April 29, 2022

Key Insights For May

- **PSIMON's decision to diversify in the dollar for April paid off handsomely.** YTD, Columbus is down only -0.5% compared to -11.0% for the 60/40 benchmark (as of April 27).
- **However, PSIMON is now selling its dollar position** for the upcoming month, as it expects a reversal to be likely.
- **PSIMON is shifting its equity positions to the US market for this month.**
- **It is also increasing its position in real estate**, as an important inflation hedge.
- **PSIMON is maintaining an overweight recommendation**, in the Consumer Staples sector, and it is overweighting the real estate sector.
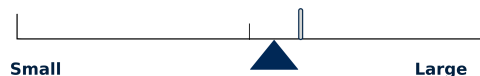
Factor Indicators

Value - Growth Factor
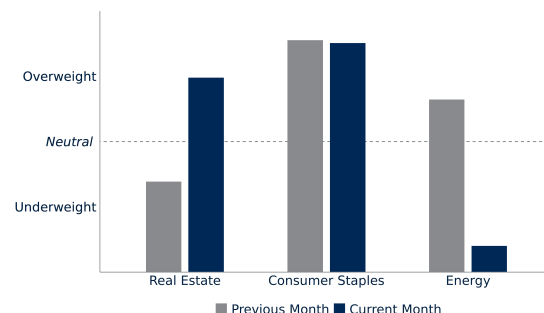

Value stocks are preferred over growth stocks.

Small - Large Factor

There is no noticeable preference between small and large caps at the moment.

Sector Indicator Highlights

Top Sector Changes

The top sector **changes** since last month include an increase in the **Real Estate (XLRE)** and a decrease in the **Energy (XLE)** sector.

PSIMON is maintaining an overweight recommendation in the **Consumer Staples (XLP)** sector for this month.

1. Market Outlook & Insights

Insights from PSIMON™

We regularly run PSIMON, our AI platform, to gain insights into market dynamics in addition to get specific forecasts. We summarize the key findings here.

What is PSIMON telling us this month?

1. Last month, PSIMON diversified the Columbus model roughly equally between equities, real assets and cash (the US Dollar).

2. For May, PSIMON is eliminating its allocation to the dollar and bumping up its allocation to real assets to 51%. PSIMON is detecting a likely reversal in the over-extended dollar, prompting it to remove it from the Columbus portfolio.

3. Real assets are the primary beneficiary from the US dollar sale, and in particular real estate, which has both stock-like characteristics and benefits from inflation.

4. PSIMON re-allocated the equity portion by selling some Japanese equities (EWJ) and the entire emerging markets (VWO) equities positions. It is buying the US market, with a roughly equal allocation between the S&P 500 (SPY) and the small/mid cap equity ETF (VXF).

5. PSIMON is taking a small position in investment grade corporate bonds (LQD), as it computed favorable odds of a reversal in the asset. It is also using LQD as a portfolio diversifier for the Columbus model.

6. PSIMON is downgrading the energy sector (XLE) to underweight for this month.

7. PSIMON is also maintaining an overweight position in the consumer staples sector (XLP) and going overweight the real estate sector (XLRE).

1. Market Insights

*Interpreting PSIMON's Recommendations*

PSIMON positioned the Columbus portfolio well during April, enabling a good management of the recent market volatility.

For May, PSIMON is once again focusing more on real assets, with some stock exposure and minimal fixed income.

Meanwhile, the low-volatility ESG portfolio continues to stay defensive, as expected given the volatile market environment.

Inflation Everywhere

The chart below shows the 10 year inflation breakeven rate.

Inflation Showing in the Breakeven Rate
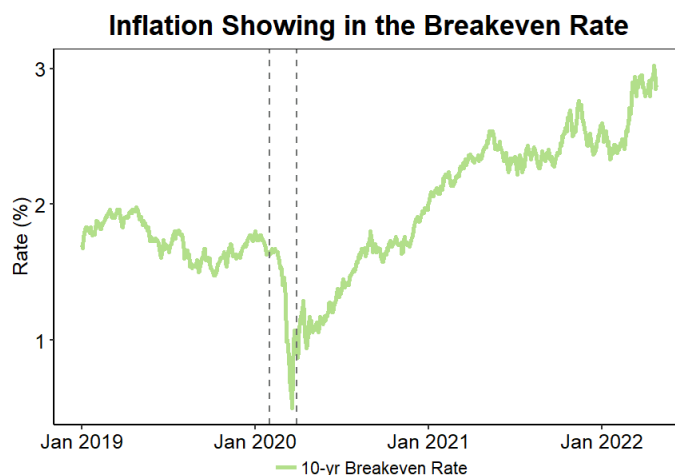
Since March, the breakeven rate has been hovering around its highest point, reflecting uncertainty regarding inflation expectations going forward.

The Russian war in Ukraine and the Covid lockdowns in China have only exacerbated the already strong inflationary backdrop.

It is now clear that we've entered a monetary tightening phase, highlighted recently by Fed chairman Powell who said he is comfortable with further tightening to contain inflation.

This tightening phase has historically been characterized by volatile equity markets.

Dollar and Gold

The next chart shows the US dollar and the gold spot prices.

USD and GOLD Now Negatively Correlated
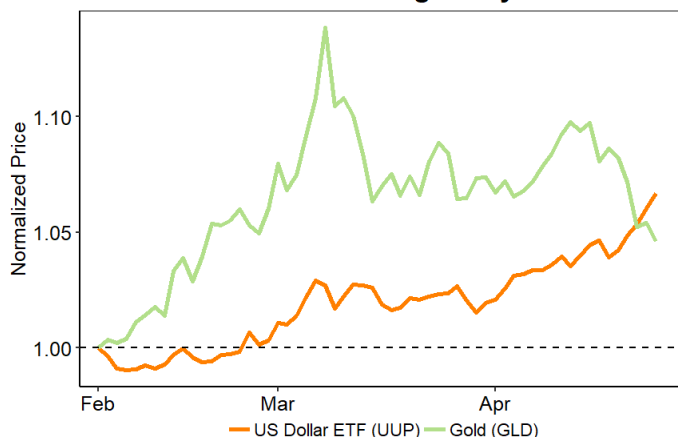
Both the dollar and gold have been moving upward this year. However, this positive correlation has broken down in recent days.

While gold is a natural inflation hedge, the dollar also acts as a refuge for market risk, and it's been driven by recent equity market volatility recently.

PSIMON is recommending to maintain a meaningful position in gold, as an inflation hedge, and despite its recent pullback.

Dollar Reaching a High

The next chart shows the US dollar bullish ETF (UUP).

USD at Highest Level Since Covid Crash
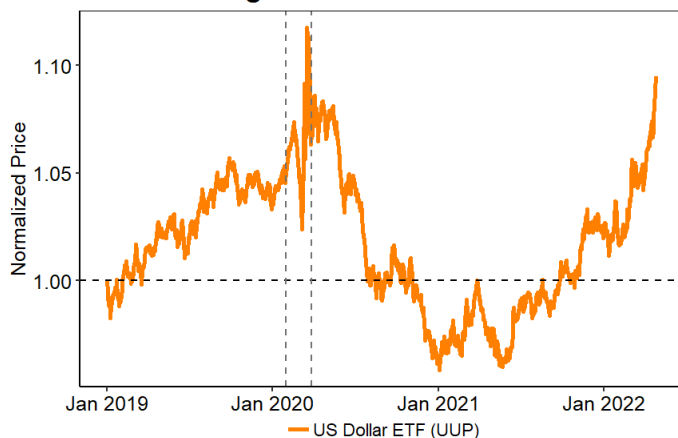
We can see that UUP is now reaching a high point, a level not seen since 2 years ago, when the world economies were entering a global lockdown at the height of the Covid market crash.

PSIMON has the ability to recognize high probability trend reversals, and it is now suggesting that UUP is about to hit a top and reverse course.

PSIMON is therefore selling UUP, after a nice run over the past month.

Real Assets Dominate Again

Consistent with the inflation theme, PSIMON is keeping half the Columbus portfolio in real assets for this month.

The chart below shows the S&P 500 index ETF (SPY), along with the real estate ETF (VNQ) and the commodities complex ETF (DBC).

Real Estate and Commodities Compelling
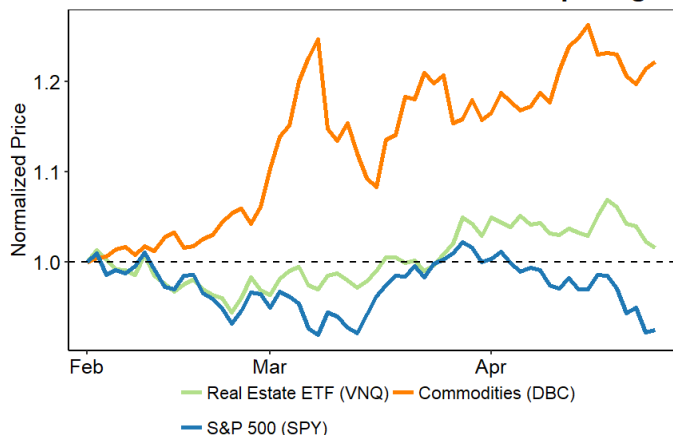
While VNQ has been very correlated with SPY during the early correction phase of this year, this relationship has decidedly changed in April: VNQ is holding up nicely while SPY has been going down during the month.

After a great run last year, PSIMON sold VNQ earlier this year, and bought the asset back last month with a small position.
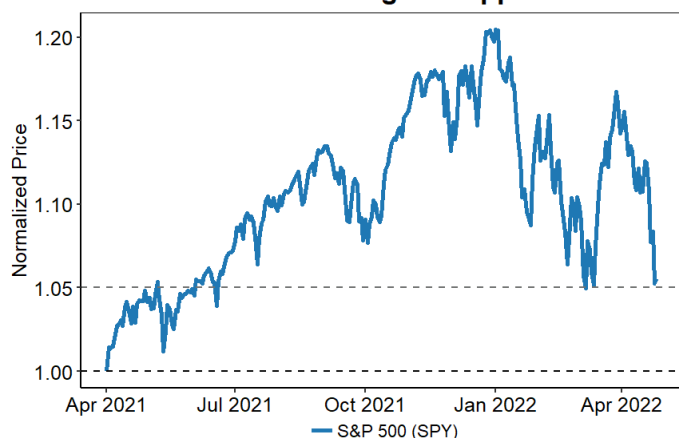
This month, PSIMON is increasing its position in VNQ to 20%.

In addition, PSIMON is maintaining a meaningful position in commodities via the DBC ETF.
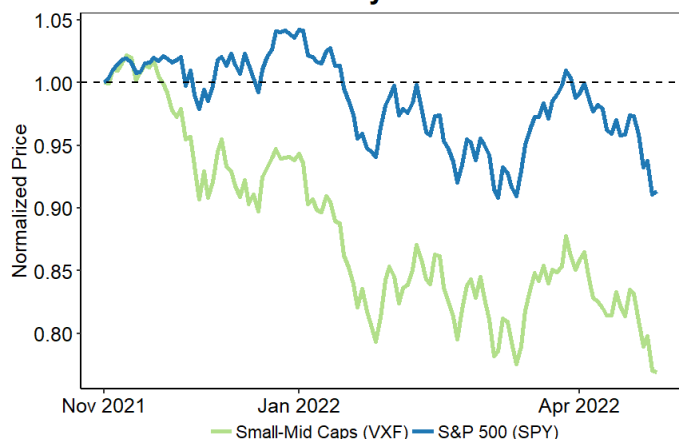
Equity Markets Rally?

The charts below show the S&P 500 ETF (SPY) over the past year, and both the SPY and the small/mid cap extended market ETF (VXF) over the past 6 months.

SPY Reaching Its Support

Small-Mid Ready For a Reversal?

While SPY corrected substantially since last year, VXF lost more than 20% since December.

In addition, the top chart shows that SPY has recently tested a technical support line.

PSIMON sees a high probability of a short term trend reversal, implying a short term rally in the equity market.

There are some clear risks to this view as the economic cycle slowdown implies that analysts are likely to revise expected earnings to the downside.

Still, PSIMON evaluates the odds that a reversal is likely enough to take positions in the US equity market.

Since there is a value argument with VXF given the magnitude of its correction, PSIMON is buying a roughly equal amount of SPY and VXF for the upcoming month.

Oversold Assets

PSIMON is also recommending small positions in the Japanese equity market (EWJ) and the investment grade corporate bond ETF (LQD).

Both of these ETFs have been in a relatively steady downtrend for some time now.

In addition to a value argument for EWJ, PSIMON is concluding the odds are good that a trend reversal will take place, which imply a rally from this point forward. Similarly, PSIMON is seeing high odds of a trend reversal for LQD, so it is recommending to take a small position in the Columbus portfolio.

Sector Dynamics

The following chart shows the S&P 500 (SPY) along with the Real Estate (XLRE) and the Consumer Staples (XLP) sectors ETFs.

Staples and Real Estate Preferred
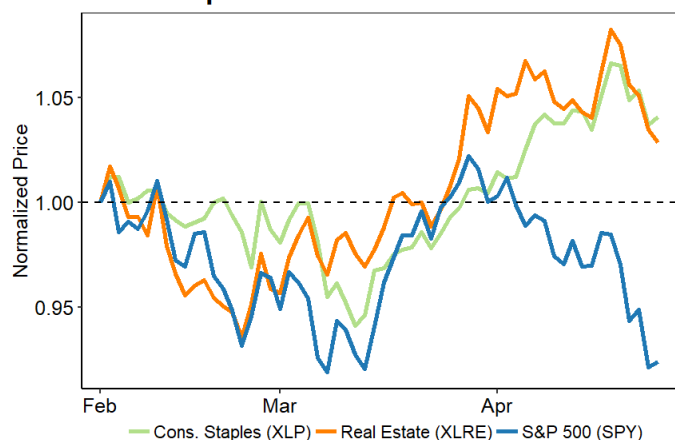
Last month, PSIMON gave an overweight recommendation for Consumer Staples (XLP), which turned out to be a great call given its defensive nature.

For this month, PSIMON is maintaining its recommendation in XLP, and is also recommending an overweight in real estate, given its inflation hedge characteristics.

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For Canadian Investors

The following box shows the US/Canada relative stock market attractiveness indicator, useful for portfolio managers investing in Canadian dollar portfolios.

TSX vs. S&P 500 Relative Attractiveness

The indicator below shows the relative attractiveness of the Canadian TSX index vs. the US S&P 500 index, adjusted for the USDCAD exchange rate.

Its purpose is to help Canadian portfolio managers evaluate the attractiveness of the US stock market for clients based in Canada.

TSX   S&P 500

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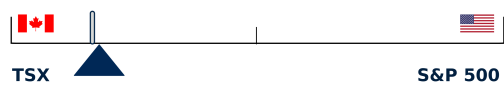
2. Tactical Models Allocations

Columbus Tactical Model

The table below shows the Columbus Tactical model alloca-tions for this month. It also shows the changes from the prior period and the maximum weights allowed for each ETF.

A **green up triangle and value** show an increase in allocation, whereas a **red down triangle and value** show a reduction since last month.

S&P500 SPY *max 50%*	15%	▲ 15%
Small & Mid Caps VXF *max 40%*	13%	▲ 13%
International Large Caps EFA *max 45%*	-	
Japanese Equities EWJ *max 40%*	8%	▼ 13%
Emerging Market Equities VWO *max 35%*	-	▼ 13%
Commodities DBC *max 35%*	10%	▲ 1%
Gold GLD *max 35%*	21%	▲ 2%
Real Estate VNQ *max 40%*	20%	▲ 17%
20+ Year Treasuries TLT *max 45%*	-	
7-10 Year Treasuries IEF *max 60%*	-	
Corporate Bonds LQD *max 60%*	9%	▲ 9%
Inflation-Protected Bonds TIP *max 60%*	-	▼ 8%
Emerging Market Bonds PCY *max 50%*	-	
US Dollar Index UUP *max 60%*	-	▼ 26%
Short Term Treasuries SHY *max 100%*	4%	▲ 3%

The *max value* shows the upper weight limit for each ETF during an ideal market situation, when expected returns are high and volatility is low.

Totals may not add up to 100% due to rounding errors, in which case an adjustment should be made to SHY.

The model portfolio trades at **market close on the last trading day of the month**, which is one day after the report is sent to subscribers.

To learn more about how to use our Columbus Tactical model, please look at Appendix A - How to Use our Models. You can also find more details on the ETF universe for this model in Appendix B.

The chart below shows the summary allocations for the Columbus Tactical model. The allocation to each asset class is summed up in the chart.

ETFs are grouped as follows:

- **Equities:** SPY, VXF, EFA, EWJ and VWO.
- **Fixed Income:** TLT, IEF, LQD, TIP and PCY.
- **Real Assets:** GLD, VNQ and DBC.
- **Cash Assets:** SHY and UUP.

Columbus Allocation Summary

Equities **36%**

7%	34%	36%
Mar	Apr	May

Fixed Income **9%**

15%	8%	9%
Mar	Apr	May

Real Assets **51%**

62%	31%	51%
Mar	Apr	May

Cash Assets **4%**

16%	27%	4%
Mar	Apr	May

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Low Volatility ESG Asset Mix Model

The table below shows the Low Volatility ESG Asset Mix model allocations for this month. It also shows the changes from the prior period and the maximum weights allowed for each ETF.

A **green up triangle and value** show an increase in allocation, whereas a **red down triangle and value** show a reduction since last month.

ESG MSCI EAFE Equities ESGD *max 100%*	-		
ESG MSCI Emerging Markets ESGE *max 100%*	1%	▼	8%
ESG MSCI USA Equities ESGU *max 100%*	9%	▲	9%
ESG US Aggregate Bonds EAGG *max 100%*	-	▼	1%
ESG Corporate Bonds SUSC *max 100%*	1%		
US Short Term Treasuries SHY *min 20%, max 100%*	89%		

The *max value* shows the upper weight limit for each ETF during an ideal market situation, when expected returns are high and volatility is low.

Totals may not add up to 100% due to rounding errors, in which case an adjustment should be made to SHY.

The model portfolio trades at **market close on the last trading day of the month**, which is one day after the report is sent to subscribers.
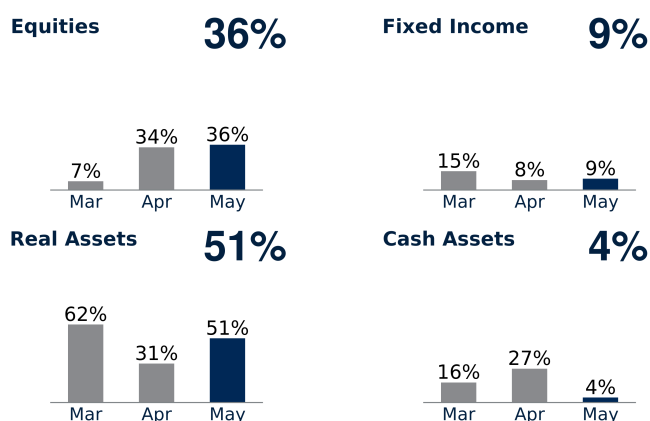
Because this is a **low volatility model,** it dynamically controls downside risk by emphasizing US Short Term Treasuries (SHY) whenever market volatility warrants it.

Moreover, the allocation to SHY has a set minimum of 20%, which effectively puts an upper exposure limit at 80% for equities and fixed income in aggregate.

To learn more about how to use our Low Volatility ESG Asset Mix model, please look at Appendix A - How to Use our Models.

You can also find more details on the ETF universe for this model in Appendix B.

The chart below shows the summary allocations for the Low Volatility ESG Asset Mix model. The allocation to each asset class is summed up in the chart.

For this model, ETFs are grouped as follows:

- **Equities:** ESGD, ESGE, and ESGU.
- **Fixed Income:** EAGG and SUSC.
- **Cash Assets:** SHY.

Unlike the Columbus Tactical model, the Low Volatility ESG Asset Mix model is simpler by construction and does not include any real assets.

Low Vol ESG Allocation Summary

Equities

10%

2%	9%	10%
Mar	Apr	May

Fixed Income

1%

2%	2%	1%
Mar	Apr	May

Cash Assets

89%

94%	89%	89%
Mar	Apr	May
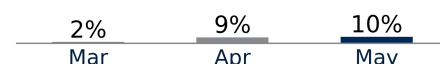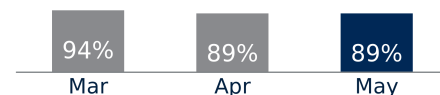
3. Sector Outlook

Sector Relative Attractiveness

The figure below shows the attractiveness of each sector **relative to the S&P 500 index**.
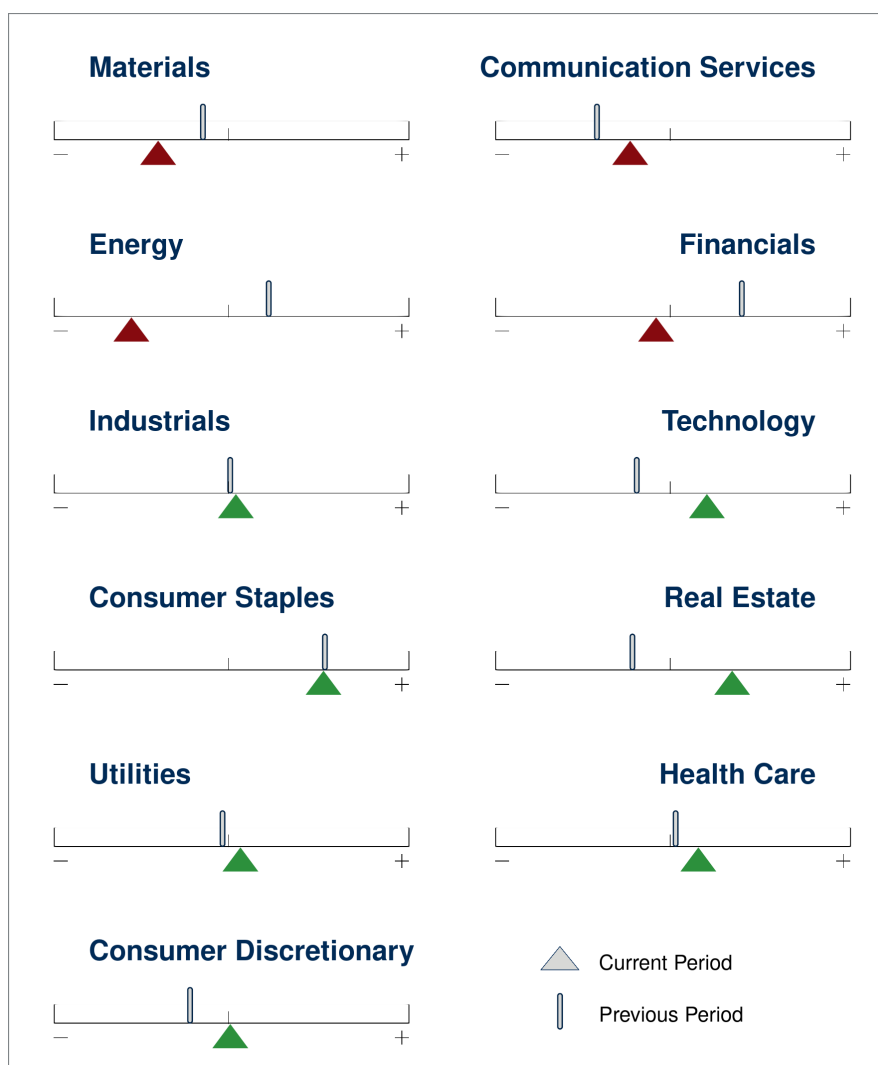
The triangle indicates the current attractiveness level, whereas the vertical bar indicates that sector's attractiveness forecast made in the previous period (last month).
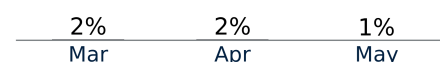
A **green triangle** shows an overweight recommendation relative to the S&P 500. A strong overweight recommendation is associated with a triangle that is furthest to the right.

Conversely, an underweight is recommended when the **triangle is red** and on the left side of the indicator.

When the triangle is in the middle, a neutral weight relative to the S&P 500 is recommended.

For details on the S&P 500 GICS sector weightings, please see **Appendix B**.

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4. Performance Summary

Columbus Tactical Model Performance

The chart below shows the Columbus Tactical model performance since April 2007.

The vertical dotted line shows when the first version of PSIMON, our AI platform, was released for live trading.

The blue curve shows the model performance. The portion of the curve on the left of the vertical dotted line is based on a backtest of the **latest release of PSIMON**, while the portion on the right of the dotted line represents the live model since the original release of PSIMON.

Live trading using PSIMON AI began on November 30, 2020.

The grey curve is the S&P 500 ETF (SPY), whereas the red curve is the Vanguard Moderate Growth ETF (VSMGX), which provides a 60/40 allocation between stocks and bonds. The orange curve is the equal weights portfolio created by equally

weighting all 15 ETFs forming the Columbus investment universe.

The investment value (alpha) created by the Columbus model is shown by the double arrow located on the right side of the chart (Columbus Alpha Creation). This double arrow compares Columbus (blue) to the no-skill portfolio represented by the Equal Weights benchmark (orange). Comparing these two curves over the period shows how the model generates returns above and beyond the Equal Weights no-skill portfolio over time.

As we continue to improve PSIMON by adding more training data, new economic and financial indicators, and improving our machine learning forecasters with the latest technological breakthroughs, **we expect the performance of the Columbus model to keep improving over time.**

Columbus Tactical Model Performance

Timeframe: 2007-04-30 / 2022-04-25
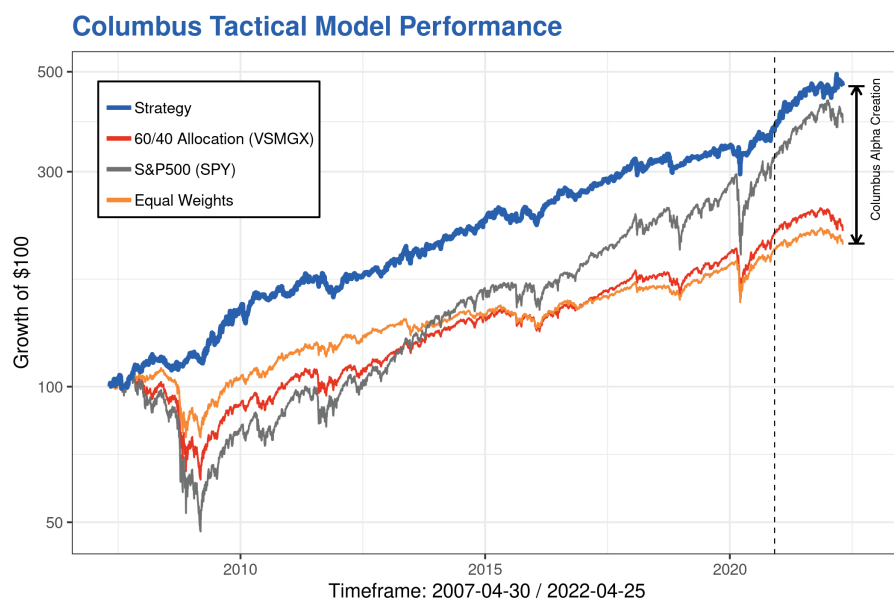
The next page shows more details of the Columbus live performance, along with performance statistics for the model and its benchmarks.

Columbus Model Live Performance

The following chart shows the Columbus model performance since it started trading live on November 30, 2020 using our PSI-MON AI platform.
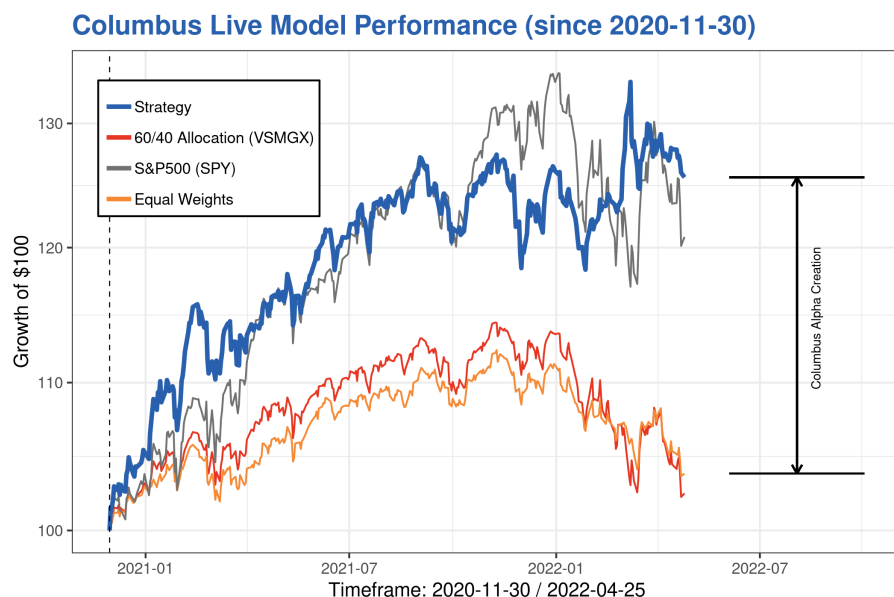
Columbus Live Model Performance (since 2020-11-30)

Columbus Model Performance Summary Statistics

This table provides a summary of the model performance statistics.

	Columbus	60/40 Allocation	S&P500	Equal Weights
Annualized Return (%)	10.8	5.5	9.49	5.01
YTD Gain / Loss (%)	-0.41	-9.75	-9.5	-6.75
Maximum Drawdown (%)	-13.93	-41.12	-55.2	-29.82
Annualized Standard Dev. (%)	10.1	12.68	20.35	9.53
Positive Rolling Years (%)	96.71	81.29	85.07	83.59
Annualized Sharpe Ratio	1.07	0.43	0.47	0.53
MAR Ratio	0.78	0.13	0.17	0.17
1 Year Return (%)	7.87	-5.63	3.97	-2.28
3 Year Annualized Return (%)	12.83	6.9	15.53	6.5
5 Year Annualized Return (%)	10.54	6.89	14.42	5.75
Live Return (since 2020-11-30) (%)	25.56	2.42	20.83	3.74

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Low Volatility ESG Asset Mix Model Performance

The chart below shows the Low Volatility ESG Asset Mix model performance since April 2007. This is based on the **latest release of PSIMON, our AI platform.**

The blue curve shows the model performance based on the most recent software release. The red curve is the Vanguard Moderate Growth ETF (VSMGX), which provides a 60/40 allocation between stocks and bonds. The orange curve is the equal weights portfolio created by equally weighting all 6 ETFs forming the Low Volatility ESG model investment universe.

In addition to being ESG-qualified through the judicious selection of its ETF universe, this model seeks to provide returns similar to a 60/40 balanced portfolio, while **greatly reducing its volatility**, with a particular focus on containing the magnitude of the drawdowns.

As we continue to improve PSIMON by adding more training data, new economic and financial indicators, and improving our machine learning forecasters with the latest technological breakthroughs, **we expect the performance of the Low Volatility ESG model to keep improving over time.**

The table below provides a performance summary of the model compared to the same benchmarks shown in the chart.

Low Volatility ESG Asset Mix Performance

Timeframe: 2008-04-30 / 2022-04-25

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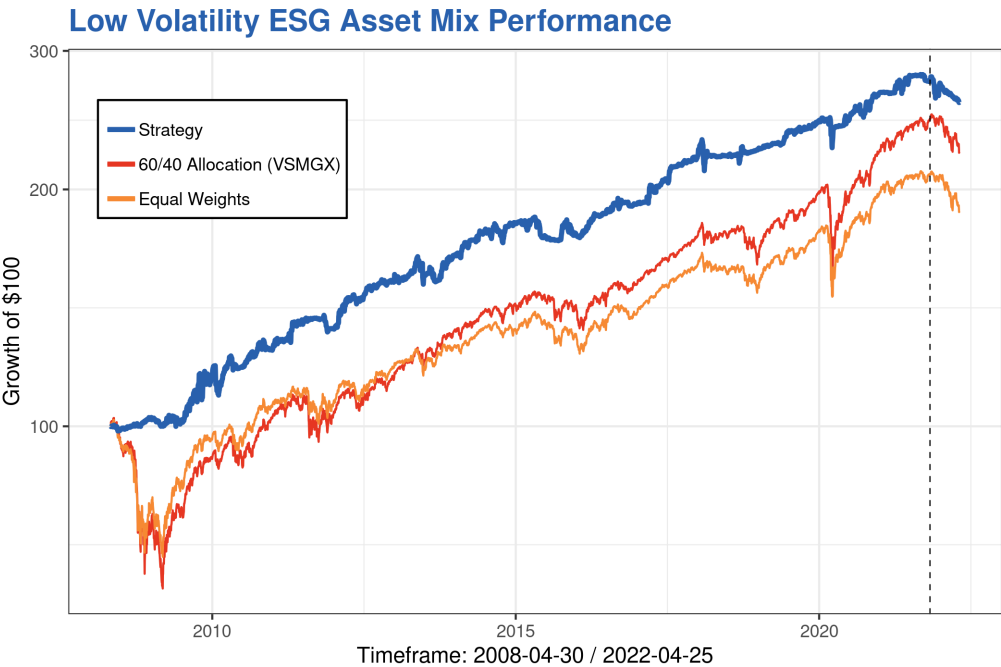
Low Volatility ESG Model Performance Summary Statistics

This table provides a summary of the model performance statistics.

	ESG	60/40 Allocation	Equal Weights
Annualized Return (%)	7.02	5.91	4.61
YTD Gain / Loss (%)	-5.07	-9.75	-10
Maximum Drawdown (%)	-8.68	-39.29	-33
Annualized Standard Dev. (%)	6.93	12.69	10.78
Positive Rolling Years (%)	92.6	87.34	83.36
Annualized Sharpe Ratio	1.01	0.47	0.43
MAR Ratio	0.81	0.15	0.14
1 Year Return (%)	-6.01	-5.63	-8.42
3 Year Annualized Return (%)	4.06	6.9	4.54
5 Year Annualized Return (%)	5.05	6.89	4.89

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Appendix A
How to Use Our Service

Our service provides you with an outlook on the market for the upcoming month, supported by recommended allocations for two strategies and a recommendation for all 11 S&P 500 sectors.

The information is presented as follows:

1. The front page provides a summary of key take-aways, supported by PSIMON's outlook:

    •   The top section provides a summary of key take-aways for the upcoming month. When appropriate, we also include a box for news and updates about our models and strategies.

    •   The bottom section includes a bar chart showing the most relevant changes in sector outlooks for the upcoming month. It also includes indicators showing the popular factors Value vs. Growth and Small caps vs. Large caps.

2. Next, Section 1 provides market insights and a summary of PSIMON's outlook for the upcoming month.

    •   The box provides the key highlights of PSIMON's outlook for the upcoming month.

    •   Next, we interpret PSIMON's outlook, which typically includes a general context as well as some more detailed analysis on specific recommendations. This section helps you understand in plain English why PSIMON is making certain changes to its model allocations and indicators. This is all based on PSIMON's analysis and outlook.

    •   For Canadian portfolio managers, we include an indicator showing the relative attractiveness of the Canadian vs. the US equity market, adjusted for the exchange rate.

3. Section 2 provides the details on our tactical models. These models are 100% automated and run on our PSIMON AI platform. They were developed to help adjust client portfolios to the prevailing market trends to help capture alpha while reducing exposure to risk. Two models are included: the Columbus Tactical model and the Low Volatility ESG Asset Mix model. Both models adapt to the market every month and trade the day after the report is published.

    •   The Columbus model is a tactical global allocation strategy that includes 15 ETFs, each representing a global asset class. The ETFs are grouped into stocks, bonds, real assets and cash assets. Up to 8 ETFs are selected each month.

    •   The Low Volatility ESG Asset Mix model includes 6 ESG-qualified ETFs, grouped into stocks, bonds and cash assets. All 6 ETFs may be part of the recommended portfolio at the same time, but their relative weights change from month to month.

    •   Details on these ETFs may be found in Appendix B.

4. Section 3 provides an outlook for each 11 GICS sector relative to the S&P 500. All 11 sectors are analyzed and an outlook is provided by PSIMON in the form of a simple indicator. These indicators show a relative attractiveness of the sector compared with the S&P 500. The appendix shows the list of ETFs used to represent these sectors, providing a simple way to over- or under-weight particular sectors as desired.

5. Section 4 provides the historical performance our each model, based on the latest PSIMON software release. Please contact us should you have an interest in learning about the performance of prior models.

Helping You Interpret Key Market Dynamics

PSIMON produces a lot of useful information every month, all of which is **free of opinions and human biases.**

You will find many **data-driven commentaries and discussions** throughout the report. These commentaries are meant to help you understand and bring clarity on the most relevant market dynamics at play.

We generally use charts and tables to illustrate key points. **Feel free to use these illustrations with your clients**, especially if you find them helpful to support your client discussions.

Ultimately, our objective is to help you **act with clarity and conviction** when you consider trades in client portfolios.

We are here to help, and we are always open to suggestions to improve our service. So don't hesitate to contact us with your suggestions.

Preserve Capital and Enjoy Consistent Returns

PSIMON was developed to help you preserve client capital during bear markets while also delivering consistent and compelling performance over the long run.

These dual objectives are achieved through **active tactical allocation** to adapt to the prevailing market conditions.

Columbus Tactical Model

Columbus Delivers Uncorrelated Returns

The Columbus Tactical model was developed to deliver uncorrelated returns during those times when it is most important to be **decorrelated from the stock market.**

The concept of uncorrelated returns is used extensively by asset managers such as large institutions and pension funds.

Rather than solely trying to maximize returns during bull markets, which often comes with amplified losses during bear markets, these asset managers use different sources of returns to build portfolios that are **resilient to global economic uncertainty.**

The Columbus model was developed with this idea in mind by providing a simple way for portfolio managers to deliver uncorrelated returns within their client portfolios.

The primary objectives of the model are to protect capital during bear markets while also capturing stable growth over the long term.

During bear markets, Columbus invests in assets that are generally not correlated with the stock market. This helps deliver returns during those times when uncorrelated returns truly matters to overall performance.

Conversely, Columbus becomes correlated to global equities **during stable bull markets in stocks**. This allows it to capture stock market upside and ensure your clients do not miss out on those gains.

How Columbus Works

The Columbus model selects up to 8 assets from a universe of 15 low costs, highly liquid ETFs, each representing one of the world's major asset classes.

The strategy selects assets and adjusts their allocation weights to optimize for the best risk/return tradeoff, by emphasizing safety and capital preservation over short term gains.

The Columbus model trades monthly on the last trading day of the calendar month.

Columbus is Not a Market Timer

The Columbus model was **NOT developed to be a market timer.** Unlike a market timer, it may stay out of the stock market during times when it perceives a high degree of risks in equities, even though equities may turn out to be rallying strongly during those high risk periods.

Columbus is a Tactical Sleeve

Columbus may recommend a 100% stock allocation during high quality and stable bull markets in stocks, whereas it can also recommend a 100% allocation in government treasuries during bear markets. To ensure some level of diversification, certain allocation limits have been imposed on each ETFs, discussed in Section 2. These limts are dynamically reduced based on the expected volatility of each ETFs. While this provides a way to manage concentration risks into each ETF, it does not preclude the possibility of allocating 100% of the portfolio into equity ETFs.

For these reasons, Columbus should not be used as a portfolio core but **rather as a tactical sleeve to complement a client's core portfolio.**

Low Volatility ESG Asset Mix Model

Easy-To-Implement ESG Model

The low volatility ESG model universe was selected to simplify the task of ESG investing. We selected ESG optimized ETFs sponsored by iShares, each representing a broad asset class.

The equity asset classes represented include the US stock market (ESGU), international developed stock markets (ESGD) and emerging markets (ESGE). Bonds asset classes are represented with US aggregate bonds (EAGG) and corporate bonds (SUSC). Cash assets is represented with short term US treasuries (SHY).

Seeking Performance at Low Volatility

The Low Volatility ESG Asset Mix model is designed to rotate among these 6 ETFs as market conditions warrant.

The model has a preset minimum weight of 20% in SHY, useful as an insurance against swift, unforeseen and negative market shocks. However, the remaining 80

To manage market volatility, the model makes a careful assessment of the current market situation and its expected volatility in the short term.

Only when all lights are showing green - that is, low expected short term volatility - will the model invest up to 80% in the equity ETFs. Otherwise, it will seek refuge in SHY to protect against potential expected volatility.

As reference, the model allocated over 45% of its historical weightings in SHY to protect against such volatility.

Since it minimally holds 20% in SHY at any time, this implies that an additional 25% has been added, on average, to dynamically counter expected volatility bouts over the period since April 2007.

Sector Outlook Model

The Sector Outlook model provides a forecast on the relative attractiveness of the S&P 500 equity sectors over the next month.

By surgically over-weighting or under-weighting sectors in the S&P 500, the model can help you create additional alpha for your client portfolios.

Each of the 11 sectors has an associated ETF, making it easy to trade sectors directly. Appendix B includes the ETF list of along with their most recent published weight in the S&P 500 index.

How the Sector Outlook Works

The figure below provides an example of the Sector Outlook indicators.

For each sector, an indicator shows the attractiveness of that sector relative to all other sectors in the S&P 500.

The triangle indicates the current attractiveness level, whereas the vertical bar indicates that sector's attractiveness forecast made in the previous period (last month).

A **green triangle** shows an overweight recommendation relative to the S&P 500. A strong overweight recommendation is associated with a triangle that is furthest to the right.

Conversely, an underweight is recommended when the **triangle is red** and on the left side of the indicator.

When the triangle is in the middle, a neutral weight relative to the S&P 500 is recommended.

This same indicator format is used for all 11 sectors.

Sector Indicator Example
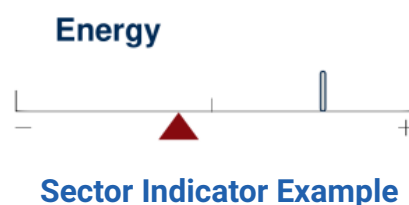
Using the Sector Outlook in Practice

The Sector Outlook can be used in an equity portfolio in several ways, including:

- The simplest approach is to purchase the equivalent SPDR sector ETF in an equity portfolio to overweight your portfolio in that sector.

- For portfolios that include individual stocks, an overweight signal can indicate to increase the weighting of stocks that belong to that sector.

- Conversely, also for individual stock portfolios, a sector underweight may indicate to reduce some stock positions that belong to that sector.

- A combination of the above may also be useful in certain types of client portfolios.

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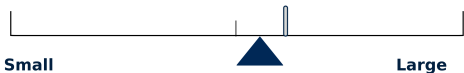
Market Factor Indicators

We also provide two market factor indicators on the front page. These are meant to help you assess which factor tends to prevail in the current market environment.

These factors are very broad in scope, and may occasionally be at odd with PSIMON's outlook. This is because PSIMON's outlook is generally far more surgical in scope, while the factors are represent broader market tendencies.

For all indicators, the **blue triangle** shows the current outlook while the vertical bar shows the previous month's indicator value as reference.
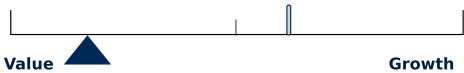
Small - Large Factor Indicator

This indicator provides a sense of whether small or large caps are currently in favor.

Small   Large

Value - Growth Factor Indicator

This indicator provides a sense of whether value or growth stocks are currently in favor.

Value   Growth

US/CAN Relative Attractiveness

For Canadian Portfolio Managers

At the end of Section 1, we provide a box that includes an indicator showing the relative attractiveness of the Canadian stock market vs. the US stock market. This indicator is also adjusted for the USDCAD exchange rate, to express the US market as experienced from the perspective of an investor based in Canada, investing in Canadian dollars.

We developed this indicator for our Canadian portfolio manager audience to help them evaluate US market opportunities from the Canadian perspective.

This indicator is intended to help Canadian portfolio managers manage the un-hedged currency exposure to the US stock market.

TSX   S&P 500
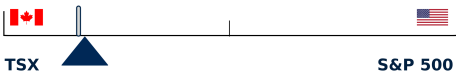
Appendix B
ETFs Used by Our Models

Columbus Tactical Model ETF List

Our Columbus Tactical model uses a universe of 15 ETFs to represent the major asset classes available in global finance. These are some of the largest and most liquid ETFs available, and they all trade on the US market.

The US stock asset class is covered by two ETFs: the S&P500 ETF (SPY), representing large cap stocks, and the extended market ETF (VXF), representing small and mid cap stocks.

The international stock market is split among three ETFs: EFA to provide exposure to international developed market stocks (ex-US), VWO to provide exposure to emerging market stocks, and EWJ to cover the Japanese market which tends to have a relatively low correlation to other stock markets.

US Treasuries are represented by TLT and IEF, while inflated-protected bonds are represented by TIP. LQD is used to represent investment grade corporate bonds while PCY is used for emerging market sovereign bonds.

Real assets are represented by VNQ (real estate), DBC (commodities) and GLD (gold). For cash assets, we use short term treasuries (SHY) and the US dollar bullish ETF (UUP).

The table below provides a short description of all ETFs comprising the Columbus investment universe along with their total assets and annual expense ratios. Please refer to the ETF sponsor's web site for details.

Symbol	Exp. Ratio	ETF Name and Description
SPY	0.09%	SPDR S&P500 Index
EFA	0.32%	iShares MSCI EAFE Index
VWO	0.10%	Vanguard FTSE Emerging Market Equities
VXF	0.06%	Vanguard Extended Market (US small & mid caps, ex-S&P500)
EWJ	0.51%	iShares MSCI Japan Equities
VNQ	0.12%	Vanguard REIT Index
GLD	0.40%	SPDR Gold Trust (Gold Bullion)
DBC	0.82%	PowerShares DB Commodity Index Tracking Fund
IEF	0.15%	iShares 7-10 Year Treasury Bonds
TLT	0.15%	iShares 20+ Year Treasury Bonds
TIP	0.19%	iShares TIPS Bonds
LQD	0.14%	iShares iBoxx $ Investment Grade Corporate Bond Fund
PCY	0.50%	PowerShares Emerging Markets Sovereign Debt Portfolio
UUP	0.68%	PowerShares DB US Dollar Bullish Index Fund
SHY	0.15%	iShares 1-3 Year Treasury Bonds
AVERAGE	**0.29%**	

Sector Outlook ETF List

The S&P 500 is composed of 11 sectors defined by the Global Industry Classification Standard (GICS).

We use the Select Sector SPDR ETFs to track these sectors. PSIMON uses these ETFs to produce the Sector Outlook indicators.

As of September 30, 2021, the GICS sector weightings were as shown in the table below.

Please consult the ETF sponsor's web site for more information.

Symbol	Exp. Ratio	GICS Sector Weight	Description
XLB	0.13%	2.5 %	Materials Sector SPDR ETF
XLC	0.13%	11.3 %	Communication Services Sector SPDR ETF
XLE	0.13%	2.8 %	Energy Sector SPDR ETF
XLF	0.13%	11.4 %	Financials Sector SPDR ETF
XLI	0.13%	8.0 %	Industrials Sector SPDR ETF
XLK	0.13%	27.6 %	Technology Sector SPDR ETF
XLP	0.13%	5.8 %	Consumer Staples Sector SPDR ETF
XLRE	0.13%	2.6 %	Real Estate Sector SPDR ETF
XLU	0.13%	2.5 %	Utilities Sector SPDR ETF
XLV	0.13%	13.3 %	Health Care Sector SPDR ETF
XLY	0.13%	12.4 %	Consumer Discretionary Sector SPDR ETF
AVERAGE	**0.13%**		

Low Volatility ESG Asset Mix ETF List

We selected a list of low cost ETFs provided by iShares to develop the universe of our Low Volatility ESG Asset Mix model.

The model always selects these 6 ETFs, but their realtive weights will change from month to month, depending on the prevailing risk/return situation in the market.

To learn more about these ETFs and the methodology they use to optimize for their respective ESG mandates, please consult the ETF sponsor's web site.

Symbol	Exp. Ratio	ETF Name and Description
ESGU	0.15%	iShares MSCI USA ESG Optimized ETF
ESGD	0.20%	iShares MSCI EAFE ESG Optimized ETF
ESGE	0.25%	iShares MSCI Emerging Markets ESG Optimized ETF
EAGG	0.10%	iShares ESG US Aggregate Bond ETF
SUSC	0.18%	iShares ESG USD Corporate Bond ETF
SHY	0.15%	iShares 1-3 Year Treasury Bonds
AVERAGE	**0.17%**	

Appendix C
About PSIMON™

PSIMON is Laplace Insights™ proprietary machine learning platform used to produce the investment outlooks and tactical models found in this document.

It is the result of 6 years of research in partnership with the AI research team at the University of Sherbrooke in Canada. It includes an ensemble of state-of-the-art machine learning algorithms that were specifically developed to address the unique challenges of predicting financial markets.

PSIMON Adapts to Changing Markets

Our AI research is focused on developing and improving machine learning algorithms that can learn the market in real-time and adapt to regime changes and structural breaks as they occur.

For example, our models were developed to perform well in challenging situations such at the Covid crash in March 2020, as well as more traditional bear markets such as the 2008 financial crisis.

Our models adapt to both slow and fast changing market situations, enabling them to perform well during both types of crises. This includes history's shortest bear market in March 2020, and more traditional bear markets that take longer to unwind such as the 2008 Financial Crisis or even the Dot-Com crash of 2000.

Learning Fast and Slow

History often matters a lot, as Mark Twain is reputed to have said in this quote:

> **"History doesn't repeat but it often rhymes."**

PSIMON is built using an ensemble of many predictive models, each with the ability to provide forecasting value and insights in specific types of market situations.

At one extreme, PSIMON includes models that are quick to learn and adapt to the market's rapidly changing dynamics, enabling it to react to major market shifts such as the Covid crash of March 2020.

On the other hand, PSIMON also includes models that have been trained using decades of data, enabling it to capture the lessons of history. In other words, PSIMON can recognize and adapt to these situations as they happen in real-time.

Combining models that can learn and adapt quickly with models that have learned and endured the lessons of history gives PSIMON the unique ability to deliver performance in both **stable and rapidly changing markets**, as they occur at different times.

Continuously Improving PSIMON

Our research team is continuously at work to improve the algorithms used by PSIMON, providing it with more depth and breadth of analysis.

This not only results in better performance, but it also makes PSIMON more robust to future, *unseen-before events*, while giving it the resilience to quickly bounce back during important market stresses.

We develop and release new models and improved versions of PSIMON on a regular basis. These efforts ensure that PSIMON keeps getting better over time, providing you with the value you seek for your clients.

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