## horizontal line



Predicting a stock price change vs Index using estimated consensus EPS trend

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# Overview

The idea is that we take the EPS projections as the base and then look at the fundamental and macro factors to look for very similar situations in the past.

If the EPS projections show some trend, but the fundamental and the macro factors are different, that period can be rejected or given very low confidence level.

If the EPS projections and one of the fundamental or the macro factors are similar, then the confidence level can be increased for the future performance of the shares.

If all the three trends are similar, it can be given highest confidence level.

# Business Case Feasibility

## Business Problem

What business problem are we trying to solve?

* Active Fund manager underperforming the index because
* Lack of resources to analyze all the available stocks (tomorrow’s Google and FB will not be analyzed and hence will not be in portfolio)
* Lack of ability to predict how the stock will perform compare to index.
* Market currently has smart beta product (Risk based product ie analyze the risk of stock and thein weight is accordingly in the portfolio). This product is booming as quant driven and scientifically appealing. However even the users of this product are not consistently beating the index. So, there is a market for a product which can on continuous basis beat the index. (if bullish market buy stocks with beta higher than 1 and in bearish market have products with less than 1)
* There is a need to Smart Alpha product. Active fund manager supposes to do alpha trading i.e. additions better performance over the know beta (because of some of the reasons mentioned above)

## Target Market

* Fund Mangers
* Fund house

## Alternate Solutions

## Are there any alternate solutions available and if yes then in what way it’s better than the other approaches of solving the problem?

* Samrt beta is a solution but that’s not meeting the objective

## Historical Data to back the Solution

## Are there any Historical numbers that can be used to back our idea?

* We have to do the backtesting ;
* Machine learning plays a role here

## Scalability of the Solution

## Can we generalize this across industries, scale of companies etc.

* Retail investors can be targeted
* New alpha product
* This can be applied to any index

## What is the current norm? Is this currently being used during decision making?

* Stock price prediction based on all macro and fundamenta l analysis. Then identify all stocks which are performing better than index and make it part of portfolio. So end result is to beat the index.
* This analysis is not done and hence value of this anaysis.

# Statistical Analysis of Time Series

Bollinger Band: A way of quantifying how far stock price has deviated from some norm. +/- 2sigma from the moving average

Daily Returns: Day to Day change in stock price

Global Statistics: Mean, median, mode etc..

Rolling Statistics: 20 days rolling mean, 30 days rolling mean, (moving avg) rolling std

One technical analysis says price should follow the rolling mean and any significant deviation (up or drop) means that price will catch up/down

# Goals

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# Specifications

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Industries and application areas of pattern matching using machine learning e.g. ECG

# Milestones

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# Appendix 1

## Similar usage

-ECG

-Weather/Rain forecast

- Stock prices

- Machine breakdown

Challenges

Time is dense. Naive discretization does not scale.

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Lengths (durations) are more important for temporal

behaviors than texts.

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Temporal behaviors are multi-dimensional unlike text.

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Temporal patterns talk about different dimensions.

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