Constant Improvement to Stay on the Cutting Edge

AIM
ALGORITHMIC INVESTMENT MODELS

2012

The Original Model

AIM combined algorithmic investors into committees through trial and error.

2013

Programmatically Generated Committees

As AIM's computing resources expanded, they began programmatically generating Committees and chose a Committee at the desired risk level on the resultant efficient frontier.

2016

Naysayers

AIM introduced short-sellers to their investor universe to complement the existing long-only investors. As we currently implement the models in a long-only fashion, these short-sellers effectively vote against an ETF in a committee.

2017

The Battalion

AIM introduced an ensemble methodology called the "Battalion". Instead of relying on a single Committee, AIM now aggregates Committees on the efficient frontier in the model's target risk area.

2018

Proprietary Correlation Variables

In order to model the complex movements between various securities, AIM developed correlation-based variables that distill tens of thousands of datapoints into parameters that can be used to construct framework algorithms.

2020

"In-the-Money" Variables

AIM has long believed that an investor could effectively trade the market if they knew the cost basis of all other investors. "In-the-Money" variables are an attempt to capture critical reference points for investors and approximate such cost basis data on various time horizons.

Beta Frameworks

March's anomalous market environment produced unprecedented levels of fixed income volatility. To cope with such environments, AIM developed frameworks with beta-based objectives to complement the existing frameworks with absolute volatility objectives.

2022

Pairwise Beta Variables

Building on the correlation dataset, the pairwise betas have an extra dynamic element since the values are not constrained between -1 and 1, providing more information to the models about relative volatility of the ETFs in the pool.

1-Year High/Low Variables

Often investors will react to a security based on its distance from its high or low from the last year. These variables enable the system to detect when a security may look attractive or unattractive to investors based on recent highs or lows.

Optimization Improvements

"Smart" optimizations enable the algorithms to hill climb not just formula coefficients, but the variables themselves.

Genetic algorithms were given access to a wider dataset than previously available.

2023 and 2024

Options Data

AIM began training frameworks with options data beginning in 2023. These frameworks were incorporated into the official battalions for the first time at the beginning of 2024.

Upgrades to Battalion Process

At the same time, AIM initiated a new battalion composition process. Instead of manually generating committees and selecting for diversity along the efficient frontier, we used an algorithmic process. Genetic algorithms were seeded with framework ranking data and selected frameworks and applied weights to them in the same fashion as has been done with the core data in the frameworks.

1-Year Frameworks

In addition, some frameworks were included that were attempting to predict best holdings for 1-year rather than the typical 5-weeks. The committees were still constructed using 5-week returns, so any frameworks selected, whether they included options data or not or whether they were predicting 5-weeks or 1-year forward, were selected because the resulting formula had desirable performance characteristics for 5-week holding periods.

2025

Z-Scores

AIM introduced Z-Score versions for all variable sets in use. Previously AIM was only using Z-scores for trailing return and volatility variables. Z-scores indicate how extreme a variable's value is for one ETF relative to the pool on a given day which can provide valuable context. For example, an ETF with a 2% return on a day the market was up 2% as well will have a small Z-score whereas an ETF with a 2% return on a day the market was down 1% will have a very large Z-score.

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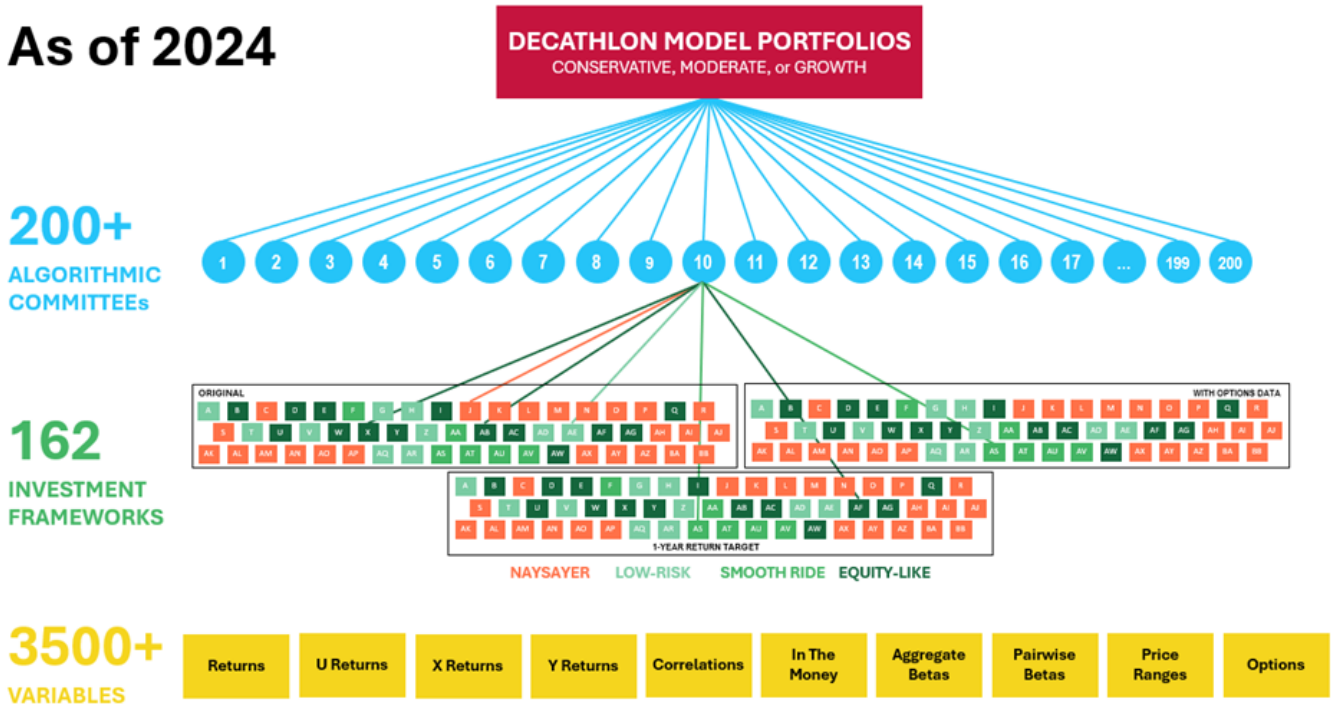

Layer 3: ETF rankings from the 200+ committees are aggregated into a single set of ETF rankings that reflect the collective wisdom of all the diversified approaches.

Layer 2: A highly diversified ensemble of 200+ "algorithmic investment committees". Each committee is staffed by 10-20 formulas that collectively select ETFs very efficiently for the product's target risk level.

Layer 1: 162 ETF-ranking formulas individually engineered with genetic algorithms to achieve novel performance characteristics or to mimic customary investment objectives and styles.

Inputs: various returns datasets both absolute and relative to other indices as well as proprietary datasets using correlations, options, betas and more.

The AIM Decathlon strategies are predictive, algorithm driven and use pattern recognition technology (PRT) to rank a population of ~230 handpicked ETFs in which it will "invest" in the 10 most promising based on upward price movement and defined volatility levels. The system is typically run and reviewed daily and typically 'rebalances' once a sufficient number of securities have fallen far enough in the rankings to justify the resulting trades. Decathlon's process is subject to ongoing research and enhancement, with the goal of continuous improvement. The algorithms used by the system are usually optimized on a quarterly basis.

As with all investments, there are associated inherent risks, including loss of principal. Past performance is no guarantee of future results. ETFs (Exchange Traded Funds) trade like stocks and are subject to investment volatility and the potential for loss. The principal amounts invested in ETFs are not protected, guaranteed or insured. The portfolio manager maintains full discretion over the portfolios. This material is for informational purposes only. It is not intended as an offer or solicitation for the purchase or sale of any security or financial instrument, nor should it be construed as financial or investment advice.

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