**Numbers (Intra-Entity, Inter-Entity, Industry Averages):**

Compare with the company itself, and with the other companies within the same industry.

* seasonally/annually, and maybe give weight to how much the stock price would increase

Potential implementation:

* 每一季公開財報時的浮動 (sign&magnitude)
* 目標價 of the season= expected value

Use:

* Random forests, Lasso Regression…
* Nonlinear neural network (relatively better for predictions of extreme market reactions)
* Linear/Lasso perform comparatively better when predicting moderate returns

<https://deliverypdf.ssrn.com/delivery.php?ID=584095096086108103080117072011004127032069023053024057123011009026071120029099118025037027038012044049023030015122094114009121119094030029067018089004116084093003048050036022027104102065087068087091013121102031084019124080094066071026072090080004002&EXT=pdf&INDEX=TRUE>

* <https://www.oxford-man.ox.ac.uk/wp-content/uploads/2020/06/Machine-Learning-Based-Financial-Statement-Analysis.pdf>

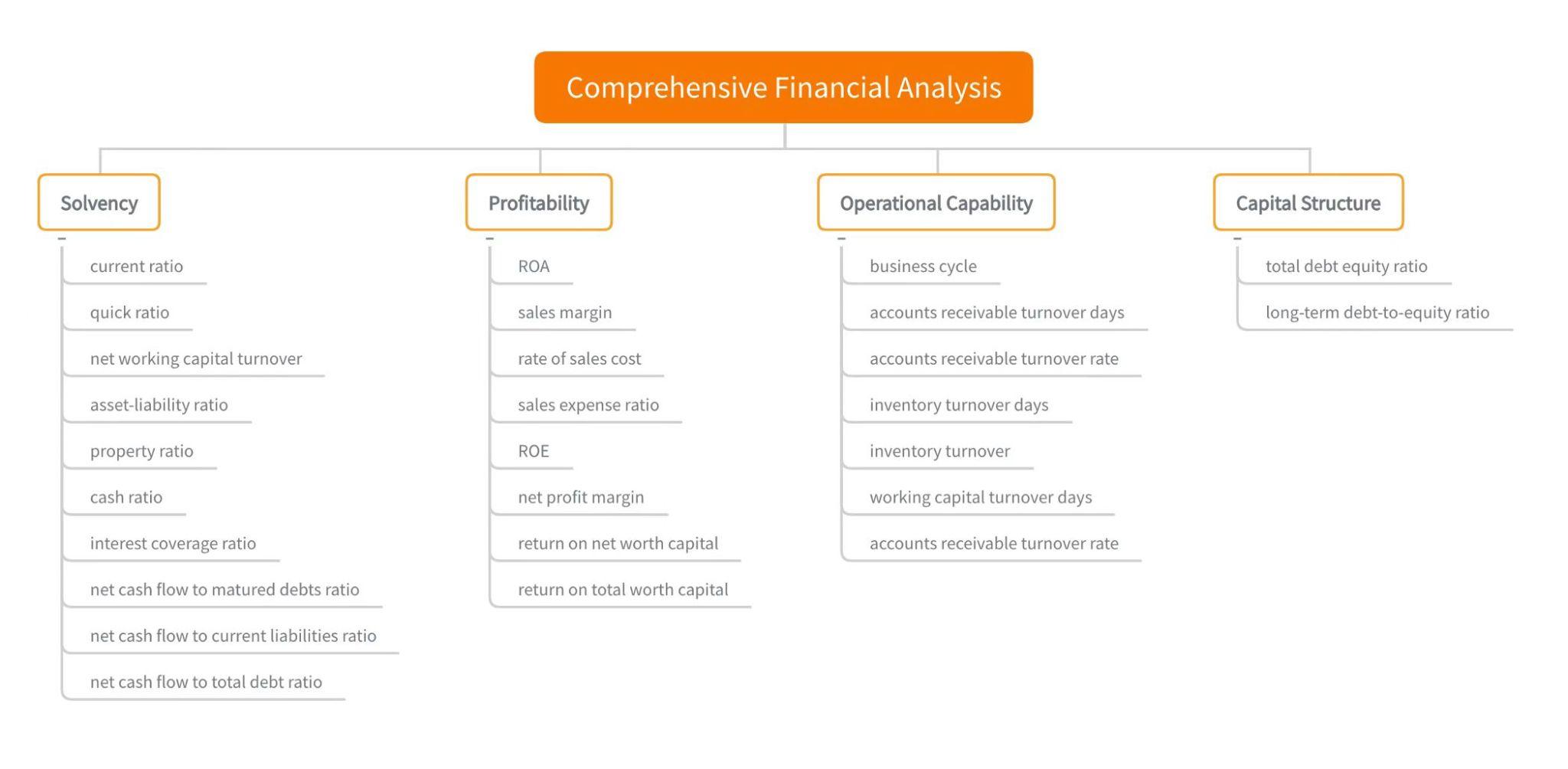
How to compare:

* Compare time period performance
* Generally comparing percentages (of items in the report) during a period of time:

<https://medium.com/analytics-vidhya/retrieving-and-comparing-income-statement-data-with-python-a6f184b160cc>

(ratio analysis, common size statements, )

* More of trend analysis: comparative financial statements, trend analysis, <https://onlinedegrees.und.edu/blog/data-analysis-tools/>



extra:

* General info about FS analysis: <https://towardsdatascience.com/guide-to-financial-statement-analysis-for-beginners-835d551b8e29>
* DS methods to compare performance between companies:

<https://towardsdatascience.com/6-data-analysis-methods-to-help-you-make-great-financial-statements-2bd573a19b17>

**NLP(sentiment):**

* Words within the FS that indicates good or bad performance
* Perform analysis on everyday news that show up in each stock’s news section,

Potential implementation:

* 當日/week’s 浮動 (short term)
* **stock price tomorrow = (price today) + price\_constant\*(price today)\*(sentiment today) — volume\_constant\*(volume today)\*(sentiment today)**`

<https://towardsdatascience.com/heres-how-i-predicted-apple-s-stock-price-using-natural-language-processing-13a578c41b8e>

**Useful dataset:**

Annual Report & 10-K from SEC:

<https://www.sec.gov/dera/data/financial-statement-data-sets.html>

[Capital IQ](https://www.capitaliq.com/CIQDotNet/my/dashboard.aspx)

Factset: (UCB students accessible)

<https://www.factset.com/our-company/technology>

Kensho:

<https://datasets.kensho.com/?utm_source=google&utm_medium=cpc&utm_campaign=Datasets&utm_content=136858087628&utm_term=datasets%20for%20machine%20learning%20projects>