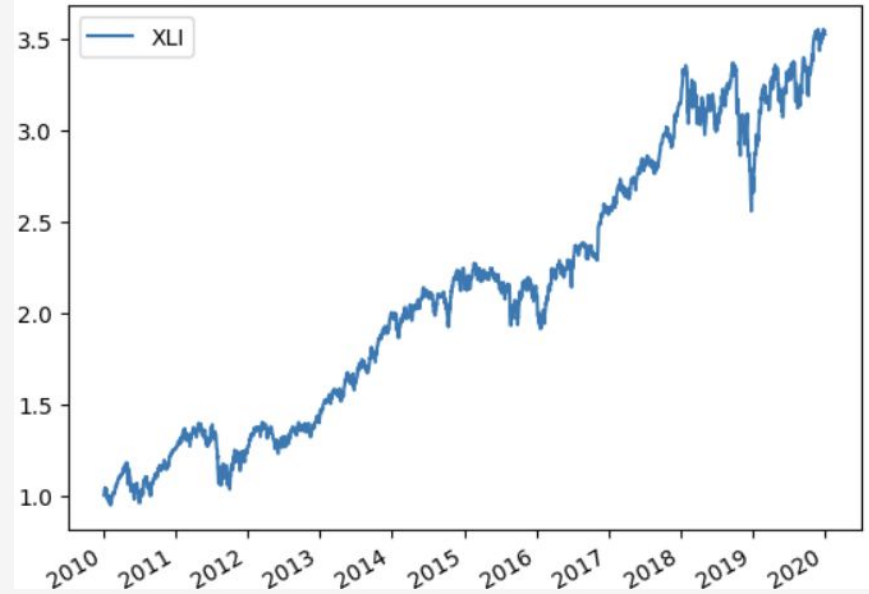Companies that are more dynamic will have higher stock return over time

Methods

Step 1

SEC-API
Used SEC API to scrape Section 7A of 10-K Annual Report for each stock

Step 2

Embeddings
Used multiple methods to determine the embedding ex: TD-IDF, spacy

Step 3

Determine Cosine Sim
Calculated the Co-Sine Similarity for each pair of 10-K

Step 4

Average Cosine
Determined the average Cosine for each Ticker

Compound Returns

Individual Returns

Industry Returns

Cosine Similarity

Spacy

ADP	0.990319
BA	0.992253
DE	0.879401
EFX	0.998288
GE	0.868859
HON	0.998801
ITW	0.988852
LMT	0.996967
UPS	0.996183

TF-IDF

ADP	0.911459
BA	0.9253109
DE	0.684378
EFX	0.9509628
GE	0.586411
HON	0.9523259
ITW	0.8832493
LMT	0.9635099
UPS	0.9413465

Results

Average Cosine Similarity vs. Compound Factor
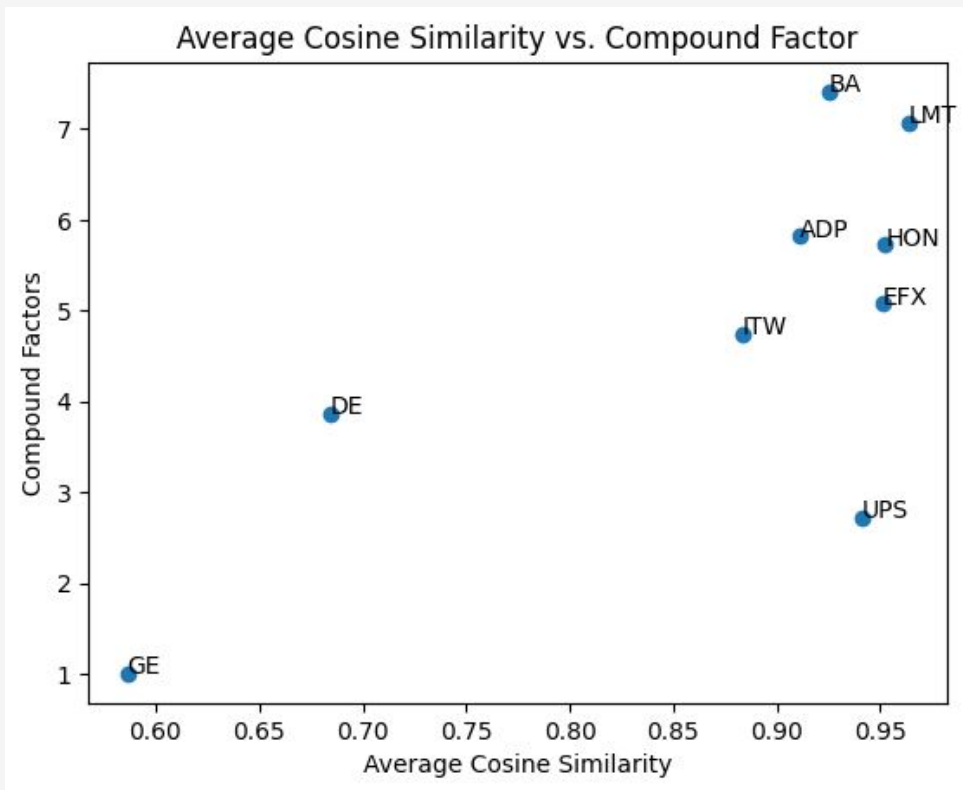
Analysis

Our results indicate that a higher compound factor was positively correlated with a higher cosine similarity, or companies that were less dynamic.

While this is the inverse result of our hypothesis, it still yields important predictive insights.

Potential uses of this data may be for:
- Stock trading
- Derivatives trading (options, futures, etc)
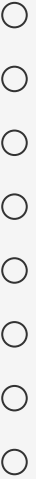- Company management

Moving forward

Results:

- Hypothesis proven wrong– but we found an interesting trend

Recommendations:

- This gives us insight on which stocks perform robustly over time
- Better insight on how to invest in the future
- Future Research:
  - -View different industries
  - -Longer time horizons
  - -More companies

Thank You

Questions?