

Screening for GEMs: February 2023

Executive Summary

An overview (and output) of our machine learning-driven GEM screening model, which seeks to find the best medium-term long ideas within the top 100 stocks in the MSCI GEM Index.

The model is based on 1) a quantitative multifactor screening model, enhanced by two AI Technology-based approaches; 2) a Deep Neural Network model, and 3) a Recurrent Neural Network model.

Developed over roughly 4 years and implemented in its current state for nearly 3 years, the model has a solid real-world alpha-generating performance track record, discussed in detail below.

By-line

This insight provides an overview of our, machine learning-driven, proprietary GEM screening model, based on a Multifactor model, a Deep Neural Network model, and a Recurrent Neural Network model.

Detail

The top decile this month includes a high concentration of consumer stocks across various geographies. Notable new entrants include Bajaj Finance, Ambev, and Naspers.

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rank	Name	Sector	Location	prev.
1	JD.com, Inc. Class A	Consumer Discretionary	China	11
2	Tata Consultancy Services Limited	Information Technology	India	48
3	Kweichow Moutai Co., Ltd. Class A	Consumer Staples	China	30
4	Li Ning Company Limited	Consumer Discretionary	China	33
5	Maruti Suzuki India Limited	Consumer Discretionary	India	49
6	Naspers Limited Class N	Consumer Discretionary	South Africa	53
7	Ambev SA	Consumer Staples	Brazil	66
8	Saudi Telecom Co.	Communication	Saudi Arabia	42
9	Bajaj Finance Limited	Financials	India	100
10	Wal-Mart de Mexico SAB de CV	Consumer Staples	Mexico	46

Source: FactSet financial data and analytics, my estimates and calculations, Tensorflow, Keras, Google Colaboratory, pandas

The top quintile from the screening model is attached below as an easily downloadable and printable pdf. As usual, please feel free to reach out for the full output table, and any questions, clarifications needed, or suggestions. Please also refer to the following fundamental insights recently published on stocks featured in the top quintile:

- [2023 High Conviction: JD.com to Benefit from Discretionary Spend Recovery, Margin Progress on Track](#)
- [Indian IT Services: Weakening revenue dynamics, and above-fair valuation levels, keep us side-lined](#)

Methodology

This proprietary screening model takes a three-pronged approach to find the best medium-term long ideas within the top 100 largest stocks in the MSCI GEM Index. It is based on 1) a typical quantitative multifactor screening model and two Artificial Intelligence Technology-based approaches using 2) a Deep Neural Network model, and 3) a Recurrent Neural Network model.

- 1) **Multifactor screening model:** This more closely resembles the traditional quantitative analysis multifactor screening models used by the buy-side. It encompasses 17 factors, grouped within traditional Quality,

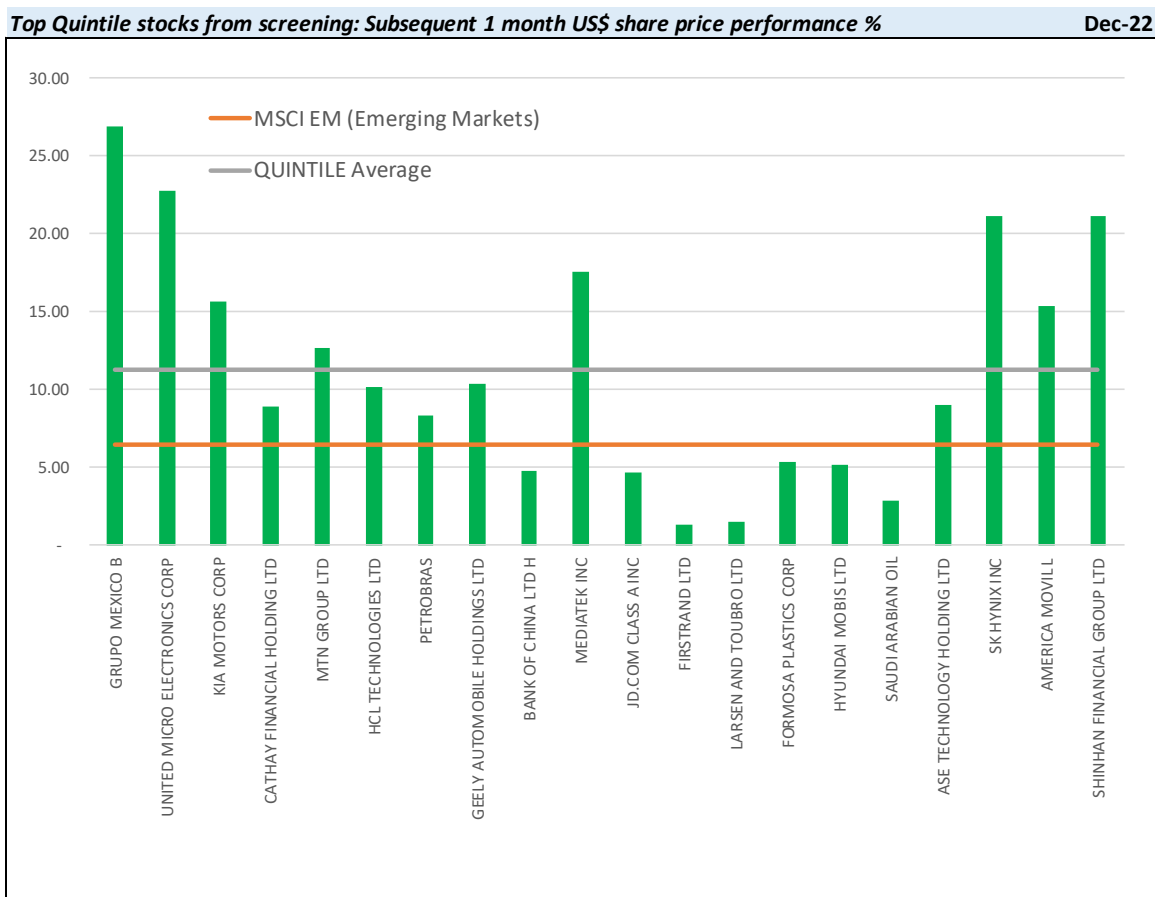
Valuation and Momentum buckets, and derives its outputs based on simple linear regression mathematics. The main benefit of this model is that it is very intuitive since the linear correlations between the factors and the output are easy to understand and track.

- 2) **Deep Neural Network model:** Using Artificial Intelligence technology, this model is based on a Deep Neural Network architecture where hidden data layers allow for sophisticated non-linear correlations between key input variables, segmented between Macro, Technical, Fundamental and Value inputs. This is similar architecture to that used in Image recognition (amongst many others). The value-add from this model is that it can derive meaningful conclusions from the non-linear inter-correlation of thousands of inputs per stock. This model is trained on over 300,000 data points (and growing) for each stock analysed.
- 3) **Recurrent Neural Network model:** Also using Artificial Intelligence technology, this model is based on a Recurrent Neural Network architecture. This is similar architecture to that used in most Natural Language Processing applications. This model also allows for sophisticated non-linear inter-correlations between key input variables, segmented between Macro, Technical, Fundamental and Value inputs. However, the main benefit of this model is that it also incorporates a “time”-dimension, very suitable for analysing time-series data, which allows the model to “look back” and contextualise inputs over time. This model is trained on up to 60,000 data points (and growing) for each stock analysed.

At its core, the model attempts to predict which stocks have a better probability of positive US\$ share price performance over the following 3-month investment horizon.

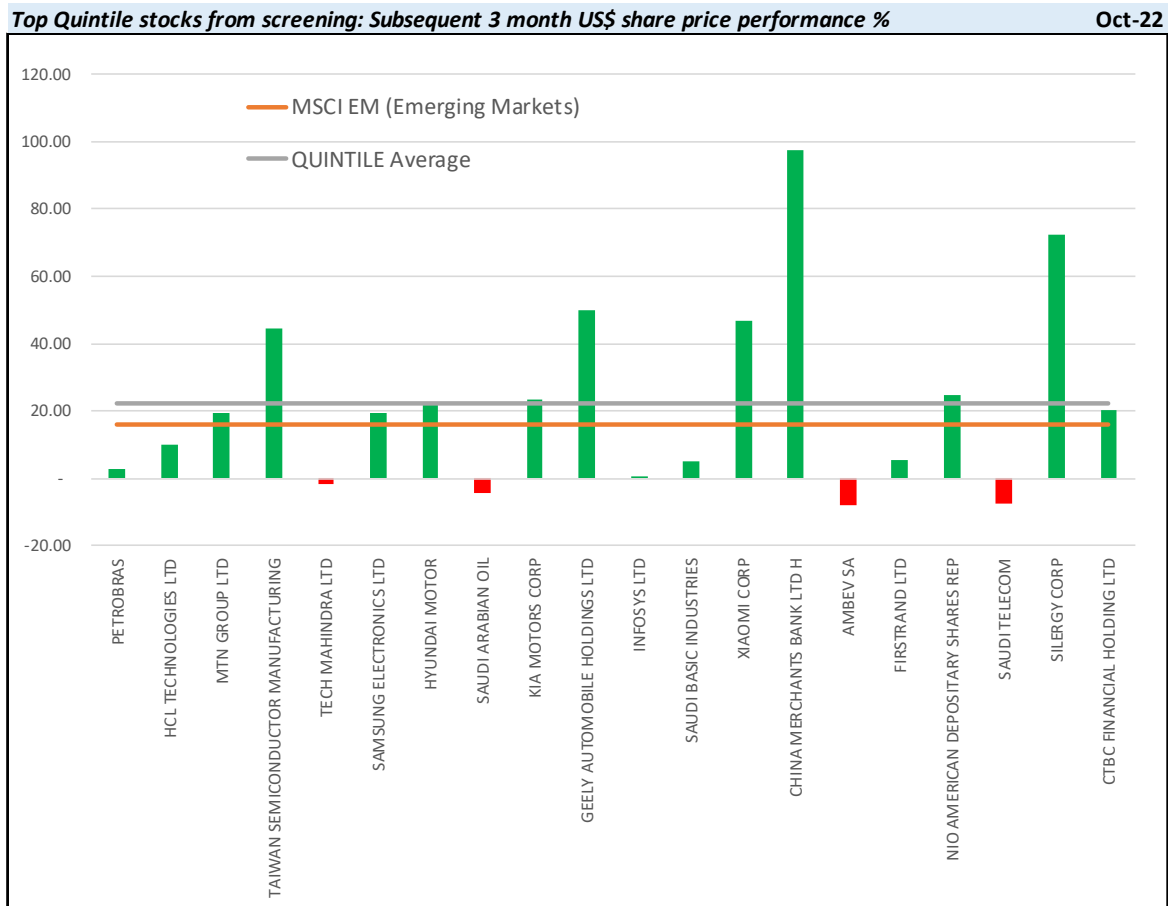
Previous screening performance

Although the model is trained to predict performance as measured over 3 months, it is useful to have a quick look at how last month’s picks have performed, so far ([Screening for GEMs: January 2023](#)). Driven by the reopening of the Chinese economy, January 2023 was a very strong month for the Global Emerging Markets with its key equity index increasing by +6.5%. The top quintile from our model significantly outperformed its benchmark, delivering an average return of +11.3%. Overall, 13 of the top 20 stock picks managed to beat the benchmark, all delivering a positive return for the month.



Source: FactSet financial data and analytics, my estimates and calculation, Tensorflow, Keras, Google Colaboratory, pandas

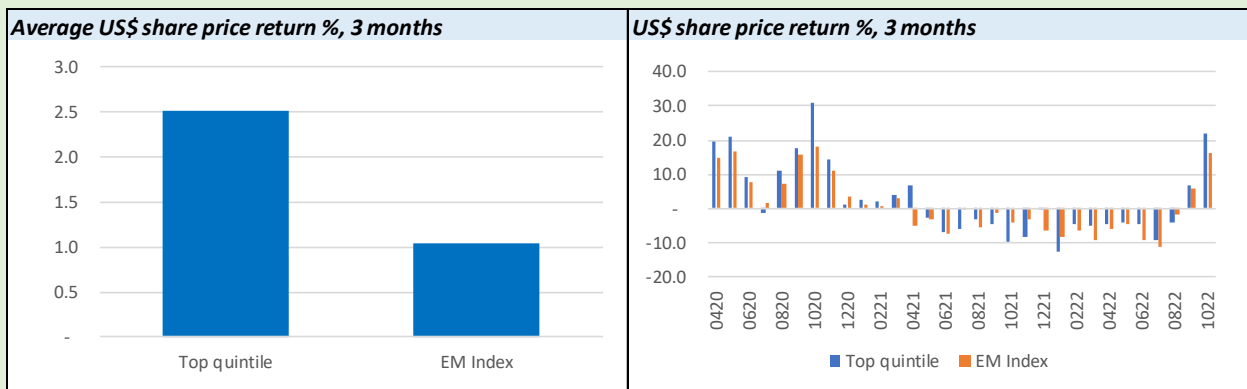
Looking back 3 months, to the end of October 2022's picks ([Screening for GEMs: November 2022](#)), we see a similar story. Due to the sharp rallies seen during November 2022 and January 2023, the key Global Emerging Markets equity index increased by +16.1% for the 3 months. The top quintile from our model managed to significantly outperform its benchmark, delivering an average return of +22.1%. Overall, 11 of the top 20 stock picks outperformed the benchmark, with 16 delivering positive returns.



Source: FactSet financial data and analytics, my estimates and calculation, Tensorflow, Keras, Google Colaboratory, pandas

Model track record

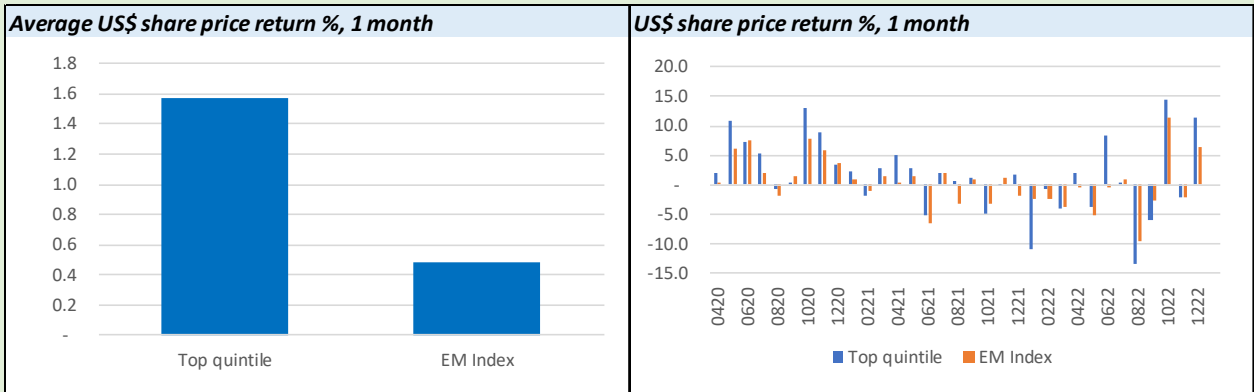
It certainly needs to be conceded that statistical/quantitative models could be very susceptible to outliers and anomalies, but should over time, deliver mean or median performances which add value. When looking at the mean US\$ share price returns of the model over the targeted 3-month return period, historically, the top quintile stocks have managed to outperform the benchmark during 23 of the past 31 monthly runs (74%), generating an average monthly alpha of +1.5% in US\$.



Source: FactSet financial data and analytics, my estimates and calculation, Tensorflow, Keras, Google Colaboratory, pandas

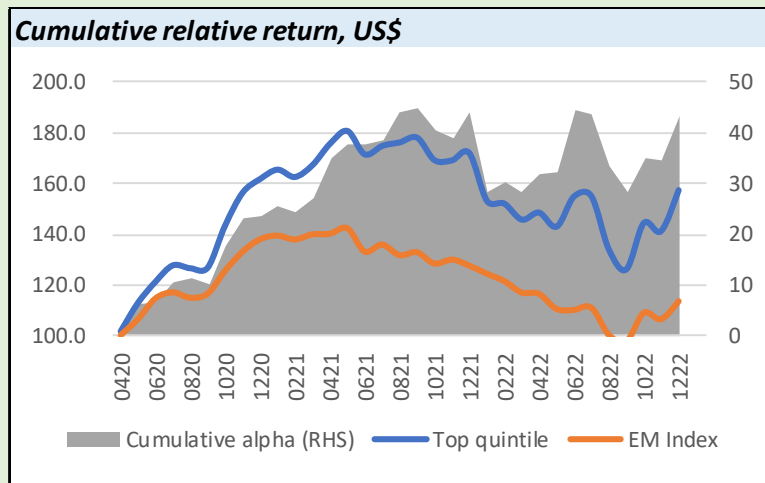
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Shorter-term, we have also witnessed outperformance, albeit to a slightly lesser extent. When measured over a 1-month return period, the top quintile stocks have outperformed the benchmark during 21 of the past 33 monthly runs (64%), generating an average monthly alpha of +1.1% in US\$.



Source: FactSet financial data and analytics, my estimates and calculation, Tensorflow, Keras, Google Colaboratory, pandas

This level of outperformance has been significant. For illustrative purposes, had we run a model portfolio based on equal-weighted holdings in these top-quintile stocks, with monthly rebalancing, it would have outperformed the index by 43.4% over the past 33 months, in US\$, excluding friction costs.



Source: FactSet financial data and analytics, my estimates and calculation, Tensorflow, Keras, Google Colaboratory, pandas

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