



ROBOADVISING STRATEGIES

 **RoboMarkets**

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Here appears the main information about each portfolio provided via the "RoboAdvising" service. Description contains general rules and prerequisites of portfolios, as well as the set of statistics. All statistical values are based on real results of existing portfolios and on data collected after the simulation on the historical data.

The information update frequency may vary from time to time and therefore does not guarantee the real-time display of the Portfolio state.

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KDA

KDA is a “Meta” model of sorts, combining successful elements of multiple other tactical asset allocation strategies.

KDA takes a different approach to a Meta model, allocating your investments the most successful elements from other strategies:

KDA measures momentum across multiple timeframes from 1 to 12-months, with more recent momentum given more weight. This is identical to the approach taken by Keller and Keuning’s “Vigilant Asset Allocation”.

The strategy considers both absolute and relative momentum, like traditional “dual momentum”. In other words, it requires that an asset exhibits both positive momentum and stronger momentum than other assets.

It uses minimum variance optimization with a “weighted” covariance matrix like ReSolve’s “Adaptive Asset Allocation” to determine how much of your investments to allocate to each asset.

It uses the “canary universe” concept from Keller and Keuning’s “Defensive Asset Allocation” to know when to “turn off” the strategy and move to defensive assets like US Treasuries or cash.

Statistic ratio	Strategy value	Benchmark value	Statistic ratio	Strategy value	Benchmark value
Annualized Return	12.2%	9.1%	Annualized Volatility	8.3%	8.7%
Best Month Return	11.9%	9.0%	Worst Month Return	- 8.8%	-10.3%
Sharpe Ratio	1.11	0.70	Sortino Ratio	2.30	1.18
Max Drawdown	-9.4%	-29.5%	% of Profitable Months	68.4%	66.5%
Ulcer Performance Index	2.88	0.99	Annual Turnover	690.9%	13.3%

* Benchmark - The 60/40 Benchmark Portfolio. The traditional 60/40 portfolio is an allocation of 60% to equities and 40% to bonds. It is periodically rebalanced (usually once per month) in order to maintain this proportion as each asset class grows or shrinks between rebalances.



Maximum Diversification

This is a portfolio which is based on Maximum Diversification approach. This strategy is spreading out your investments between assets that are as diversified as possible. We chose 4 sectors which are the most diversified on our opinion:

- US Treasuries
- US Equities
- US Real Estate
- US Non-Government Bonds

Within this strategy your investments will be allocated in any ETFs displayed the abovementioned sectors.

Maximum Diversification approach provides long-term returns in line with buy and hold without the significant drawdowns that often accompany buy and hold. So, this strategy is aimed to allocate your investments as safest as possible. The return is not the main goal of this approach.

Statistic ratio	Strategy value	Benchmark value	Statistic ratio	Strategy value	Benchmark value
Annualized Return	9.8%	10.4%	Annualized Volatility	7.0%	9.6%
Best Month Return	8.9%	9.7%	Worst Month Return	- 8.0%	-10.7%
Sharpe Ratio	0.74	0.60	Sortino Ratio	1.28	1.03
Max Drawdown	-11.9%	-29.5%	% of Profitable Months	68.3%	65.8%
Ulcer Performance Index	2.45	1.10	Annual Turnover	36.4%	12.3%

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CPM

Within the strategy your investments are allocated in universe of global asset classes based on both relative and absolute momentum. The strategy has done extremely well managing drawdowns by using a “crash protection” asset to protect your investments from excessive loss when just a handful of assets fail to show positive momentum. Also, the strategy considers another important factor when selecting assets: correlation. The strategy is more likely to spread your investments between assets that are less positively correlated to other assets in the universe, which in most months produces a more diversified portfolio.

This strategy has 2 key advantages:

- Aggressive incensement of allocation to the crash protection asset to protect the portfolio from excessive losses.
- The ability to switch from a longer to a shorter duration crash protection asset should we enter a new regime of rising interest rates.

The strategy is aimed to maximize return using the several types of determination a momentum, but use also aggressive protection model. It allows to produce a well balanced portfolio.

Statistic ratio	Strategy value	Benchmark value	Statistic ratio	Strategy value	Benchmark value
Annualized Return	10.7%	9.1%	Annualized Volatility	7.9%	8.7%
Best Month Return	9.1%	9.0%	Worst Month Return	- 6.6%	-10.3%
Sharpe Ratio	0.96	0.70	Sortino Ratio	2.00	1.16
Max Drawdown	-7.3%	-29.5%	% of Profitable Months	67.6%	65.8%
Ulcer Performance Index	3.22	0.99	Annual Turnover	45.9%	13.3%

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Momentum allocation

This is a momentum trading strategy. It means that your investments will be allocated in assets which are rising at the moment and has potential to rise. The goal is to work with volatility by finding buying opportunities in uptrends and then sell when the securities start to lose momentum.

The list sectors into which the strategy is investing fixed, have good diversification and contains as high volatile so as conservative asset categories. Within the strategy your investments allocate between ETFs displaying the following sectors:

- US Treasuries
- US Non-Government bonds
- US Equities
- Commodities
- International Equities
- Precious Metals
- US Real Estate

The strategy is aimed to maximize buy using the momentum and protect investments via diversification.

Statistic ratio	Strategy value	Benchmark value	Statistic ratio	Strategy value	Benchmark value
Annualized Return	12.7%	9.4%	Annualized Volatility	8.1%	9.8%
Best Month Return	12.3%	10.7%	Worst Month Return	- 6.5%	-10.7%
Sharpe Ratio	0.98	0.48	Sortino Ratio	1.89	0.80
Max Drawdown	-10.3%	-29.5%	% of Profitable Months	70.4%	64.2%
Ulcer Performance Index	3.31	0.79	Annual Turnover	241.3%	12.3%

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MVO

This strategy combines classic mean-variance optimization, coupled with a short lookback in order to harvest momentum, as well as volatility targeting to limit portfolio volatility. Mean-variance optimization forms part of the foundation of modern finance. The core concept underlying MVO is that an asset's risk and return cannot be assessed in isolation, but rather, by how it contributes to the portfolios overall risk and return.

During periods of particularly low volatility, the strategy may be able to stay under those volatility targets using purely risk assets (i.e. everything other than IEF and cash), but in most instances, the strategy must add some degree of lower volatility defensive assets. ETFs displayed the following sectors are trade. Within the strategy your investments allocate between ETFs displaying the following sectors:

- US Treasuries
- Cash
- International Equities
- US Equities
- US Non-Government bonds

This strategy using a quantitative approach to allocate your investments into a portfolio of assets aimed to maximize return for a given level of risk.

Statistic ratio	Strategy value	Benchmark value	Statistic ratio	Strategy value	Benchmark value
Annualized Return	10.1%	9.5%	Annualized Volatility	6.5%	9.8%
Best Month Return	9.4%	10.7%	Worst Month Return	- 7.5%	-10.7%
Sharpe Ratio	0.82	0.49	Sortino Ratio	1.49	0.82
Max Drawdown	-12.1%	-29.5%	% of Profitable Months	72.8%	64.4%
Ulcer Performance Index	2.33	0.82	Annual Turnover	253.3%	12.1%

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Low volatility allocation

The strategy splits your investments evenly between four assets, each designed to capitalize on one of four possible economic conditions: equities (SPY) during periods of prosperity, short-term US Treasury bills (represented here by cash) during recession, gold (GLD) during inflation and long-term US Treasury bills (IEF) during deflation. Such approach contributes to reduction in volatility, and improvement in both return relative to volatility (Sharpe Ratio) and return relative to drawdown (UPI), compared to the ubiquitous 60/40 benchmark.

The strategy has 3 main rules:

- The strategy holds just those assets showing recent strength and ignores those assets showing recent weakness.
- Less volatile assets are allocated a larger percentage of the portfolio, and vice-versa.
- The strategy attempts to maintain maximum portfolio volatility of 7% (roughly the long-term volatility of the buy & hold portfolio), by allocating more to cash during volatile periods.

The combined effect of the above rules is in a more consistent risk profile. It makes the portfolio less volatile

Statistic ratio	Strategy value	Benchmark value	Statistic ratio	Strategy value	Benchmark value
Annualized Return	8.7%	9.6%	Annualized Volatility	6.6%	9.8%
Best Month Return	6.8%	10.7%	Worst Month Return	- 6.9%	-10.7%
Sharpe Ratio	0.60	0.49	Sortino Ratio	1.06	0.83
Max Drawdown	-11.0%	-29.5%	% of Profitable Months	67.0%	64.4%
Ulcer Performance Index	1.35	0.78	Annual Turnover	247.3%	12.1%

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FAA

This is a very active momentum strategy. Unlike most of the other momentum strategies, its approach to measuring momentum is heavily biased towards very recent months. This makes the strategy quicker to respond to market changes, but also leads to high portfolio turnover.

The strategy splits your investments between up to five assets, by 20% on each. While the strategy could still at times become very concentrated in risky assets, it's still more likely to hold at least a portion of the portfolio in defensive assets at any given time. The net effect of that can be seen in significantly reduced volatility and drawdown.

Within the strategy your investments allocate between ETFs displaying the following sectors:

- US Treasuries
- US Non-Government bonds
- US Equities
- Cash
- Commodities
- International Equities
- Precious Metals
- US Real Estate

The strategy is aimed to fast reallocation which makes it very sensitive to the changes, which provides more defense for your investments but accompanied with bigger than usual turnover.

Statistic ratio	Strategy value	Benchmark value	Statistic ratio	Strategy value	Benchmark value
Annualized Return	12.8%	9.5%	Annualized Volatility	7.6%	9.8%
Best Month Return	10.3%	10.7%	Worst Month Return	- 7.8%	-10.7%
Sharpe Ratio	1.08	0.48	Sortino Ratio	2.21	0.82
Max Drawdown	-10.2%	-29.5%	% of Profitable Months	73.7%	64.3%
Ulcer Performance Index	3.79	0.80	Annual Turnover	653.3%	12.3%

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RVC Allocation

This is a momentum strategy which splits your investments between most classical categories of assets - Equities, bonds and money market assets. The strategy considers momentum measured over multiple time frames, as well as correlation between assets, to allocate across both a global universe of risk assets and a "crash protection" asset. The strategy ranks assets based on three factors: return rate of each asset, volatility and correlation. Based on these ranks investments proportionally allocated between the assets to construct the optimal portfolio which considers the weight on the correlation, the volatility, and the yield.

Within the strategy your investments allocate between ETFs displaying the following sectors:

- US Treasuries
- US Non-Government bonds
- US Equities
- International Equities

The strategy is aimed, using the 3 dimension scoring system, to allocate your investments as much balanced as possible between most conservative assets.

Statistic ratio	Strategy value	Benchmark value	Statistic ratio	Strategy value	Benchmark value
Annualized Return	13.4%	9.6%	Annualized Volatility	10.2%	9.8%
Best Month Return	14.6%	10.7%	Worst Month Return	- 11.4%	-10.7%
Sharpe Ratio	0.85	0.48	Sortino Ratio	1.53	0.83
Max Drawdown	-20.0%	-29.5%	% of Profitable Months	68.9%	64.3%
Ulcer Performance Index	2.40	0.83	Annual Turnover	242.7%	12.3%

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