

## PERFORMANCE REVIEW

Despite a challenging final quarter, the Evolution Program delivered a robust 16.6 percent return in 2022 while traditional portfolios sustained some of the largest losses in living memory. Seasonality was the best performing sub-strategy, followed closely by Trend and Relative Value, while Carry underperformed.

**Figure 1. Q4 and Yearly Return Attributions**

Sector	Q4	2022
Bonds	2.3%	7.3%
Currencies	-5.6%	-2.2%
Energies	5.0%	8.1%
Grains	-3.2%	2.2%
Indices	-0.1%	-1.3%
Volatility	0.0%	0.0%
Meats	0.0%	0.1%
Metals	-2.5%	3.3%
Rates	0.7%	2.5%
Softs	0.4%	-3.3%
<b>Total</b>	<b>-3.1%</b>	<b>16.6%</b>

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE PERFORMANCE.

Source: ReSolve Asset Management SEZC (Cayman). Results may differ due to rounding. Performance is expressed in USD. Strategy attribution is a best-efforts approximation, net of all applicable borrowing costs, fees and fund accruals for the period. Indicated returns of one year or more are annualized.

**Energies** were the largest source of positive returns, led by longs in gasoline, crude oil, heating oil and natural gas, while carbon emissions detracted. Carry and Relative Value signals outperformed, and Seasonality detracted. As energy markets sold-off in the second half of the year, the strategy managed to protect a large portion of earlier gains and profit from short positions, especially in the final months.

**Bonds** contributed almost exclusively from short exposures, primarily in 2-year, 5-year and 30-year US Treasuries and informed by Carry, Relative Value and Seasonality signals. Though overall gains mostly accrued in the first semester, the portfolio benefitted from profitable shorts in short-duration German bonds in December.

**Metals** also provided meaningful gains, driven almost entirely by short copper (all features). Active trading in silver was another important source of profits, with Relative Value leading the way for much of the year, while Carry and Trend stood out in the fourth quarter. Long platinum (Relative Value and Seasonality) also contributed.

**Rates** were the most consistently profitable sector, led by short exposure to the Eurodollar (largely informed by all features). Short BAX also contributed, while long Euribor detracted.

**Grains** provided important gains, concentrated in the first three quarters, driven primarily by active trading in palm oil (Carry, Relative Value and Trend), and longs in corn and soybeans earlier in the year (all features).

**Softs** were the largest detractors, with losses led by long coffee (Carry, Relative Value and Trend) and shorts in UK cocoa and UK sugar (Relative Value). Long sugar (Carry, Relative Value and Seasonality) provided important offsetting gains in the fourth quarter.

**Currencies** were profitable for most of the year but endured heavy losses in the fourth quarter, primarily driven by shorts in Japanese Yen, Australian Dollar and Swiss Franc motivated mostly by Carry and Relative Value.

**Equities** also benefitted from gains earlier in the year that ultimately gave way to losses, mostly concentrated in the third quarter, from longs in the Nikkei, Topix, Estox50 and DAX (motivated in large part by Carry and Relative Value).

## NEW YEAR, NEW INNOVATIONS

ReSolve's research mission is to conduct continuous strategy innovation with the aim of providing best-in-class global investment solutions. ReSolve's research team deployed several innovations in 2022, such as a 'smart' portfolio constraint optimization, the addition of a cross-market pairs strategy and a portfolio construction process designed to maximize prediction model diversification.

The ReSolve Evolution Program implements portfolio constraints designed to mitigate the impact of idiosyncratic shocks - such as unexpected policy changes, geological events, or geopolitical surprises - that would impair portfolio value. Portfolio constraints act to limit position concentration at the market, sector, asset class and total exposure level. Historical analysis suggested that the current constraint implementation has a minimal impact on performance, on average and over the long-term. However, over short time horizons, the "insurance cost" of constraints can result in large performance drag. The impact in H1 2022 was particularly large, with limits on energy and currency markets, and commodity exposure in general; limiting gains in these assets when the opportunity set was near the largest on record.

The research team analyzed the historical and potential future trade-offs to risk and return of the current constraints and identified a more efficient constraint implementation that allowed individual markets more opportunity to express strong conviction trades, while continuing to manage overall portfolio vulnerability to large, unexpected shocks. The 'smart' constraint optimization was deployed in October 2022 and is designed to minimize the deviation to the unconstrained portfolio while simultaneously managing portfolio exposure and concentration risk.

In Q4 2022 the research team deployed several new alpha strategies; based on the principles of the existing alpha strategy but designed to maximize prediction model and portfolio diversification. Most notably, the team developed a new cross-market pairs strategy that seeks to predict the spread returns of synthetic long/short pairs of markets within individual sectors. For example, the pairs strategy forecasts and trades the spread returns of Brent Crude vs WTI, or US 2-Year vs US 10-Year Treasuries, etc. The research team also developed an alpha strategy that seeks to diversify model conviction by incorporating contemporaneous information of market risks and correlations. These alpha strategies are designed to complement the existing suite of alpha sources and in simulation demonstrate accretive diversification and path-dependency properties.

Over the past two years, ReSolve has allocated meaningful time and resources in developing a first-class trade execution engine to facilitate our team's next major innovations. The new execution engine is asynchronous and designed to maximize execution speed, allowing for trade execution at higher frequencies. This opens a new universe of intra-day strategies for our performance funds, and smarter execution to minimize trade slippage on faster moving daily strategies. The team hopes to deploy the new execution engine in 2023 and to embark on new initiative of intra-day research and development.

In parallel, ReSolve has developed a new data engine that will accelerate the research process and ensure even higher levels of data quality and reliability for real-time forecasting and trade execution. The new data engine will facilitate more expansive feature engineering as well as the ability to trade a more diverse set of market instruments, including deferred futures contracts, calendar spreads and other synthetic markets. These instruments are generally uncorrelated with traditional markets and provide the potential for a new diversified set of alpha strategies.

In the near term, the research team continues to prototype smaller-scale innovations that we seek to deploy in 2023. In Q3 2022, the research team developed an advanced clustering technology that may provide an opportunity to further maximize the diversification potential of market forecasts. Research is also investigating the potential for new prediction model features based on sentiment derived from Commitment of Traders and other data sources. In addition, we also observe promising results from conditioning prediction models on the states of other models. For example, prediction models may behave differently when a market is in a long-term up-trend versus a long-term downtrend, or when carry is positive or negative, or during different seasonal periods.

Investment performance is a product of the average of the skill expressed by strategies, the number of unique strategies, markets traded, and the frequency of strategy execution. Much of 2022 was spent building high value technology to accelerate the rate of innovation along each of these axes. In combination, we expect these efforts to lead to promising improvements in performance over the next 3 to 5 years.

## GENERAL MARKET REVIEW

2022 was shaped by global tectonic shifts on several fronts including the economy, finance, geopolitics, and societies at large, in what many believe to be the early stages of a major paradigm shift which effects are likely to last several years. Led by the Federal Reserve, central banks around the world have begun to unwind their balance sheets and raise interest rates to fight inflationary pressures that reached multi-decade highs. Tightening liquidity led to the heaviest capital market losses since the 2007-2009 Great Financial Crisis, with an estimated USD 30 trillion<sup>1</sup> wiped out across global stocks and bonds.

Global equities experienced large losses, led by double-digit declines in major US equities. Sovereigns had their worst year in living memory, with the longest duration bonds falling between 20 and almost 40 percent on both sides of the Atlantic. The US dollar strengthened against its major peers but depreciated against some important emerging market currencies. Industrial metals fell, though precious metals proved more resilient, helped by a large rebound in December. Most energies, grains, and several soft commodities saw sizeable price increases on extremely volatile trading: heating oil and gasoil practically doubled, while crude oil, RBOB, corn, milling wheat, soybeans, and sugar rose by double-digits.

The first semester was marked by the regrettable invasion of Ukraine by Russian forces in the final week of February, marking the start of the largest conflict on European soil in decades. Though many believed it would be a quick victory for the invading forces, they were met with fierce and heroic opposition by Ukrainian military and civilian forces. The US and NATO allies responded with tens of billions of dollars in military and economic aid, as well as the largest sanctions in history against the Russian regime, including the freezing of approximately two-thirds of Russia's central bank assets and cutting banks' access to the international SWIFT system.

The first few months of the war also had profound consequences on commodity prices, from energies to crops such as corn, soybeans and especially wheat, as much of the fighting has taken place in a region commonly referred to as Europe's breadbasket. In addition to worsening inflation across the globe, the conflict also continues to threaten the availability of fertilizers, with huge implications for food security especially in poorer countries. As of this writing, neither side has signaled an intention to sue for peace, though a UN-brokered agreement has allowed grains to be shipped from ports in the Black Sea.

China's zero-Covid policy was another important variable, disrupting the supply of large amounts of export goods and drastically curbing demand from one of the largest consumer markets. Following the reappointment of Xi Jinping to an unprecedented third term as president (essentially cementing lifetime leadership) and amid growing protests across many regions, the country began to relax restrictions and reopen its borders.

### Outlook

The Bank of Japan's decision to widen the interest rate band under its yield curve control (YCC) policy in December weighed on global markets and contributed to the cancellation of equities' 'Christmas rally', increasing the opportunity cost for one of the world's largest exporters of capital and further fueling a recent dynamic referred to by some as a 'reverse currency war'. The European Central Bank warned of 'significantly' more to come after raising interest rates once again in its latest meeting, likely setting the tone for the new year.

On the geopolitical front, a successful counteroffensive by Ukrainian forces recaptured large swathes of territory while raising fears that the conflict could escalate further (and even lead to the use of nuclear weapons). Deglobalization was one of the major themes of 2022, with several events compounding towards this dynamic: the weaponization of the US dollar and other precedents set by sanctions; the US' decision to ban exports of advanced semiconductors (and the technology to produce them) to China; the 'reshoring' of critical supply-chains away from would-be adversaries; and the deterioration of US-Saudi relationships stand out.

A new global order seems to be emerging, where US hegemony gives way to a more fractured, multi-polar world. This would have profound implications for growth, inflation, liquidity, and by extension asset prices worldwide. It is likely that traditional stock-bond portfolios, which have thrived beyond most investors' wildest dreams in the previous regime, will face greater challenges in the coming years.

Sincerely,

Your ReSolve Team

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<sup>1</sup> <https://www.ft.com/content/87ed8ea6-4913-4452-9135-498040ad338f>

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