AURUM

Hedge Fund Industry Deep Dive

2022 Review

Inside this report:

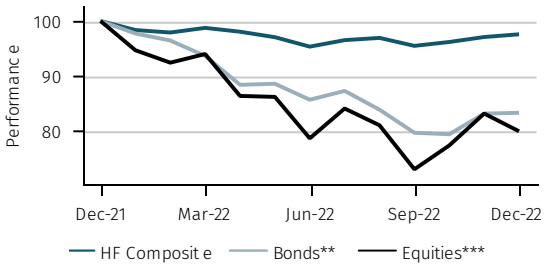
In summary

- It has been an extremely challenging year from both a markets and geopolitical perspective. If one were to sum up 2022 in two words, they could be: 'extreme moves'
- Global equities** and global bonds*** have fallen 20.0% and 16.7% respectively
- The hedge fund industry was down 2.4% in 2022
- Five-year performance for hedge funds now stands at a CAR of +4.2%, comfortably outperforming bonds (-2.0%) and marginally outperforming equities (+3.0%)
- Multi-strategy and quant funds were the top performers in 2022; up 9.5% and 8.5% respectively
- Long biased and Equity l/s delivered the worst returns; losing 13.2% and 9.6% respectively

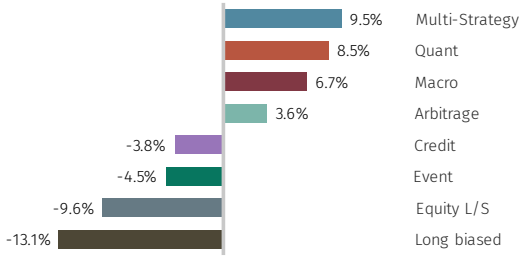
*HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index.
**Bonds = S&P Global Developed Aggregate Ex Collateralized Bond (USD).
***Equities = S&P Global BMI.

All figures and charts use asset weighted returns unless otherwise stated. All Hedge Fund data is sourced from Aurum Hedge Fund Data Engine.
For definitions on how the Strategies and Sub-Strategies are defined please refer to https://www.aurum.com/hedge-fund-strategy-definitions/ , and for information on index methodology, weighting and composition please refer to https://www.aurum.com/aurum-strategy-engine/

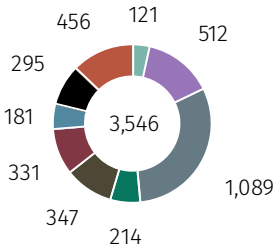
HF COMPOSITE VS INDICES (1 YR)



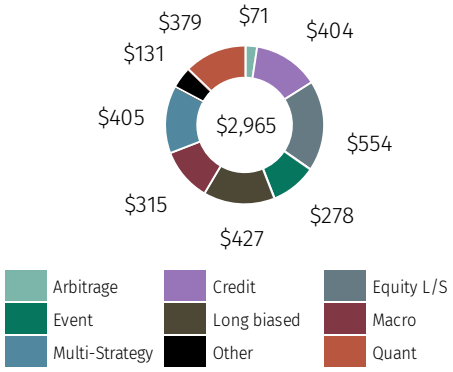
MASTER STRATEGY NET RETURN (1 YR)



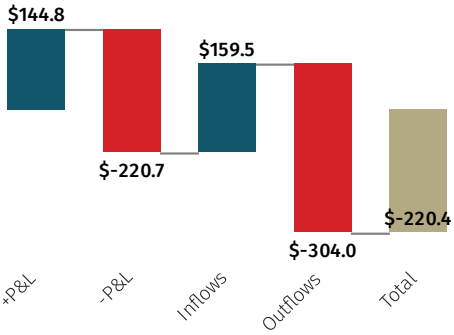
FUND COUNT – DEC 22



AUM ($BN) – DEC 22



AUM CHANGE $BN (1 YR)



2022 overview

Extreme moves

It has been an extremely challenging year from both a markets and geopolitical perspective. If one were to sum up 2022 in two words, they could be: 'extreme moves'. Risk assets in general had a terrible year. US equity markets saw the worst annual performance since the Global Financial Crisis ("GFC") of 2008 and it's the fourth worst annual performance since World War II; global bond markets went into a bear market for the first time in 70 years. Cryptocurrencies collapsed. In March, a massive short-squeeze saw nickel prices surge and the London Metal Exchange suspend trading. March and April were the worst two months for US Treasuries this century, and four of the worst months this century for European sovereigns came last year. The UK saw the biggest tax cuts in half a century; sterling hitting all-time intraday lows versus the dollar; spiking gilt yields, Bank of England intervention in markets, and three Prime Ministers in the space of seven weeks.

> **US equity markets saw the worst annual performance since the Global Financial Crisis (GFC) of 2008 and the fourth worst annual performance since World War II; global bond markets went into a bear market for the first time in 70 years.**

There were very few places for investors to hide. The US dollar was a safe haven; it was up versus every other G10 currency. Commodities as an asset class bucked the trend, particularly in oil, wheat and European natural gas. Elsewhere, it was a story of losses across all asset classes.

In the world of hedge funds, the beneficiaries have been those that have capitalised on these large directional moves, particularly macro, CTAs and commodity managers. The higher volatility has also led to rich relative value trading opportunities in statistical arbitrage, multi-strategy and fixed income arbitrage funds. Strategies carrying more beta to risk assets such as equity l/s, long-biased, credit and risk-premia harvesting all experienced very poor performance.

Key themes

Inflation, policy response and fears of recession

Inflation hit multi-decade highs in 2022 and was met with the most aggressive central bank tightening seen in a generation. In the US it has been the fastest tightening cycle since the Volker era of the early 1980s as they raised rates by 450bps in the short space of ten months. Inflation has been more persistent than originally anticipated; economists persistently underestimated the strength of inflation throughout the year.[1]

Global policymakers continue to face significant challenges. Cost pressures have impacted corporate profits through wage inflation, higher financing costs, energy and input prices. However, attempts by central banks to dampen demand have significantly increased fears that a 'soft landing' is doubtful, with a recession a more likely result. Indeed, the World Trade Organisation and World Bank are warning of a recession in 2023, citing the combination of global rate rises, commodity prices and other crises as key factors.

Russian invasion and commodity prices

On 24 February Russian forces invaded Ukraine, leading to condemnation by the West and the imposition of heavy sanctions. Whilst the long-term impacts of the war are unknown, they will be considerable. As well as the geopolitical impact, devastating and ongoing human cost, the war has led to gas supplies from Russia to Europe grinding to a halt. Consequently, energy and food prices have spiked massively. Oil and wheat prices in particular increased after the war began, although both fell back significantly in the second half of the year. A similar story occurred with European natural gas - although there was a further extreme price rise in Q3 after the Nord Stream gas pipeline from Russia was suspended.

The West has supported Ukraine through billions of dollars' worth of financial, military and humanitarian aid, and imposed multiple rounds of sanctions on Russia. Such sanctions include removing Russian banks from SWIFT payments, placing a price cap on Russian oil, freezing assets and various other measures.

As part of the fallout from the Russian invasion, the West has looked to reduce its reliance on Russian energy imports.

[1] For example: futures pricing of the Fed funds rate was at 1% in June 2023 (as at the start of 2022), but by year-end it was 5%. – Source: Deutsche Bank.

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China reopening / Removal of 'COVID-zero' policies

Through 2022, China's hyper-aggressive focus on combating COVID-19 through their use of lockdowns and various 'COVID-zero' measures significantly impacted the country's ability to kickstart growth. This resulted in further pressure on the global supply chain. By the end of Q1, the lockdowns and policy negatively impacted the domestic economy and consumer confidence and led to outflows of foreign capital from Chinese equities. The sell-off was most extreme in Hong Kong and tech markets. Protests in the latter part of the year helped trigger a change in policy leading to the lifting of the majority of COVID-zero restrictions. This led to a very sharp rebound in equity markets, and was supported by improvements in China/US relations.

Markets review

It has been a torrid time for risk assets. Global equities** and global bonds*** have fallen 20.0% and 16.7% respectively. The significant impact of this was highlighted in an article in the FT: "Portfolios that comprise 60% stocks and 40% bonds lost 17% in 2022, according to BlackRock, their worst performance since at least 1999...the inverse correlation between bonds and equites...has helped balance portfolios since the 1980s...But that relationship broke down last year."[2]

Poor market performance in Q1 worsened in Q2, driven by persistent inflation. After the May US CPI release showed inflation surprising to the upside, US equities slumped in mid-June. The Fed responded by tightening the Fed Funds Rate by 75bps for the first time since the 1990s. US markets saw double digit percentage falls in the space of a week, the first time this had happened since the volatility experienced in March 2020. During the same period, yields on 10-year Treasuries rose to their highest level in over a decade.

> **It has been a torrid time for risk assets. Global equities** and global bonds*** have fallen 20.0% and 16.7% respectively.**

Following the turmoil in the first half of the year, falling energy prices and a decline in CPI figures raised hopes that the Fed may pivot to become more dovish. However, such hopes were short-lived after a speech from the Fed chair at Jackson Hole. The ECB also raised interest rates for the first time in a decade.

Fears of recession became pronounced in Q3, particularly after the Nord Stream gas pipeline from Russia was suspended, while later in the quarter eyes were on turmoil in the UK.

The challenges continued into Q4, with US equity markets hitting the lowest point in mid-October. There was some respite as October/November CPI readings surprised to the downside, leading some commentators to assert the belief that inflation had reached its peak, something that was echoed in Europe. The subsequent interest rate hikes of 50bps were lower than originally feared.

Commodities

There were very few places to hide for holders of risk assets, however, commodities have traditionally been utilised as an inflation hedge, and 2022 saw the asset class significantly outperform.

The extreme commodity moves have been a key driver of global inflation, with the war in Ukraine exacerbating global supply pressures that have roots going back to 08/09. Coming out of the GFC, given the uncertainty around future growth and policy, investors were less willing to take long-term risk, i.e. investments in long-cycle capital expenditure ("capex") versus short-cycle capex. Investment in 'old economy' fell significantly (i.e. less investment in mines, and other resources). Increased global demand in the recovery from the COVID-19 shock, combined with war in Ukraine has exposed the severity of these supply constraints. This is something central banks cannot deal with, thus creating a risk of inflation becoming increasingly entrenched over time.

Currencies

The US dollar index was up 8.2%[3]. As one of the very few 'safe havens' of 2022 the US dollar enjoyed the biggest rise since 2015, strengthening against every other G10 currency.

[2] Source: Financial Times: "Battered 60-40 portfolios face another challenging year" – Jan 11th 2022
[3] Source: Deutsche Bank
** S&P Global BMI
*** S&P Global Developed Aggregate Ex Collateralized Bond (USD)

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Equities

The aggressive campaign of interest rate hikes combined with heightened fears of recession led to a very challenging year across global equity indices with US, Europe and emerging markets all down for the year.

Within equities only two sectors posted positive returns, with energy the big outlier +65.4%.[4] Global quantitative tightening ("QT"), in combination with global supply pressures, the war in Ukraine, and COVID-zero policy in China have all factored into lowering expectations for global growth. This led to value having the biggest outperformance over growth since 2000, when the dot com bubble burst.[5]

Government bonds

Government bonds had one of the worst years ever. Allocations to government bonds provided no sanctuary against extreme volatility in other risk assets, particularly equities. A publication from Deutsche Bank stated that 10-year Treasuries saw their worst performance and biggest annual rise in yield (over 2%) since 1788! Long duration bonds were hit especially hard, e.g. Austria's 100-year bond (maturing 2120) lost over half its value last year! [6]

Credit

It was a very bad year for credit, with losses across US, European and British indices, with sterling credit seeing some of the biggest declines.

Cryptocurrencies

Cryptocurrencies saw some of the worst moves, with Bitcoin down 64.3%, a pattern echoed across other cryptocurrencies in the space. As a 'risky asset' class, it proved to be one of the first that was cut in a dire situation. To make things worse, two of the largest cryptocurrencies/companies collapsed and in both instances the crypto markets took a large loss.

Hedge fund industry performance review

Hedge fund assets covered by the Aurum Hedge Fund Data Engine ($2.97 trillion as at year end) shrunk over the year - driven by a combination of net negative performance – net losses stood at $76bn – and net outflows at $145bn. Five out of the eight master strategies saw net reductions in assets for the year; equity l/s saw the most significant reduction in dollar terms. Multi-strategy and macro funds saw a net increase in assets, while arbitrage assets remained relatively unchanged. Multi-strategy was the only master strategy to see an increase in assets due to a combination of positive P&L and also net investor inflows. Every other strategy experienced net investor outflows.

> **Hedge fund assets shrunk over the year with multi-strategy and macro being the only strategies to see a net increase in assets - multi-strategy was the only master strategy to see an increase in assets due to both positive P&L and net investor inflows.**

Headline performance

The hedge fund industry was down 2.4% in 2022, partially recovering from a torrid H1 (where the industry was down 4.6%). Losses were driven by the historically challenging market conditions for risk assets described above, which impacted more long-biased and/or higher-beta hedge funds. 2022 hedge fund industry performance was the poorest since 2018, when it also lost 2.4%. Five-year performance for hedge funds now stands at a CAR of +4.2%, comfortably outperforming bonds (-2.0%). As an industry, hedge funds marginally outperformed equities (+3.0%) from a total return perspective over this time frame, but more significantly from a risk-adjusted Sharpe perspective (+0.46 vs. 0.16).

Dispersion

As can be seen in the following chart, dispersion between the top and bottom decile performing hedge funds rose significantly in 2022 as markets became more volatile, before a partial retrenchment in the latter part of the year. Although still nowhere near the extremes caused by COVID-19 and the resulting fallout in 2020-21, dispersion remains at elevated levels (i.e. the difference between top and bottom decile funds currently sits at 40% for the rolling 12-month return) relative to the last ten years.

[4] Deutsche Bank review January 2023 – A year for the history books
[5] Deutsche Bank review January 2023 – A year for the history books
[6] Deutsche Bank review January 2023 – A year for the history books

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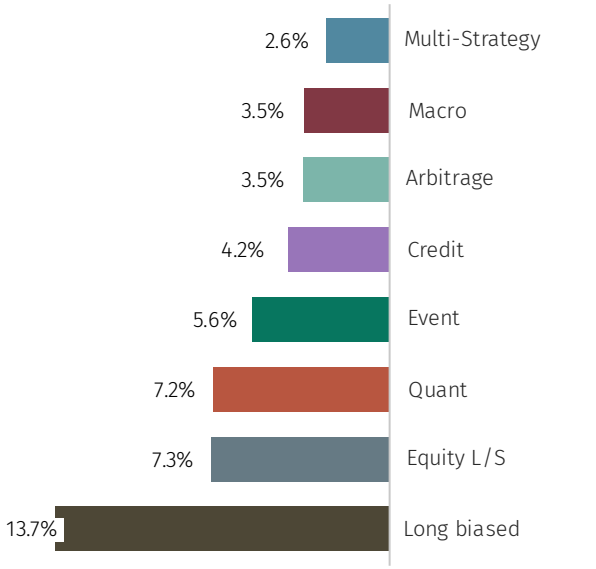
10th – 90th PERCENTILE 12M ROLLING PERF. SPREAD*

STANDARD DEVIATION (1 YR)



Presented on an equally weighted basis

Strategy performance

There were clear 'winners' and 'losers' from a strategy perspective. The best performing were multi-strategy (+9.5%), quant (+8.5%) and macro (+6.7%). One should also highlight arbitrage (+3.6%) although the tail-protection arbitrage sub-strategy unsurprisingly drove the positive figure along with long-volatility biased vol arb funds. Unsurprisingly – given the very poor performance of risk assets across equities and fixed income, strategies that typically exhibit a higher beta to those areas have struggled; long-biased performed the worst (-13.1%), followed by equity l/s (-9.6%), event (-4.5%), and credit (-3.8%). For these negatively performing strategies it was very much a tale of two halves. The 'damage' was done in the first half of the year when bonds and equities had both dropped 14.3% and 21.3% respectively[7].

> **The best performing strategies were multi-strategy (+9.5%), quant (+8.5%) and macro (+6.7%). Multi-strategy funds delivered positive performance every month except May**.

Multi-strategy (see full multi-strategy analytics pack here) funds had a stellar year, delivering positive performance every month except May. It should be noted, however, that there are handful of very large multi-strategy funds that dominate the assets and returns. When one looks at the median/mean average returns, they are not as high as other strategies such as quant, macro and arbitrage. A big driver of multi-strategy returns has been a combination of relative value (and often close to market neutral) trading across asset classes and their inherent diversification. They are a standout performer over the last ten years, delivering consistency and the highest absolute and risk adjusted returns (five-year CAR: 9.46%, Sharpe ratio: 1.87 and ten-year CAR: 8.3%) and – as we shall see below – resiliency to market factor risk. As can be seen in the alpha/beta decomposition charts, the dollar alpha generation in multi-strategy has been phenomenal, while performance attributable to beta has been minimal.

> **Quant strategies continue to enjoy a renaissance. The median and average quant fund performance was highest out of all hedge fund strategies.**

Quant strategies (see full quant analytics pack here) continue to enjoy a renaissance after being nearer the bottom of the pile when viewed over longer time horizons (e.g. ten-year CAR just 3.5%, five-year CAR: 3.1%). The strategy was not only a strong performer in 2022, but also had a decent 2021 (which were two very different years for risk assets) highlighting potentially attractive diversification properties. CTAs and stat-arb (including a number of funds that could loosely be defined as 'quant-multi-strategy) were both top quartile performers out of 28 hedge fund sub-strategies, while QEMN and quant - macro were both towards the upper end of the second quartile.

[7] See H1 2022 review

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The median and average quant fund performance was highest out of all hedge fund strategies, this was a function of the number of trend-following CTAs that form part of the strategy, which enjoyed their best year in the last five years. Quant has also been consistently one of the highest alpha generators, with very little of the last few years of performance attributable to beta.

Macro strategies (see full macro analytics pack here) performed well, both on an asset weighted basis and when looking at the mean and median average return. Managers were well positioned to take advantage of some of the big directional moves last year, particularly in the US dollar, rising interest rates and commodities (particularly energy and softs). Global macro, commodities and fixed income relative value sub-strategies were all among the best performing in the year while EM macro detracted from overall returns. When measured over long periods, macro has been a relative underperformer to the hedge fund universe (ten-year CAR: 3.2%; five-year CAR: 4.2%) but strong returns in 2020 (including good performance through the peak of the COVID-19 crisis), and again through the volatile period in 2021, has highlighted the value of the strategy. This is also reflected in correlation and dispersion analysis in the section below.

Arbitrage strategies (see full arbitrage analytics pack here) enjoyed a particularly strong H1, particularly as tail-protection and volatility arbitrage (which appears to carry a long-vol bias) were among the top performers out of all hedge fund sub-strategies during the most challenging environment for markets. Aggregate performance was pulled down by convertible arbitrage, which really struggled in H1 (down every month) before partially recovering in H2. The arbitrage strategy consistently exhibits minimal beta as a driver of returns (page 13).

Credit strategies (see full credit analytics pack here) struggled in H1 during the selloff, although were able to partially recover in H2. Slower new issuance in the credit market is limiting the opportunity for new issue trading and refinancing trades. Over the last five years it has been very tough for credit (bottom performer of the master hedge fund strategies with a CAR of just 2.9% and second lowest Sharpe ratio of 0.22), although longer-term it is more 'middle of the pack' (ten-year CAR: 4.0%). When looking at alpha/beta decomposition, the credit strategy typically generated a significant portion of its returns from beta (page 13).

Event strategies (see full event analytics pack here) were down on the year. Unsurprisingly the headline figure was driven by the 'higher beta' sub-strategies of activist and opportunistic, which both were badly hit in H1. Event-activist funds staged a strong recovery as equity markets rallied while opportunistic funds did not experience the same magnitude of rebound. As one would expect, the event - multi-strategy funds' higher diversification enabled them to withstand the volatility a little better. Merger arbitrage was able to make a little on the year.

> **It has been a torrid time for equity l/s. Long biased funds unsurprisingly were also negative on the year and the worst performing of the master strategies.**

2022 was a torrid time for equity l/s, (see full equity l/s analytics pack here) perhaps unsurprising given that it is a strategy that has typically carried a positive beta to the broader markets. In January, the strategy lost 4.6% as equity markets sold off and there was a significant rotation from growth to value. This rotation was in part due to the Fed announcing a faster pace of tapering. Yields rose significantly and companies that needed to secure funding sold off aggressively; this included unprofitable tech, the consumer sector, healthcare and expensive growth names, which are more sensitive to increases in rates and are heavily trafficked by the equity l/s space. On the flip side, cheap/undervalued stocks, particularly in areas like energy and financials outperformed. This set up the pattern for the year.

Long biased funds (see full long biased analytics pack here) unsurprisingly were negative on the year and were the worst performing of the master strategies. Both equity l/s and long-biased funds exhibited very significant beta attribution as part of their overall returns over the last ten years; it formed the majority of the long-biased attribution and about half of the equity long/short attribution (page 14).

NET RETURN OF MASTER STRATEGIES (1 YR)

Net Performance[1]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	12M
Multi-Strategy	0.83%	0.38%	0.66%	1.89%	-0.82%	1.11%	0.72%	1.46%	0.49%	0.56%	0.07%	1.81%	9.52%
Quant	0.98%	0.69%	3.96%	3.73%	-0.40%	1.35%	-2.01%	1.31%	2.17%	-0.32%	-3.15%	0.15%	8.52%
Macro	0.52%	-0.78%	1.78%	1.02%	0.26%	-1.64%	0.29%	1.88%	0.30%	0.85%	0.64%	1.46%	6.73%
Arbitrage	1.06%	0.76%	0.40%	1.49%	-1.65%	0.61%	-0.90%	1.45%	0.71%	-0.37%	-0.94%	0.97%	3.58%
Credit	-0.33%	-0.56%	0.00%	-0.73%	-1.13%	-2.55%	1.16%	0.54%	-2.11%	0.05%	1.42%	0.45%	-3.82%
Event	-1.70%	-0.36%	0.81%	-1.15%	-1.44%	-3.57%	1.78%	0.24%	-1.83%	1.59%	1.22%	-0.07%	-4.52%
Equity L/S	-4.56%	-1.19%	-0.50%	-3.12%	-1.55%	-1.94%	2.14%	0.11%	-2.73%	1.15%	2.29%	0.07%	-9.63%
Long biased	-3.69%	-0.87%	0.34%	-4.58%	-0.77%	-6.63%	5.25%	-2.81%	-6.11%	1.99%	5.34%	-0.59%	-13.15%
HF Composite*	**-1.64%**	**-0.46%**	**0.86%**	**-0.71%**	**-1.01%**	**-1.77%**	**1.24%**	**0.42%**	**-1.49%**	**0.74%**	**0.94%**	**0.51%**	**-2.42%**
Bonds**	**-2.28%**	**-1.30%**	**-2.90%**	**-5.61%**	**0.22%**	**-3.28%**	**1.88%**	**-3.91%**	**-5.00%**	**-0.34%**	**4.73%**	**0.16%**	**-16.69%**
Equities***	**-5.32%**	**-2.39%**	**1.70%**	**-8.10%**	**-0.20%**	**-8.74%**	**6.89%**	**-3.63%**	**-9.86%**	**5.93%**	**7.48%**	**-3.87%**	**-20.04%**

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Source: Aurum Hedge Fund Data Engine.

Performance

Sub-strategy performance

Quant

As indicated above, quant strategies were second only to multi-strategy funds when looking at weighted average performance, although the mean and median performing quant funds performed better than the mean and median funds from other strategies.

All of the quant sub-strategies, apart from risk premia, were up. It has been a great environment for CTAs, which posted the highest return out of all the sub-strategies (+15.2%) as they were able to capitalise upon some of the sustained moves in the US dollar, fixed income and commodities, and the broad-based sell off in risk assets. The dispersion in CTA performance is very high (approximately 40%), approaching levels not seen since 2015.

Statistical arbitrage was up 11.2%. It was another strong year for the sub-strategy. It has been positive in each of the last five years and has a Sharpe ratio of 1.43, one of the highest out of all hedge-fund industry sub-strategies. One important observation to note is that the mean and median performing stat arb fund is significantly lower than the asset weighted return, once again highlighting that it is the smaller number of larger funds that are driving performance.

It has also been a good environment for quant macro: (+7.0%), the strategy has been able to benefit from some of the same factors as CTAs and exhibits a very low correlation to equities and bonds. Having said this, the five-year returns are more mediocre (+3.0%) with a low Sharpe ratio (+0.22).

Quant EMN continues its recovery (+4.4%) after having posted a strong year in 2021 (+12.9%). Running market neutral enabled funds in the space to be insulated from the broad market moves, although the associated industry deleveraging was a headwind and funds still experienced some volatility in H1. One of the other positives for the strategy was a re-emergence of the 'value' factor starting to work, a common area quant EMN funds had exposure to.

> **It has been a very challenging time for risk-premia strategies it has lost money 3 out of the last 5 years and is seeing significant net outflows.**

Risk premia (-5.7%) struggled badly in H1 and did not really recover in H2. It has been a very challenging time for risk-premia strategies. Over the last five years, along with EM macro, it is the only sub-strategy to have a negative CAR (-0.9%). Risk premia has lost money three out of the last five years and is seeing significant net outflows. It should be noted that like some other strategy areas, the risk premia space has been dominated by a small number of very large players. When one looks across the space you can see that there has been massive dispersion in risk premia, with top decile funds delivering just shy of 30% on the year, but bottom decile funds were down 17.5%. Average performance (mean and median) has actually been closer to flat, implying that the headline strategy performance is significantly influenced by the larger hedge funds.

Event

Decomposing the event strategy's poor returns we can see that the opportunistic sub-strategy was the poorest performing (and the fourth poorest performing of all hedge fund sub-strategies) losing 11.4%. Activist strategies – which were actually the poorest of all the underlying hedge fund strategies in H1 – lost 9.4%. As highlighted above event – multi-strategy funds' higher level of diversification enabled them to mitigate the downside and they actually managed to be up in four out of the first six months of the year, but were unable to generate significant returns in H2, finishing up 1.2%. Merger arbitrage, traditionally the lowest volatility and typically uncorrelated sub-strategy managed to protect capital and did not lose too much in H1 as spreads widened and corporate activity cooled. They finished the year up 1.8%. The higher volatility has led to a reduction in new deal flow, while at the same time higher interest rates have increased the cost of capital, making acquisitions more costly. Any areas of the event strategy carrying a higher beta to equities (such as activist positions, 'soft' catalyst positions and some less liquid special situations), suffered during the year.

Macro

As highlighted above, the environment was favourable to the global macro (+12.2%) and commodity macro (+11.5%) sub-strategies. Performance has been driven particularly by directional trading, benefitting from some extreme moves in areas like the energy complex (particularly oil and European natural gas), as well as moves in corn and wheat; the conflict between Russia and Ukraine was a primary driver of the volatility. Many funds also were able to trade the moves in interest rate markets in response to increasing global inflation as well as benefitting from positions in the US dollar. Heightened rate and currency volatility have also proven to be fertile hunting grounds for more active macro traders.

Over the last five years, global macro has one of the higher realised Sharpe ratios (+0.80) relative to the other sub-strategies. Commodity macro managers have delivered the same Sharpe ratio but a higher volatility and CAR (five year CAR: +7.4%). The macro strategy typically outperforms during periods of volatility and this, combined with a positive expected absolute return profile, explain why many allocators like to hold macro in their portfolios.

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Source: Aurum Hedge Fund Data Engine.

The heightened rates and FX volatility has been beneficial for fixed income relative value trading (+9.4%). This is another strategy that was able to make money – pretty much continuously – throughout the period, with only small losses just over 40bps in June and September.

The poor performer of the macro group was EM macro. This strategy has tended to have more of a 'long risk asset' correlation over time and can often become caught up when there is a spike in global volatility and fall in risk appetite. The strategy has lost money in three of the last five years, and the second worst performing of all hedge fund sub-strategies over this period.

Credit

The credit master strategy lost money in 2022, the credit sub-strategy (which is more credit relative value in nature) lost 4.1% while distressed performed slightly better although still was down 2.8%. Credit sold off significantly across both investment grade and high yield , particularly in the first half of the year. With the selloff however, there is more spread dispersion and relative value trading opportunities, particularly on the long side as yields increased. In distressed, default rates were not high but were rising and expected to continue to grow due to recessionary forces. This should potentially create more fertile conditions for distressed credit investing. At this time, funds appear to be opting to keep powder dry in anticipation of better conditions on the way.

Arbitrage

In the first half of the year, positive performance was driven predominantly by tail protection and volatility arbitrage. This is not surprising given that tail protection strategies are designed to benefit from just the type of spikes in volatility we witnessed in H1. The VIX rose from a low at the start of the year, reaching a peak on 7 March and oscillated between elevated levels to June.[8] While the spikes were a fraction of the level reached in the COVID-19 crisis, they remain elevated when viewed in the context of the last 20 years. The frequency of volatile moves in performance has also been elevated and extended beyond equities into other asset classes. Large and sustained moves in asset classes combined with wide oscillations in volatility levels have provided a rich opportunity set for tail protection, long-vol biased and volatility RV funds. In the second part of the year, as vol-levels reduced, we saw tail-protection strategies giving up some of their gains to finish the year +10.2%. Volatility arbitrage managers, however, were able to produce steady returns throughout the year, with controlled downside on their three losing months finishing the year +6.0%. Opportunistic arbitrage managers finished the year up 2.9%.

On the downside, we saw challenging markets for convertible arbitrage managers (-4.9%), who struggled in H1 in particular as yields rose, credit spreads widened, liquidity fell and risk assets were sold off. Convertible bond issuance fell away towards the end of 2021 and for most of 2022, reducing trading opportunities.

Equity long short

Equity l/s funds were badly hit in H1 and were able to recoup some of the losses in H2. Historically the space has had a tendency to carry a positive beta to markets; 2022 proved no exception. As can be seen in the correlation tables the one-year and five-year correlation to global equities sits over 0.8. Over the last five years, the space has delivered a CAR of 3.9% and a Sharpe ratio of 0.30. The strategy also lost money in the equity market sell off of 2018. At the sub-sector level, there were few places to hide. When looking at the 28 sub-strategies in the hedge fund universe. Equity l/s sub-strategies occupied five out of the nine worst performing, with equity l/s – sector funds at the bottom (down 13.8% for the year). The one area of respite from a sub-strategy perspective was in fundamental EMN strategies, which due to their low beta were able to at least protect the downside through the shock and more than recoup the losses to finish in positive territory (+1.4%). All regions were negative.

Long biased

The biggest losers were in the long biased equity sub-strategy space (down 17.9%). Diversified growth funds had an awful year (down 12.4%), hit by the 'double whammy' of losses in both equities and fixed income, as well as from poor performance in other 'long-premia' strategies. The bright spot for long-biased strategies was in the structurally long commodities funds (up 13.9%), which was the second-best performing hedge fund sub-strategy (page 10) benefitting from the large moves in energy and agricultural commodities in particular.

[8] Source: google finance

NET RETURN OF SUB-STRATEGIES (1 YR)

Net Performance[1]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	12M
CTA	0.89%	2.24%	6.64%	4.57%	-0.23%	1.33%	-2.84%	2.65%	3.79%	0.32%	-4.64%	0.03%	15.19%
Global Macro	0.81%	0.02%	2.36%	1.95%	0.35%	-0.88%	-0.01%	2.90%	2.18%	0.77%	-0.50%	1.73%	12.23%
Commodities	1.73%	3.28%	5.92%	2.40%	1.03%	-3.70%	0.76%	-0.57%	-2.17%	1.52%	0.14%	0.92%	11.48%
Stat Arb	1.38%	0.29%	2.22%	1.84%	-0.20%	1.32%	1.08%	1.29%	0.56%	-0.55%	0.21%	1.22%	11.15%
Tail Protection	2.41%	2.18%	0.76%	5.08%	-2.81%	4.81%	-4.41%	2.34%	6.29%	-2.92%	-4.50%	1.23%	10.15%
Multi-Strategy	0.83%	0.38%	0.66%	1.89%	-0.82%	1.11%	0.72%	1.46%	0.49%	0.56%	0.07%	1.81%	9.52%
Fixed Income RV	1.17%	0.10%	0.80%	0.91%	0.33%	-0.42%	1.02%	1.27%	-0.43%	1.45%	1.67%	1.19%	9.40%
Quant Macro/GAA	2.75%	0.45%	4.02%	6.21%	-0.63%	3.39%	-3.94%	3.32%	4.46%	-4.08%	-7.46%	-0.71%	7.03%
Vol Arb	2.01%	0.99%	0.70%	1.55%	-0.30%	0.43%	-0.54%	0.32%	0.29%	0.33%	-0.59%	0.70%	6.02%
Quant EMN	-1.24%	-0.94%	2.48%	1.86%	-1.30%	1.32%	-1.57%	-3.04%	-1.09%	3.51%	2.63%	1.91%	4.37%
Arb Opportunistic	0.48%	0.44%	0.45%	0.85%	-1.84%	-0.20%	-0.19%	2.26%	-0.14%	0.16%	-0.55%	1.18%	2.88%
Event - Merger Arb	-0.28%	0.92%	0.39%	-0.76%	-1.64%	-1.13%	1.75%	1.00%	-0.29%	1.59%	-0.64%	0.94%	1.79%
Fundamental EMN	-0.25%	-0.45%	0.15%	-0.79%	0.11%	-0.46%	0.71%	0.15%	-0.90%	1.10%	0.11%	1.99%	1.44%
Event - Multi-Strategy	0.61%	0.49%	0.94%	0.29%	-0.71%	-1.52%	-0.29%	0.97%	0.10%	-0.45%	0.06%	0.71%	1.18%
Distressed Credit	-0.26%	0.02%	1.33%	-0.46%	-1.51%	-3.04%	0.55%	1.33%	-1.88%	0.13%	0.79%	0.29%	-2.78%
ELS - Europe	-3.29%	-0.58%	0.34%	-0.47%	-1.04%	-1.65%	1.55%	-0.08%	-0.55%	1.28%	0.91%	0.01%	-3.60%
Credit	-0.35%	-0.72%	-0.36%	-0.81%	-1.03%	-2.42%	1.33%	0.33%	-2.17%	0.02%	1.63%	0.52%	-4.05%
Convert Arb	-0.78%	-0.38%	-0.41%	-0.87%	-2.65%	-1.65%	0.72%	1.60%	-2.41%	-0.09%	1.01%	1.02%	-4.85%
Risk Premia	-0.41%	-0.14%	0.03%	-1.06%	1.03%	-4.85%	2.53%	-2.68%	-4.14%	4.08%	2.19%	-2.08%	-5.73%
ELS - Other	0.38%	-3.21%	-1.76%	-1.49%	0.31%	-5.17%	0.19%	1.33%	-5.28%	-0.33%	7.28%	-0.05%	-8.07%
ELS - APAC	-3.62%	-1.10%	-3.80%	-1.20%	-0.02%	1.64%	-2.32%	0.74%	-2.13%	-3.91%	5.24%	1.54%	-8.95%
EM Macro	-0.98%	-4.46%	0.16%	-1.58%	-0.29%	-4.11%	0.08%	0.84%	-2.99%	0.07%	2.91%	1.21%	-9.01%
ELS - Global	-4.62%	-1.75%	-0.57%	-2.58%	-1.16%	-2.63%	2.65%	-0.41%	-2.39%	1.70%	2.12%	0.31%	-9.18%
Event - Activist	-4.63%	-2.05%	2.48%	-3.35%	-2.98%	-7.55%	7.22%	-1.71%	-5.72%	6.94%	4.91%	-2.09%	-9.43%
ELS - US	-4.02%	-0.94%	-0.68%	-4.31%	-1.00%	-3.53%	3.80%	-0.78%	-4.25%	2.99%	2.48%	-0.80%	-10.88%
Event - Opportunistic	-3.19%	-0.77%	-0.57%	-1.75%	-1.32%	-4.72%	1.05%	0.32%	-2.65%	1.05%	0.98%	-0.22%	-11.35%
Long biased	-3.69%	-0.87%	0.34%	-4.58%	-0.77%	-6.63%	5.25%	-2.81%	-6.11%	1.99%	5.34%	-0.59%	-13.15%
ELS - Sector	-6.88%	-1.21%	0.44%	-5.08%	-3.39%	-1.87%	3.15%	0.78%	-3.32%	1.77%	1.87%	-0.46%	-13.77%
HF Composite*	**-1.64%**	**-0.46%**	**0.86%**	**-0.71%**	**-1.01%**	**-1.77%**	**1.24%**	**0.42%**	**-1.49%**	**0.74%**	**0.94%**	**0.51%**	**-2.42%**
Bonds**	**-2.28%**	**-1.30%**	**-2.90%**	**-5.61%**	**0.22%**	**-3.28%**	**1.88%**	**-3.91%**	**-5.00%**	**-0.34%**	**4.73%**	**0.16%**	**-16.69%**
Equities***	**-5.32%**	**-2.39%**	**1.70%**	**-8.10%**	**-0.20%**	**-8.74%**	**6.89%**	**-3.63%**	**-9.86%**	**5.93%**	**7.48%**	**-3.87%**	**-20.04%**

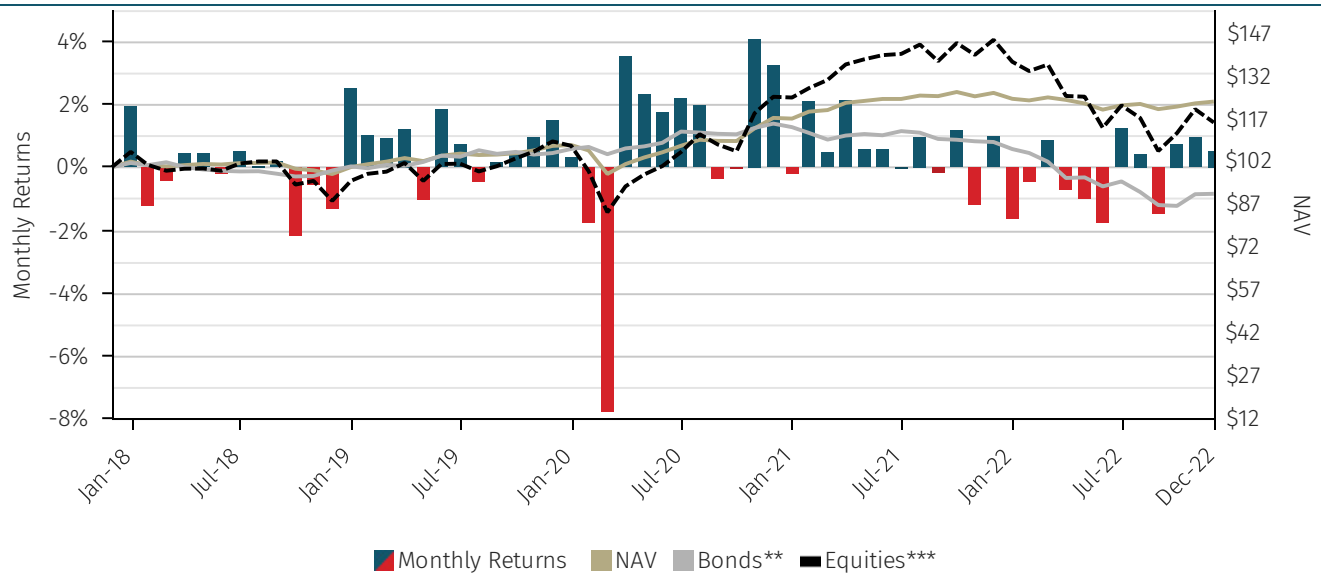
*HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index.
** Bonds = S&P Global Developed Aggregate Ex Collateralized Bond (USD). *** Equities = S&P Global BMI.
1 = Returns net of all fees and expenses. Source: Aurum Hedge Fund Data Engine.

NET RETURN OF SUB STRATEGIES (5 YR)

Annual Perf	2022	2021	2020	2019	2018	5Yr CAR	5Yr Vol	5Yr Sharpe
CTA	15.19%	8.29%	0.63%	8.59%	-5.62%	5.17%	8.25%	0.46
Long Commods	13.87%	25.10%	-4.26%	7.04%	-12.81%	4.94%	15.15%	0.29
Global Macro	12.23%	-1.96%	9.51%	8.76%	-1.08%	5.33%	4.65%	0.80
Commodities	11.48%	16.85%	9.63%	5.37%	-4.98%	7.41%	7.29%	0.80
Stat Arb	11.15%	9.21%	10.15%	3.64%	1.19%	7.00%	3.69%	1.43
Tail Protection	10.15%	-7.79%	14.13%	-12.22%	0.65%	0.48%	12.49%	-0.03
Multi-Strategy	9.52%	11.62%	15.87%	9.62%	1.20%	9.46%	4.05%	1.87
Fixed Income RV	9.40%	0.91%	8.76%	8.88%	1.92%	5.91%	2.75%	1.53
Quant Macro/GAA	7.03%	5.26%	-4.73%	0.57%	7.59%	3.04%	8.12%	0.22
Vol Arb	6.02%	0.99%	3.57%	3.80%	2.33%	3.33%	2.97%	0.59
Quant EMN	4.37%	12.85%	-17.27%	4.23%	2.80%	0.87%	7.84%	-0.05
Arb Opportunistic	2.88%	10.51%	19.18%	8.47%	3.84%	8.82%	6.84%	1.04
Event - Merger Arb	1.79%	6.44%	7.16%	5.84%	4.72%	5.17%	5.79%	0.63
Fundamental EMN	1.44%	4.86%	7.34%	11.91%	-3.70%	4.24%	5.37%	0.51
Event - Multi-Strategy	1.18%	10.60%	9.32%	9.06%	0.08%	5.95%	3.94%	1.09
Distressed Credit	-2.78%	15.22%	4.98%	4.27%	-0.29%	4.10%	8.04%	0.35
ELS - Europe	-3.60%	7.84%	9.71%	8.79%	-3.80%	3.60%	5.34%	0.39
Credit	-4.05%	6.67%	2.68%	6.82%	1.36%	2.62%	6.75%	0.19
Convert Arb	-4.85%	7.41%	16.99%	8.83%	0.55%	5.53%	5.07%	0.78
Risk Premia	-5.73%	13.31%	-7.29%	4.29%	-7.33%	-0.87%	6.92%	-0.32
Long Biased Other	-7.04%	11.24%	7.31%	11.31%	-2.58%	3.77%	8.44%	0.30
ELS - Other	-8.07%	0.31%	12.61%	15.95%	-6.98%	2.29%	11.39%	0.12
ELS - APAC	-8.95%	2.77%	24.10%	9.09%	-7.07%	3.32%	7.63%	0.26
EM Macro	-9.01%	-1.23%	6.40%	7.02%	-3.21%	-0.19%	9.25%	-0.14
ELS - Global	-9.18%	7.88%	16.36%	16.09%	-4.87%	4.71%	9.05%	0.38
Event - Activist	-9.43%	19.40%	23.20%	23.54%	-7.72%	8.72%	15.05%	0.53
ELS - US	-10.88%	7.40%	15.72%	17.61%	-4.27%	4.51%	10.59%	0.32
Event - Opportunistic	-11.35%	9.66%	13.63%	12.03%	-4.59%	3.38%	8.22%	0.25
Diversified Growth	-12.38%	9.72%	6.11%	13.02%	-5.41%	1.75%	9.14%	0.06
ELS - Sector	-13.77%	-0.45%	26.65%	17.02%	-6.87%	3.45%	12.38%	0.21
Long Biased Eq.	-17.86%	11.63%	21.49%	23.86%	-8.01%	4.88%	14.95%	0.29
HF Composite*	**-2.42%**	**7.47%**	**9.15%**	**10.11%**	**-2.44%**	**4.22%**	**5.91%**	**0.46**
Bonds**	**-16.69%**	**-5.59%**	**9.84%**	**6.19%**	**-1.20%**	**-1.95%**	**6.44%**	**-0.52**
Equities***	**-20.04%**	**16.02%**	**14.34%**	**23.65%**	**-11.84%**	**2.95%**	**17.99%**	**0.16**

*HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index.
** Bonds = S&P Global Developed Aggregate Ex Collateralized Bond (USD). *** Equities = S&P Global BMI.
Source: Aurum Hedge Fund Data Engine.

HEDGE FUND COMPOSITE* NET MONTHLY RETURN (5 YR)



NET RETURN OF MASTER STRATEGIES (5 YR)

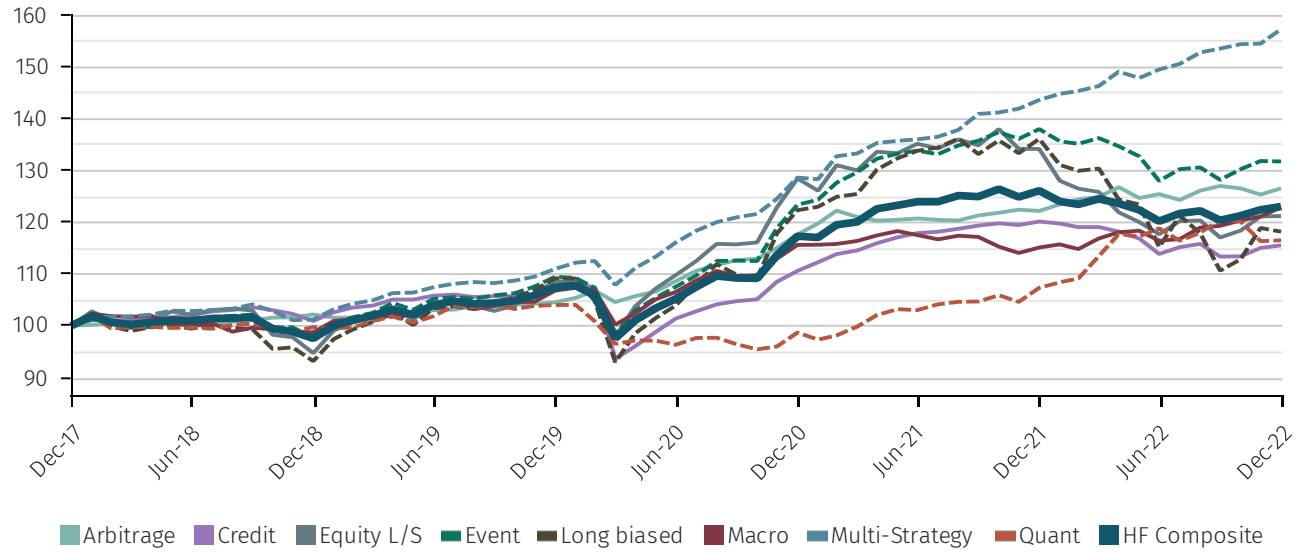
Annual Perf	2022	2021	2020	2019	2018	5Yr CAR	5Yr Vol	5Yr Sharpe
Arbitrage	3.58%	3.85%	12.49%	2.31%	2.16%	4.81%	2.92%	1.09
Credit	-3.82%	8.60%	3.19%	6.17%	0.92%	2.92%	6.98%	0.22
Equity L/S	-9.63%	4.42%	18.26%	14.60%	-5.29%	3.91%	8.81%	0.30
Event	-4.52%	11.82%	12.67%	12.17%	-2.44%	5.65%	6.95%	0.60
Long biased	-13.15%	11.24%	12.02%	17.13%	-6.82%	3.39%	11.13%	0.21
Macro	6.73%	-0.44%	8.26%	8.13%	-1.27%	4.19%	4.89%	0.54
Multi-Strategy	9.52%	11.62%	15.87%	9.62%	1.20%	9.46%	4.05%	1.87
Quant	8.52%	8.73%	-5.09%	4.26%	-0.27%	3.09%	5.27%	0.31
HF Composite*	**-2.42%**	**7.47%**	**9.15%**	**10.11%**	**-2.44%**	**4.22%**	**5.91%**	**0.46**
Bonds**	**-16.69%**	**-5.59%**	**9.84%**	**6.19%**	**-1.20%**	**-1.95%**	**6.44%**	**-0.52**
Equities***	**-20.04%**	**16.02%**	**14.34%**	**23.65%**	**-11.84%**	**2.95%**	**17.99%**	**0.16**

MULTIPLE PERIOD – HIERARCHICAL ANNUALISED NET RETURN

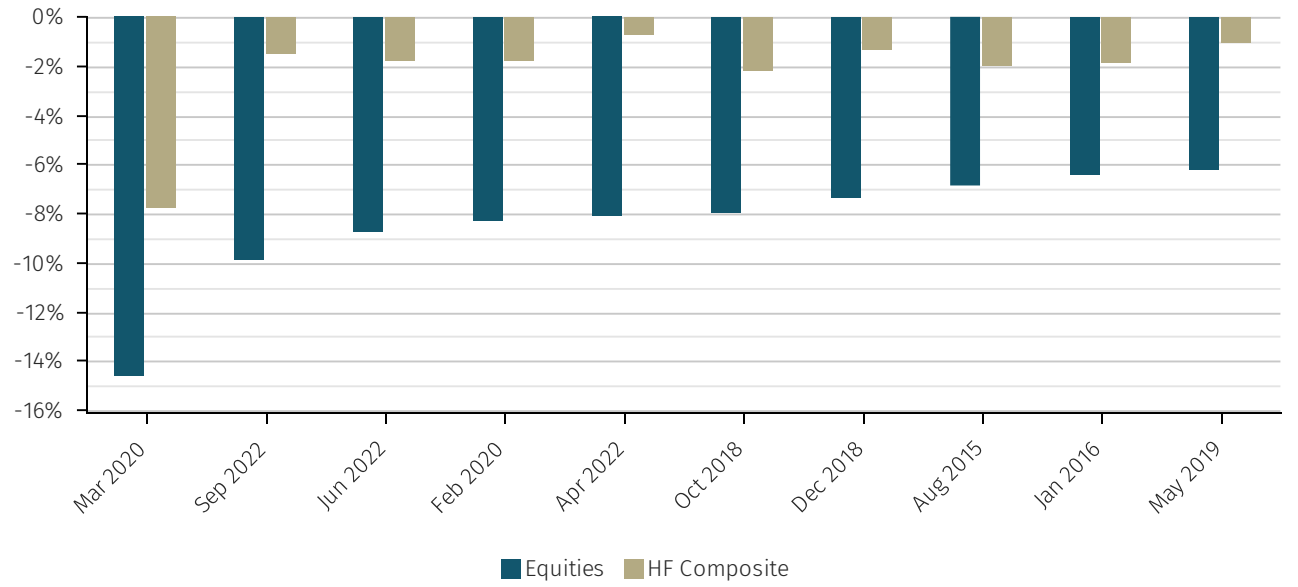
1 YEAR	3 YEAR	5 YEAR	10 YEAR
Multi-Strategy 9.5%	**Multi-Strategy** 12.3%	**Multi-Strategy** 9.5%	**Multi-Strategy** 8.3%
Quant **8.5%**	**Arbitrage** 6.6%	**Event** 5.7%	**Event** 5.8%
Macro 6.7%	**Event** 6.4%	**Arbitrage** 4.8%	**Equity L/S** 5.3%
Arbitrage 3.6%	**Macro** 4.8%	**HF Composite*** 4.2%	**HF Composite*** 4.6%
HF Composite* -2.4%	**HF Composite*** 4.6%	**Macro** 4.2%	**Long biased** 4.1%
Credit -3.8%	**Quant** **3.8%**	**Equity L/S** 3.9%	**Credit** 4.0%
Event -4.5%	**Equity L/S** 3.7%	**Long biased** 3.4%	**Quant** **3.5%**
Equity L/S -9.6%	**Long biased** 2.7%	**Quant** **3.1%**	**Macro** 3.2%
Long biased -13.1%	**Credit** 2.5%	**Credit** 2.9%	**Arbitrage** 2.5%

*HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index.
** Bonds = S&P Global Developed Aggregate Ex Collateralized Bond (USD). *** Equities = S&P Global BMI.
Source: Aurum Hedge Fund Data Engine.

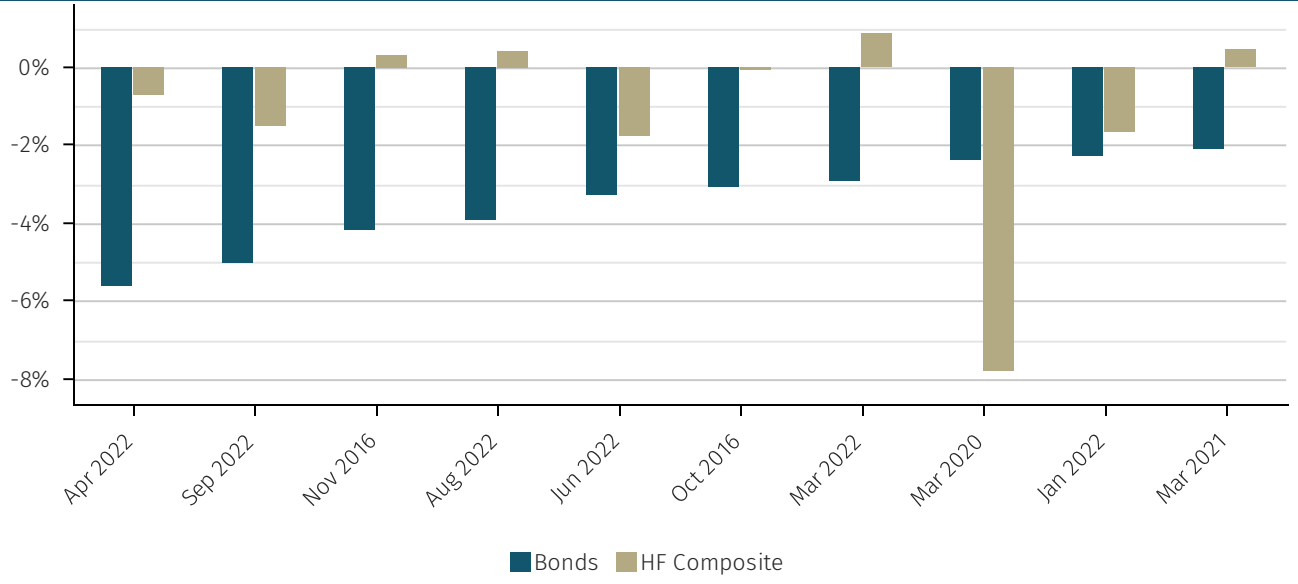
MASTER STRATEGY AND HEDGE FUND COMPOSITE* CUMULATIVE RETURN (5 YR)



PERFORMANCE OF HEDGE FUND COMPOSITE* DURING WORST 10 MONTHS FOR EQUITIES*** (10 YR)



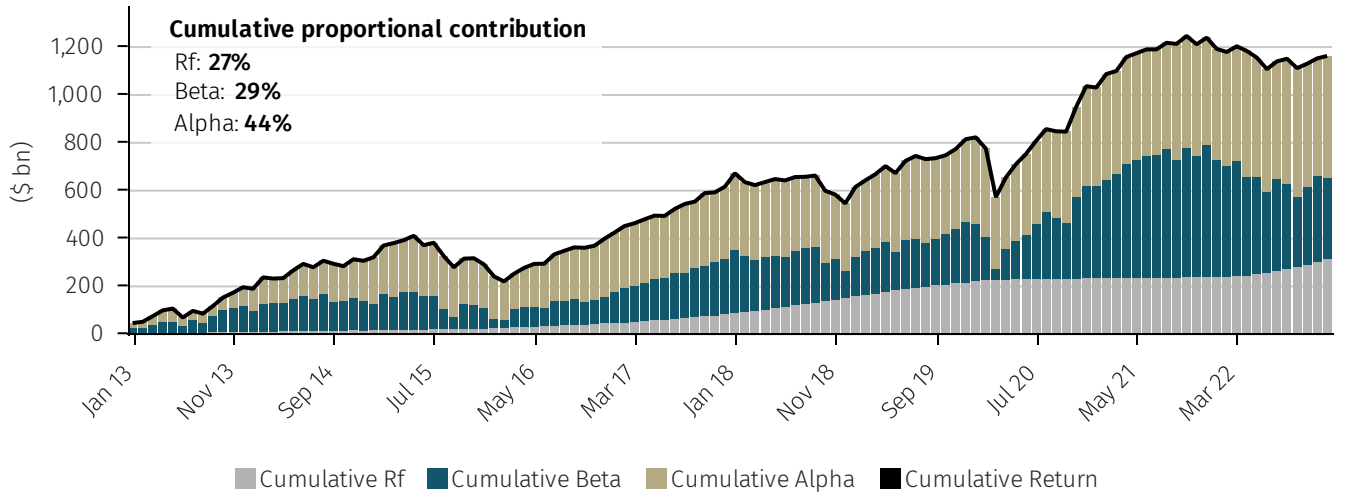
PERFORMANCE OF HEDGE FUND COMPOSITE* DURING WORST 10 MONTHS FOR BONDS** (10 YR)



*HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index.
** Bonds = S&P Global Developed Aggregate Ex Collateralized Bond (USD). *** Equities = S&P Global BMI.
Source: Aurum Hedge Fund Data Engine.

DECOMPOSING DOLLAR PERFORMANCE INTO ALPHA, BETA AND RISK FREE (RF) COMPONENTS

HF Composite*

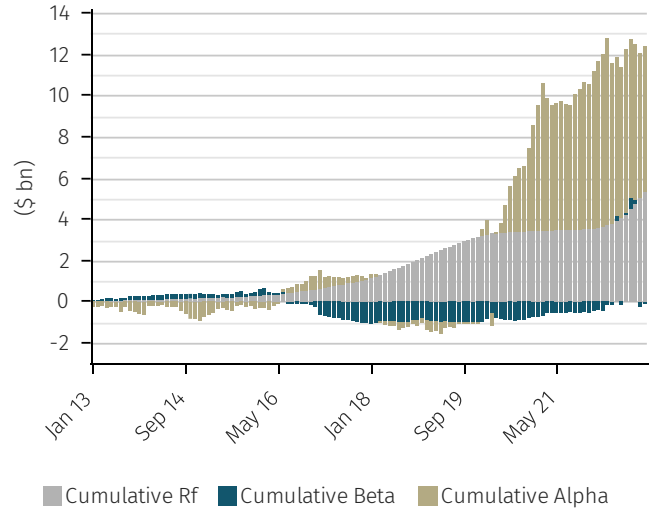


These charts decompose the Hedge Fund Composite dollar returns into Beta, Alpha and Risk free ("Rf") components, as follows: Alpha = Actual return – Rf – Beta * (Market return – Rf).

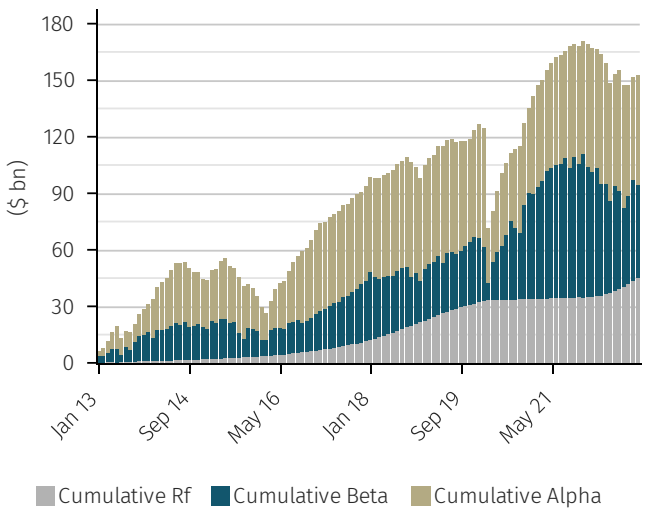
Where Rf is the Risk-free rate as defined by a rolling 3m US dollar Libor, where market return is that of S&P Global BMI ('the market index') and where Beta has been calculated with respect to each underlying fund observed on a 24m rolling basis to the market index. The monthly Alpha, Beta and Rf components are then applied to each underlying fund's dollar performance for a particular month, and then at a master strategy or industry level the individual fund dollar contributions are aggregated.

By way of example since 2013 (to December 2022) at the HF Composite level we observe that hedge funds performance generated ~$1.16 trillion dollars (net of fees) to the benefit of investors. Decomposed $513bn are classified as performance attributable to alpha, whilst $333bn are classified as performance attributable to beta, whilst $310bn would have been achieved from purely investing in Rf.

Arbitrage

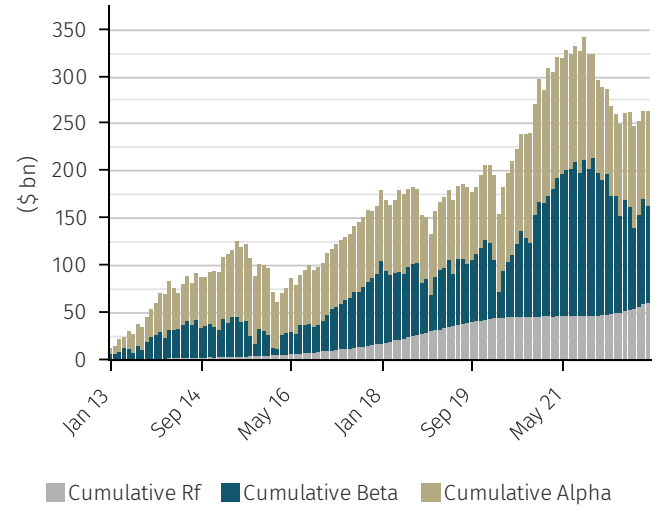


Credit

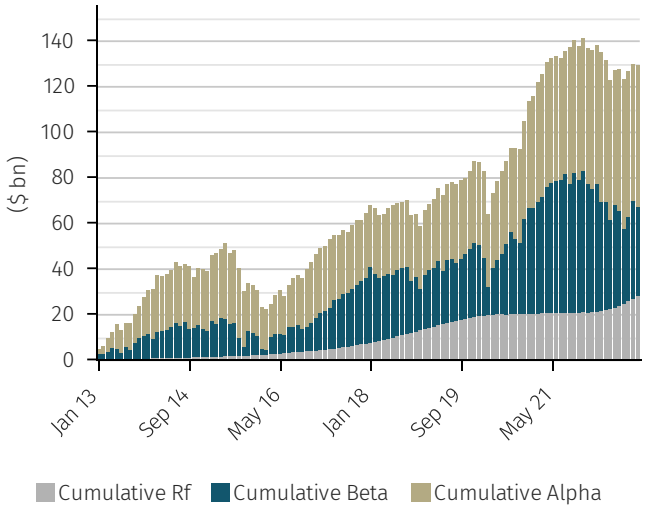


Risk Free Rate = period average of 3-month US Libor 2.54%. Source: Bloomberg.
**HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index.*
Source: Aurum Hedge Fund Data Engine.

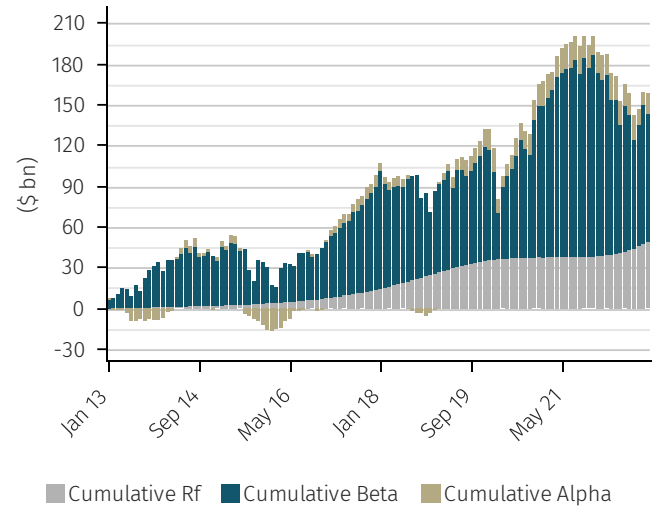
Equity L/S



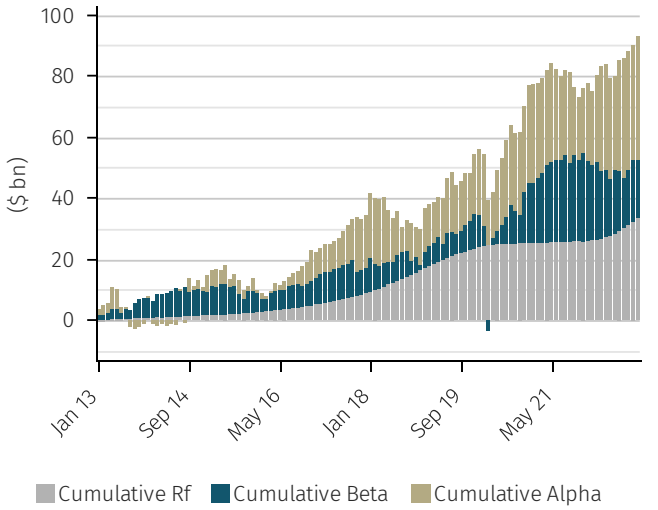
Event



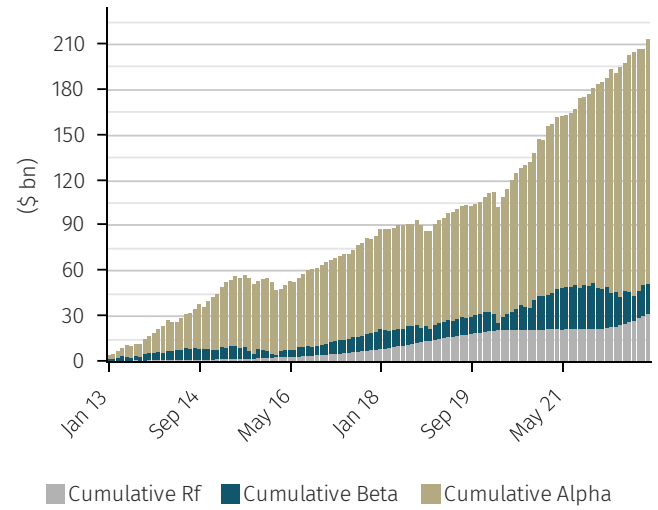
Long biased



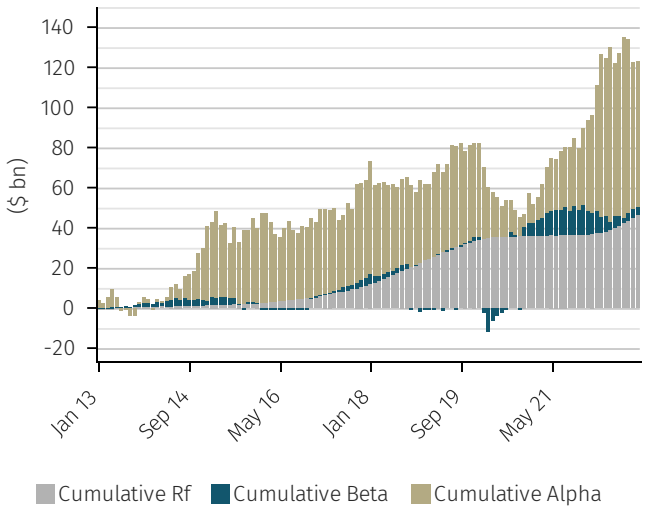
Macro



Multi-Strategy



Quant



Risk Free Rate = period average of 3-month US Libor 2.54%. Source: Bloomberg.
**HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index.*
Source: Aurum Hedge Fund Data Engine.

Performance dispersion and correlation

Overall industry dispersion is significantly lower than it was through the 2020-21 period (induced by the COVID-19 crisis), but as the charts on page 5 and pages 18/19 clearly illustrate, dispersion in the hedge fund industry in aggregate remains at significantly elevated levels relative to the last ten years. Dispersion (along with intra-strategy correlation) is a useful indicator of the potential opportunities to add value through manager and sub-strategy selection.

Top decile industry rolling 12-month performance has remained relatively constant over the last year, while bottom decile performance worsened significantly dropping from approximately -10% to nearly -25% in Q3, before partially recovering into year end.

As the bar chart clearly shows on page 16, across nearly all of the individual hedge fund strategies we can see current differentials between the top and bottom deciles in each area are significantly higher than their ten-year average. The most extreme levels are seen in macro, quant, arbitrage and equity l/s. Much of the strategy dispersion can be further explained by significant differentials between the performance of underlying sub-strategies. For example, within macro, both commodity macro and global macro were top three performers out of 31 hedge fund sub-strategies, while EM macro was a significant underperformer and lost money. Similarly, within quant, the top performing sub-strategy was CTAs (also the top performing sub-strategy across the industry), while risk premia strategies lost money. Within the arbitrage master strategy the high dispersion is linked to dispersion in sub-strategies; tail protection performed well and was the sixth highest performing sub-strategy overall, while convertible arbitrage lost money. It's no surprise to see significant dispersion in equity l/s managers, given the massive variability in exposure to beta, sector, and regional biases that are significant factors in underlying sub-strategies.

It's interesting to see that – although long-biased strategies showed some of the highest dispersion between top and bottom decile performance, it was only marginally elevated relative to the ten-year average. Fundamental equity market neutral strategies managed to finish in positive territory while sector l/s funds were the second worst performing sub-strategy across the industry.

Only in the event driven space, was the dispersion actually lower than ten-year average. This was quite surprising, especially given that one typically expects to see certain areas (such as merger arbitrage) have far less beta to the markets than areas like activist. Given the high equity market volatility last year, one would have expected higher-than-average dispersion in that space as well.

Long biased, equity l/s and macro strategies also show large dispersion when calculated by interquartile range (see candlestick charts on page 18). Multi-strategy, credit and event strategies show the lowest levels of dispersion as measured by interquartile range.

If one focuses on the key 'stress' months (January to April, June, August and September) you quickly see some interesting patterns. Areas like long-biased and equity l/s show massive dispersion during these periods. Bottom decile losses of approximately 10% for equity l/s in January, April, June and September. Top quartile performance from long-biased managers was generally negative in H1 for long-biased strategies and was mediocre for equity l/s. However, top quartile performance from macro managers was consistently strong, particularly throughout H1 and during these key 'stress' months, with the exception of June, where the top quartile macro fund just about scraped a positive number. Top decile funds in the multi-strategy space were up in each of these months.

It is also worth commenting on the differential between median and mean average returns relative to the weighted average headline returns used to represent the Aurum strategy indices. For example, whilst multi-strategy was the best performing master hedge fund strategy overall, it was actually only the third best performer (from a median perspective) and the fourth best performing strategy from a mean perspective. A key takeaway is that it has been the largest multi-strategy funds which dominate index returns, and have outperformed smaller multi-strategy funds. Quant strategies, when measured on mean and median fund average performance are the best performing. It was a particularly strong environment for CTAs, which make up a considerable portion of the quant universe. Macro funds ranked second in terms of median and mean average fund performance. At the other end of the spectrum, it is interesting to note that the average long-biased fund (both mean and median) is very close to the asset weighted figure, while for equity l/s the asset weighted return is considerably worse than the mean and median; unlike the case of multi-strategy funds, the largest equity l/s funds materially underperformed the smaller members of their cohort. For more detailed analysis of the dispersion among the hedge fund sub-strategies, please refer to the individual strategy analytics packs on page 18 of this report

Correlation between the different strategies have exhibited some significant changes over the last 12 months; some areas have shown considerably more resilience to the market volatility of 2022 when compared to others. Arbitrage strategies have exhibited low to negative correlation versus all other master strategies, except multi-strategy. They have been highly negatively correlated to both bonds and equities over five years, and have close to zero correlation over the last year. The strategy has outperformed the broader hedge fund universe over the last five years and with a significantly higher Sharpe

Equally weighted returns.
HF Composite = Aurum Hedge Fund Data Engine Equally Weighted Composite Index
Source: Aurum Hedge Fund Data Engine.

ratio and with attractive diversification properties. The other standout areas from a diversification/low to negative correlation perspective are in the multi-strategy and quant space. A key takeaway for allocators would be to note that areas such as credit, equity l/s, event and long-biased all exhibit a high correlation to risk assets. These are areas where the relative contribution to total returns from alpha has been lower (relative to beta). The first half of 2022 served as a stark reminder of the perils of holding strategies/funds that take significant market risk-factor exposure. Unsurprisingly, more relative-value oriented strategies (multi-strategy, arbitrage, statistical arbitrage), or directional strategies with no systemic bias to be long or short (global macro, CTA) have been more resilient in the face of higher market volatility and more 'challenged' environments for risk assets.

It is also worth noting the average intra-strategy correlation chart (on page 20). This chart can give a quantitative measure of the extent of homogeneity of funds within each strategy bucket. So, while long-biased managers may have been strong performers in recent years, as a cohort they exhibit the highest degree of cross-correlation. This is unsurprising given they are likely to carry a lot of common factor risk or beta to the markets and as such are likely to move together.

The areas where Aurum focuses are more towards the left side of the chart, i.e. macro (primarily commodities and global macro), quant (statistical arbitrage, short-term futures/quant macro and quant vol), multi-strategy and trading-oriented event. These strategies are more heterogenous and are where one can potentially add more value from fund/manager selection. They have also demonstrated lower correlation to risk-assets and other sub-strategies implying high potential benefits of combining them in a portfolio from an asset allocator perspective.

STRATEGY DISPERSION – ROLLING SPREAD 10-90th PERCENTILE

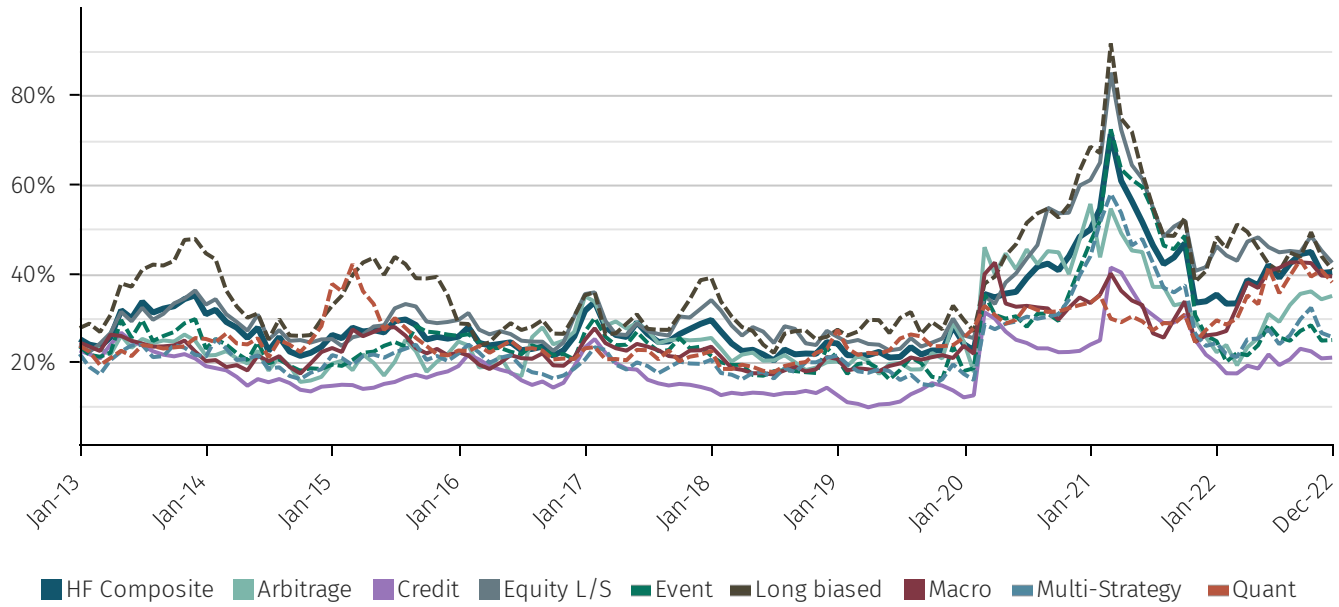
Strategy	Average 10 year	Dec-22	Current elevation vs 10 year average
Macro	25.29%	39.34%	55.57%
Quant	26.19%	38.02%	45.18%
HF Composite*	**30.61%**	**40.35%**	**31.80%**
Arbitrage	26.59%	34.95%	31.45%
Equity L/S	34.04%	42.42%	24.62%
Credit	18.94%	21.05%	11.18%
Multi-Strategy	23.51%	25.70%	9.31%
Long biased	37.50%	40.86%	8.98%
Event	26.18%	25.01%	-4.47%

Equally weighted returns.
HF Composite = Aurum Hedge Fund Data Engine Equally Weighted Composite Index
Source: Aurum Hedge Fund Data Engine.

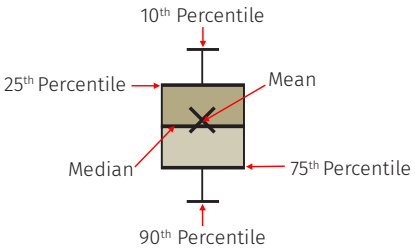
Performance dispersion

HEDGE FUND INDUSTRY DISPERSION – 12M ROLLING RETURN

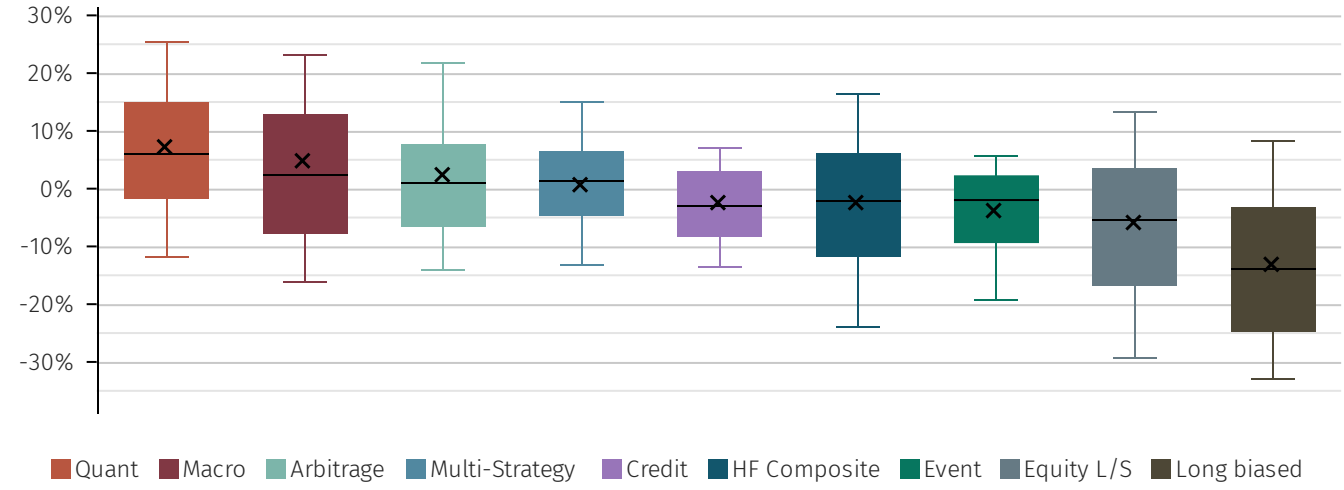
MASTER STRATEGY 10th – 90th PERCENTILE 12M ROLLING PERFORMANCE SPREAD



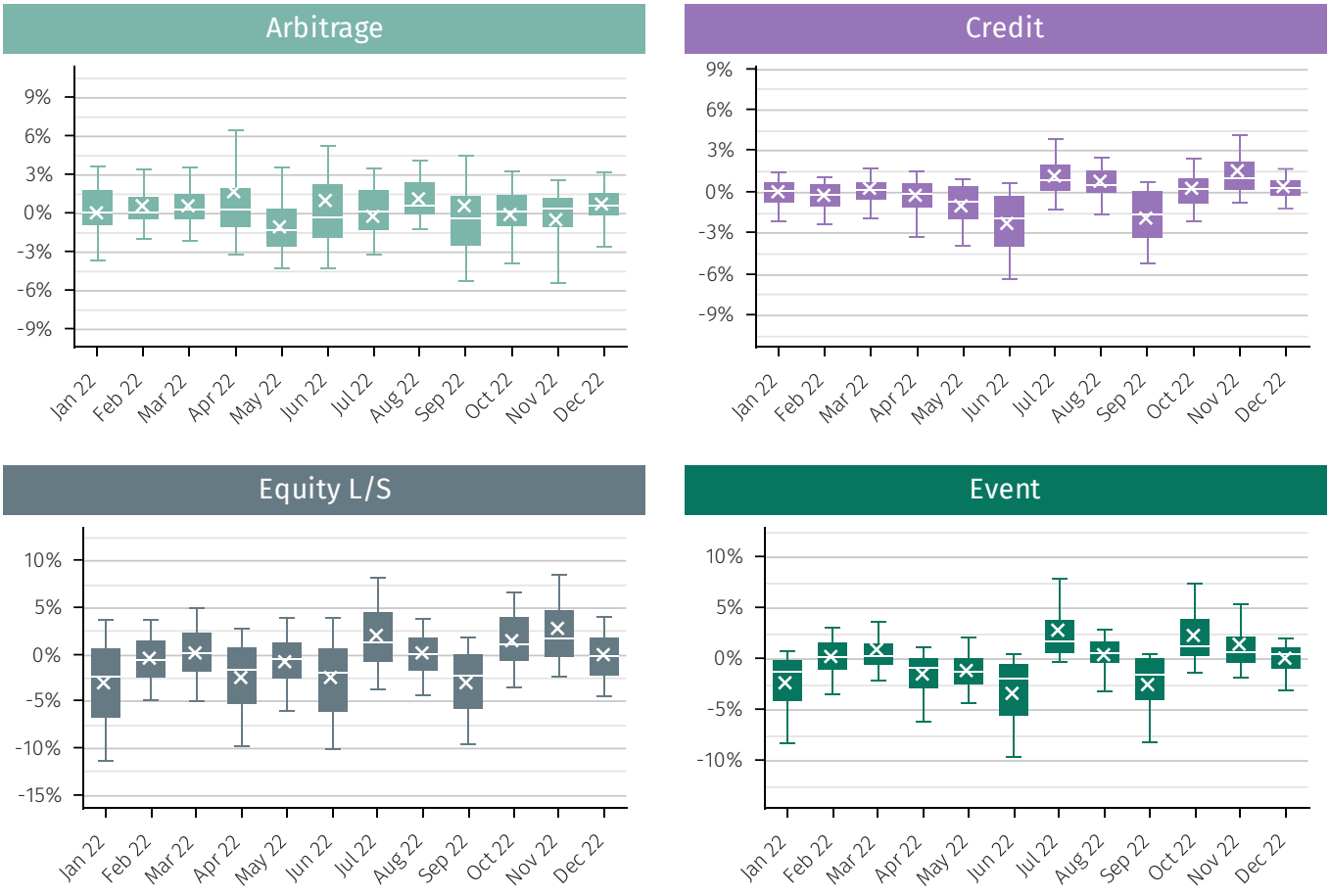
Equally weighted returns.
HF Composite = Aurum Hedge Fund Data Engine Equally Weighted Composite Index
Source: Aurum Hedge Fund Data Engine.



2022 MASTER STRATEGY PERFORMANCE DISPERSION (12M)

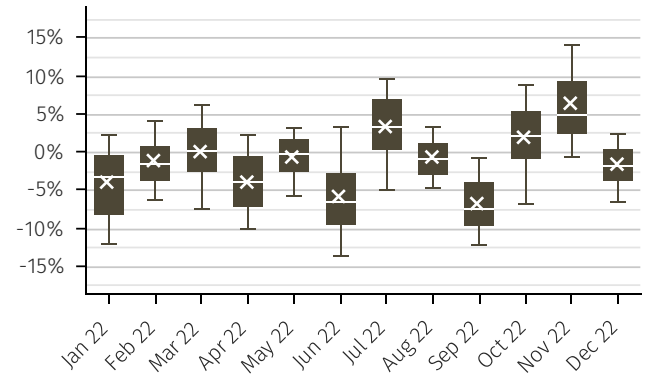


MASTER STRATEGIES NET MONTHLY RETURN DISTRIBUTION

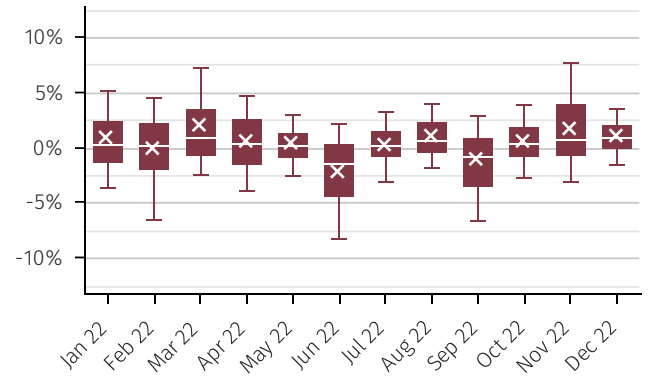


Equally weighted returns.
HF Composite = Aurum Hedge Fund Data Engine Equally Weighted Composite Index
Source: Aurum Hedge Fund Data Engine.

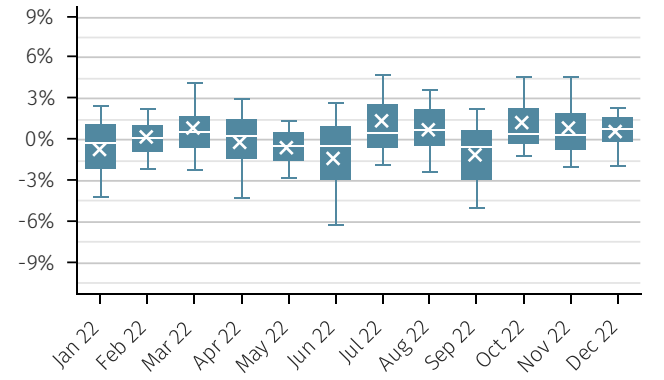
Long biased



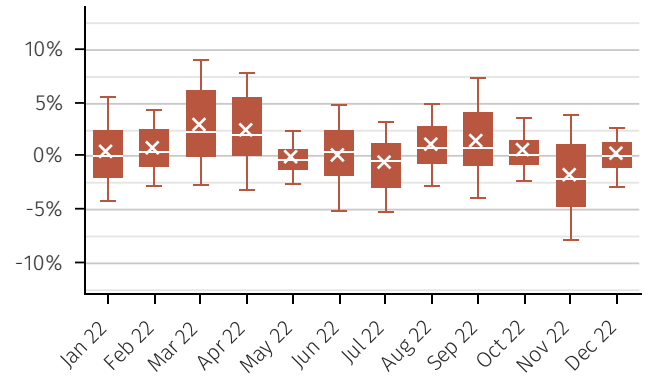
Macro



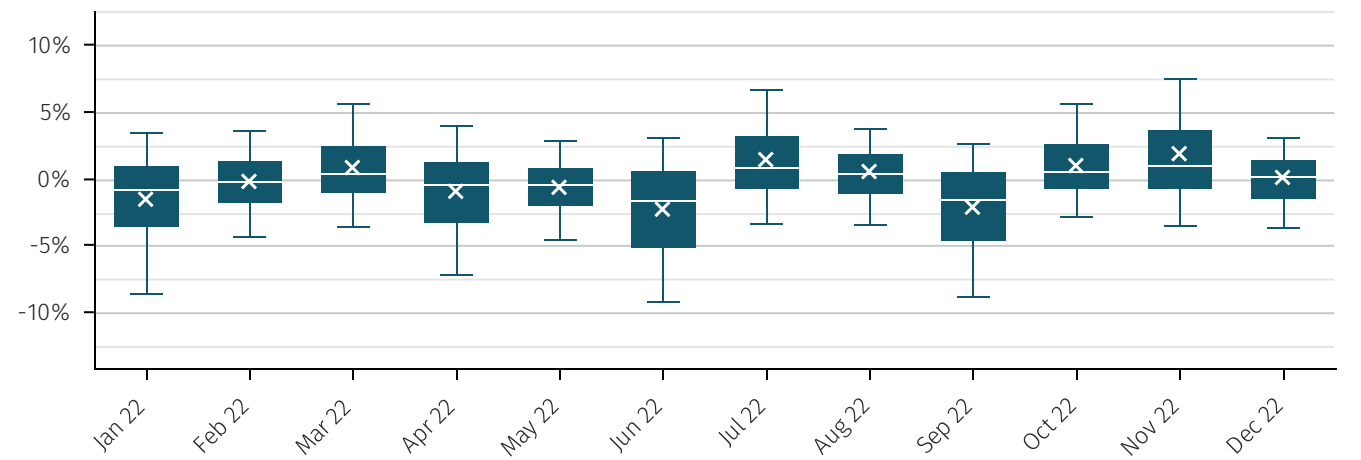
Multi-Strategy



Quant



HF Composite



Equally weighted returns.
HF Composite = Aurum Hedge Fund Data Engine Equally Weighted Composite Index
Source: Aurum Hedge Fund Data Engine.

Correlation

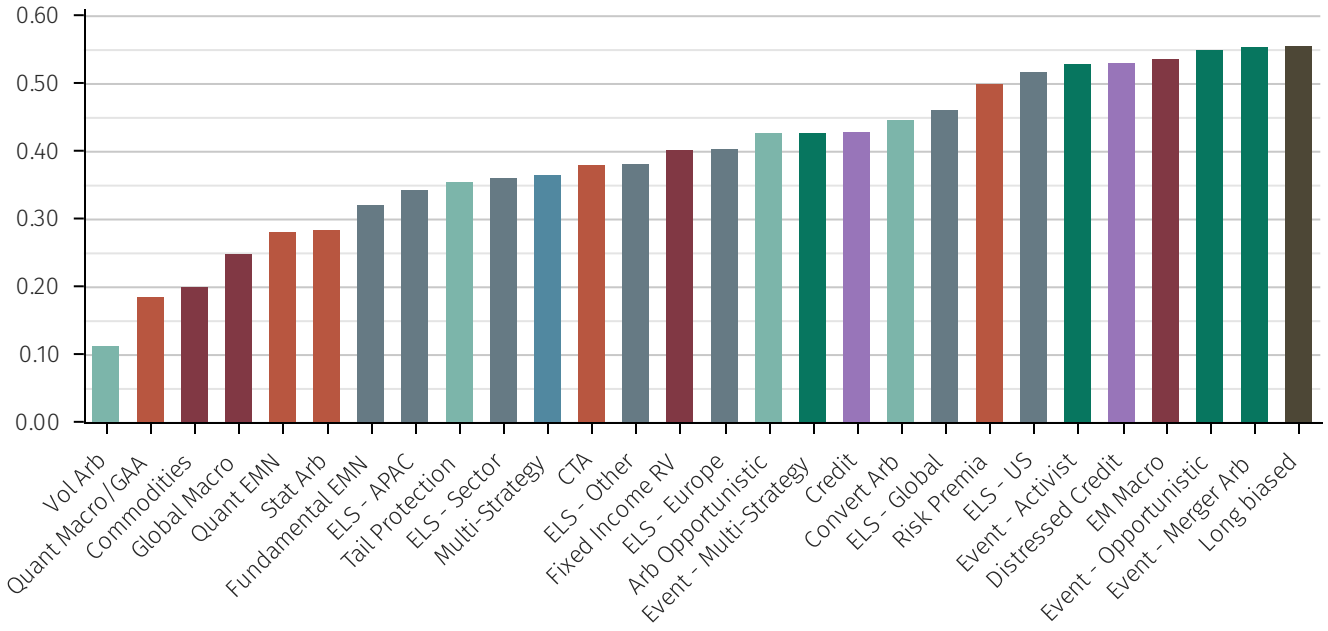
MASTER STRATEGY CORRELATION MATRIX (5 YR)

	Arbitrage	Credit	Equity L/S	Event	Long biased	Macro	Multi-Strategy	Quant	HF Composite	Bonds	Equities
Arbitrage		-0.23	-0.53	-0.34	-0.67	0.18	0.81	0.69	-0.30	-0.75	-0.72
Credit			0.71	0.88	0.84	0.59	0.06	-0.52	0.87	0.65	0.76
Equity L/S				0.81	0.85	0.22	-0.15	-0.66	0.88	0.72	0.83
Event					0.88	0.56	-0.07	-0.42	0.95	0.57	0.86
Long biased						0.26	-0.35	-0.71	0.84	0.87	0.97
Macro							0.29	0.19	0.56	-0.04	0.23
Multi-Strategy								0.44	0.06	-0.47	-0.44
Quant									-0.39	-0.91	-0.67
HF Composite*										0.56	0.81
Bonds**											0.82
Equities***											

MASTER STRATEGY CORRELATION MATRIX (1 YR)

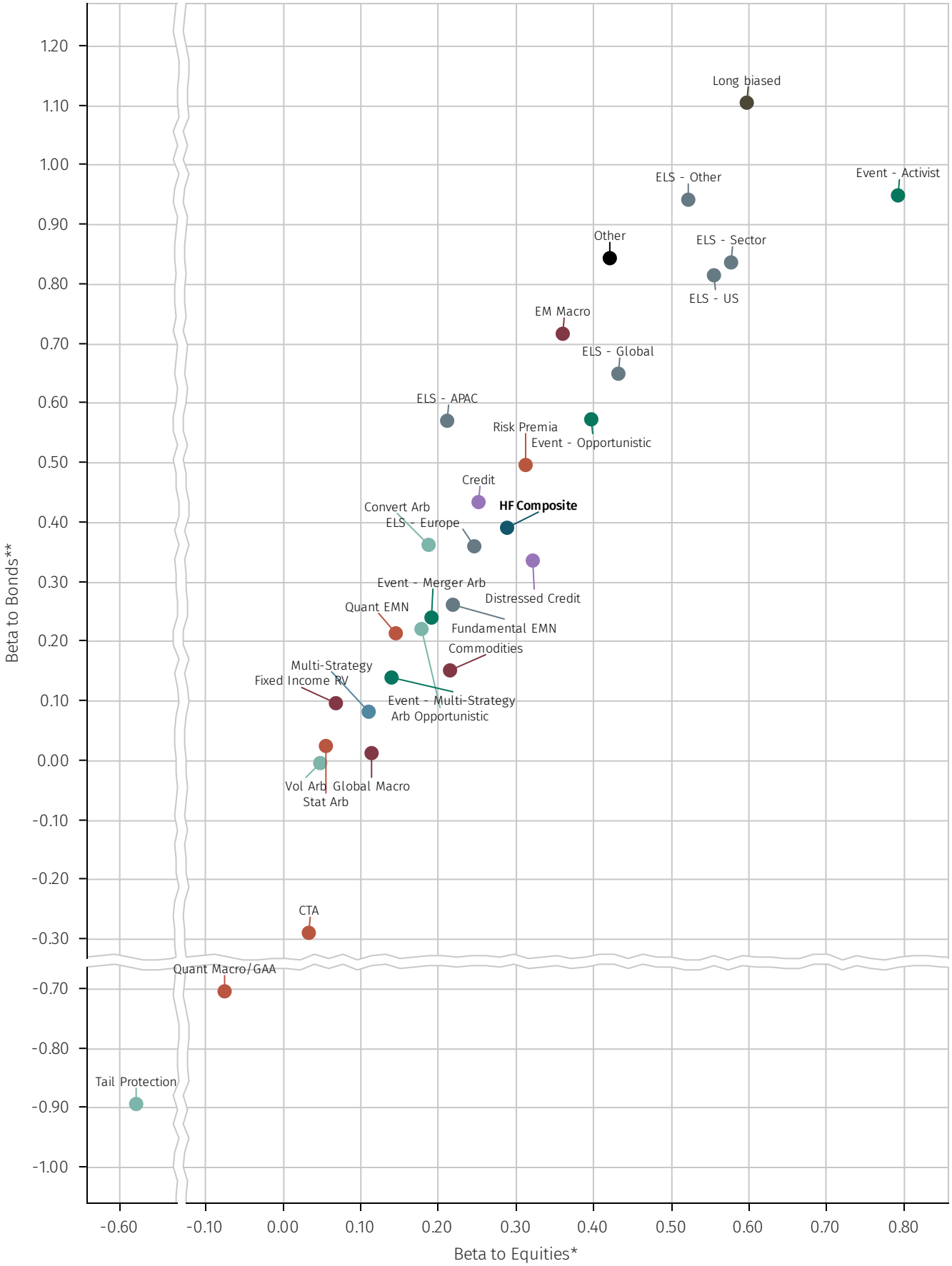
	Arbitrage	Credit	Equity L/S	Event	Long biased	Macro	Multi-Strategy	Quant	HF Composite	Bonds	Equities
Arbitrage		0.44	0.22	0.33	0.10	0.38	0.61	0.27	0.35	-0.06	0.01
Credit			0.73	0.86	0.78	0.77	0.72	0.31	0.88	0.38	0.70
Equity L/S				0.91	0.89	0.65	0.71	0.23	0.94	0.49	0.89
Event					0.92	0.75	0.73	0.33	0.97	0.40	0.90
Long biased						0.67	0.54	0.17	0.91	0.64	0.97
Macro							0.72	0.46	0.81	0.26	0.63
Multi-Strategy								0.50	0.79	0.13	0.49
Quant									0.43	-0.28	0.19
HF Composite*										0.43	0.88
Bonds**											0.55
Equities***											

AVERAGE INTRA-STRATEGY CORRELATION (5 YR)[1]



*HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index
** Bonds = S&P Global Developed Aggregate Ex Collateralized Bond (USD). *** Equities = S&P Global BMI.
[1]Equally Weighted returns. The average correlation of underlying funds within the strategy classification to all other funds within that classification. Source: Aurum Hedge Fund Data Engine.

SUB-STRATEGY BETA TO BONDS AND BETA TO EQUITIES



HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index
*** Bonds = S&P Global Developed Aggregate Ex Collateralized Bond (USD). *** Equities = S&P Global BMI.*
Source: Aurum Hedge Fund Data Engine.

Hedge funds vs alt UCITS

The table below presents the returns of hedge funds relative to their alternative UCITS ('alt UCITS') counterparts. As can clearly be seen, hedge funds on average, significantly outperformed their 'younger' and cheaper cousins in 2022 and over a five-year period.

There are however, some exceptions to note. The equity l/s, long biased and event strategies (three areas that are typically easier to replicate in a UCITS format) underperformed their UCITS counterparts in 2022. In event, with many of the alt UCITS funds more focused on merger arbitrage and less exposed to activist or illiquid situations, they managed to better navigate the worst parts of the 2022 volatility.

The only alt UCITS strategy up in 2022 is quant. Again, this is not a shock given that trend-following CTAs (the top performing hedge fund sub-strategy) can easily fit into a UCITS format. However, areas like multi-strategy (the best performing long-term hedge fund strategy and top in 2022) saw negative performance for alt UCITS funds - a very significant differential in performance.

Macro strategies have made money in hedge funds while alt UCITS are down. It should be noted that macro funds are a highly heterogenous mix of funds, some of which operate in relatively simple and easy to execute strategies (which may lend themselves to a UCITS construct), while others have more barriers to entry and are highly complex from an operational or financing perspective.

It is also less surprising to see credit outperforming alt UCITS credit, as the hedge funds have much more ability to short and have a structure offering more flexibility to trade the asset class than alt UCITS have the scope to do.

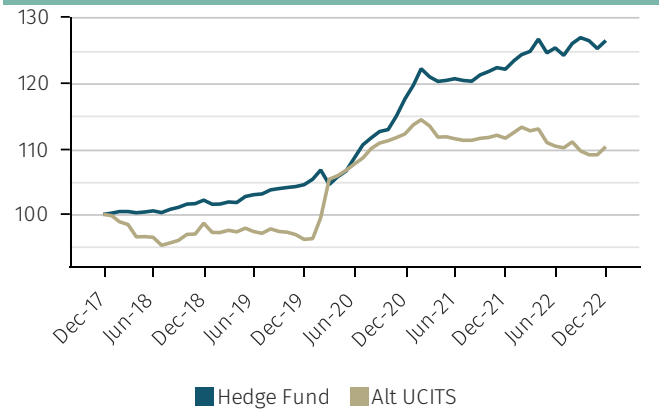
HEDGE FUNDS VS ALT UCITS RETURNS

	2022 Returns		5Y Returns		5Y Vol		5Y Sharpe		AUM ($bn)		Fund Count	
	Hedge Fund	Alt UCITS	Hedge Fund	Alt UCITS	Hedge Fund	Alt UCITS	Hedge Fund	Alt UCITS	Hedge Fund	Alt UCITS	Hedge Fund	Alt UCITS
Arbitrage	3.58%	-1.16%	4.81%	1.98%	2.92%	3.99%	1.09	0.12	70.8	6.8	121	16
Credit	-3.82%	-9.97%	2.92%	0.58%	6.98%	7.10%	0.22	-0.10	404.1	32.7	512	44
Equity L/S	-9.63%	-5.18%	3.91%	1.59%	8.81%	4.74%	0.30	0.02	554.2	51.2	1,089	125
Event	-4.52%	-1.17%	5.65%	2.18%	6.95%	4.51%	0.60	0.15	277.9	15.7	214	31
Long biased	-13.15%	-11.82%	3.39%	0.50%	11.13%	6.45%	0.21	-0.13	427.3	25.8	347	43
Macro	6.73%	-3.80%	4.19%	1.29%	4.89%	7.67%	0.54	0.00	315.4	39.3	331	43
Multi-Strategy	9.52%	-4.56%	9.46%	2.18%	4.05%	4.96%	1.87	0.14	404.8	18.7	181	16
Quant	8.52%	5.11%	3.09%	-0.36%	5.27%	4.10%	0.31	-0.45	379.3	17.2	456	67
HF Composite*	**-2.42%**	**-5.90%**	**4.22%**	**0.99%**	**5.91%**	**5.04%**	**0.46**	**-0.09**	**2965.0**	**216.8**	**3,546**	**417**
Bonds**	**-16.69%**		**-1.95%**		**6.44%**		**-0.52**		-	-	-	-
Equities***	**-20.04%**		**2.95%**		**17.99%**		**0.16**		-	-	-	-

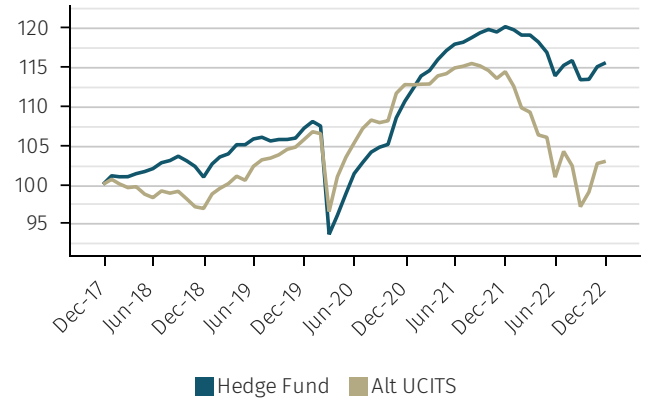
*HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index.
* Bonds = S&P Global Developed Aggregate Ex Collateralized Bond (USD). * Equities = S&P Global BMI.
Source: Aurum Hedge Fund Data Engine.

HEDGE FUNDS VS ALT UCITS (5 YR)

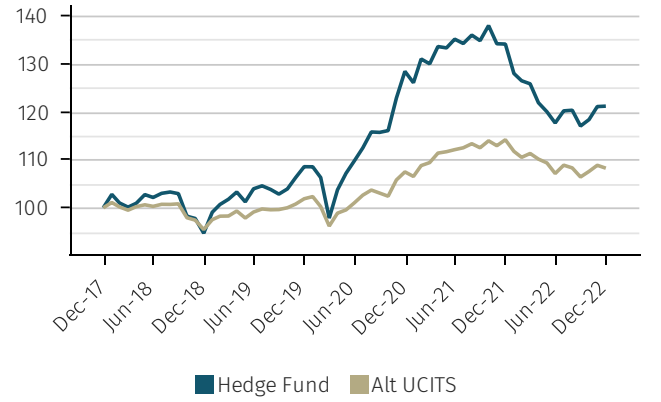
Arbitrage



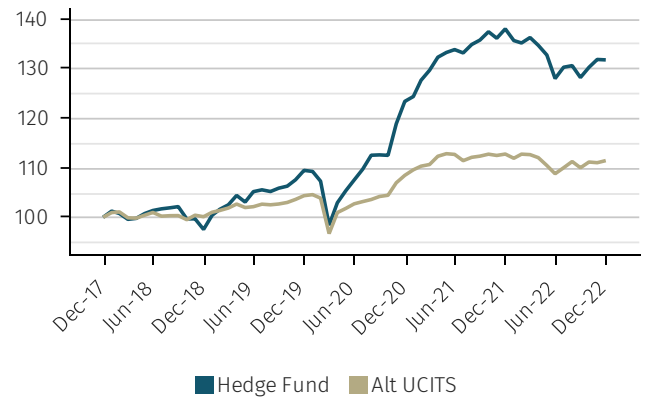
Credit



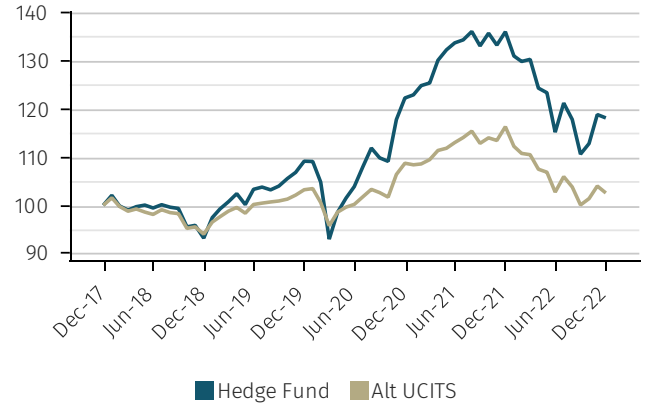
Equity L/S



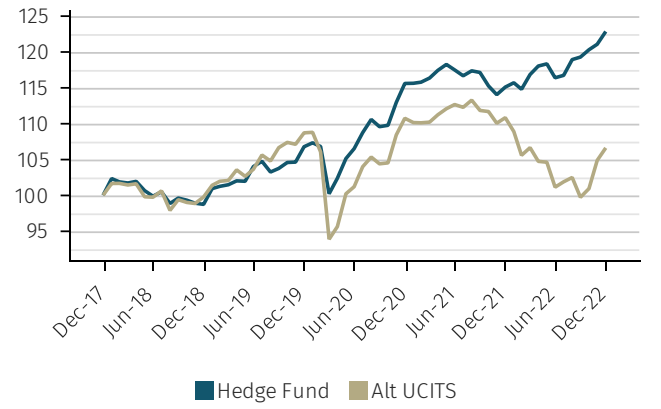
Event



Long biased

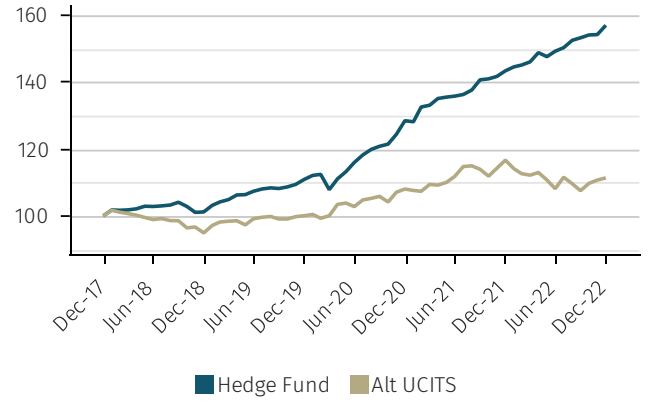


Macro

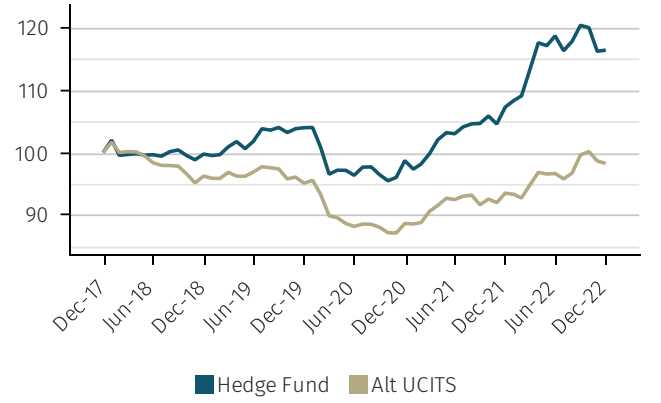


**HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index*
*** Bonds = S&P Global Developed Aggregate Ex Collateralized Bond (USD). *** Equities = S&P Global BMI.*
Source: Aurum Hedge Fund Data Engine.

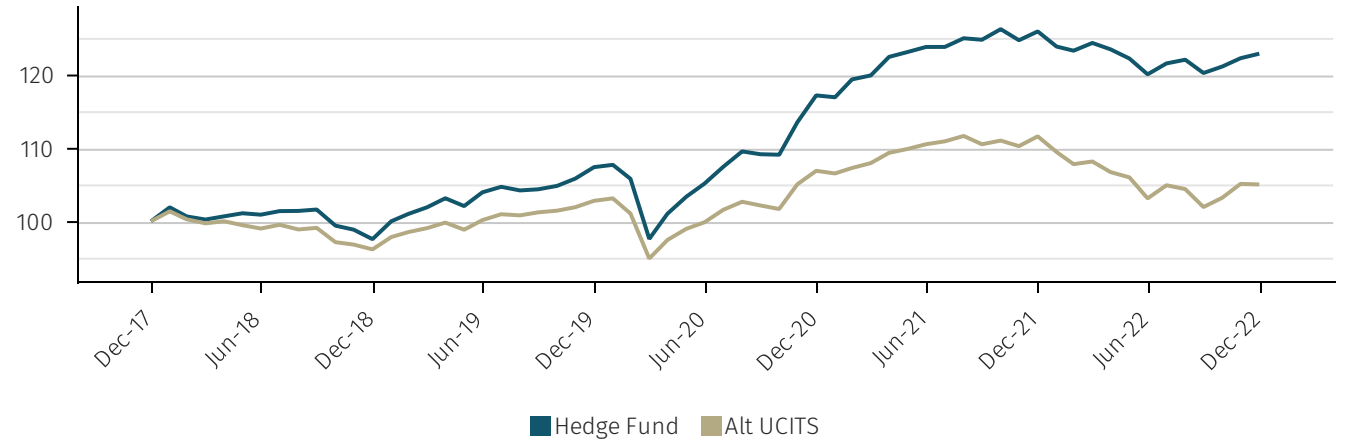
Multi-Strategy



Quant



HF Composite



*HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index
** Bonds = S&P Global Developed Aggregate Ex Collateralized Bond (USD). *** Equities = S&P Global BMI.
Source: Aurum Hedge Fund Data Engine.

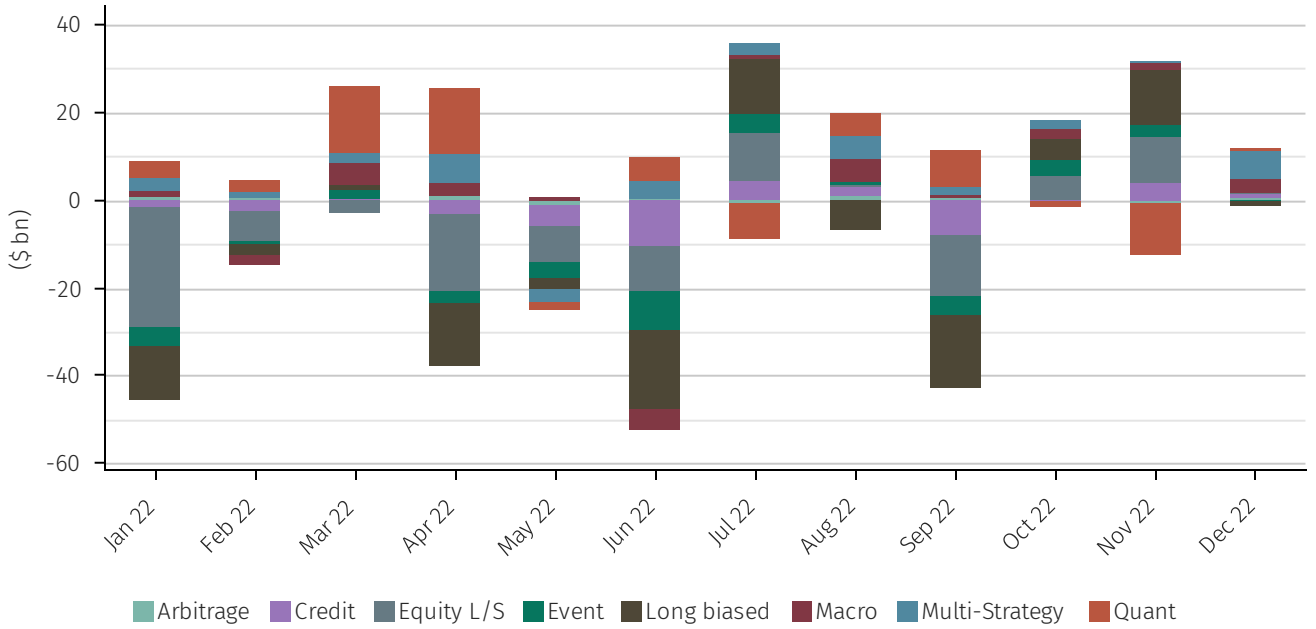
Dollar extraction

This part of the report describes, in dollar terms, how much – as a result of performance – has been generated or lost by particular strategies and the hedge fund industry as a whole.

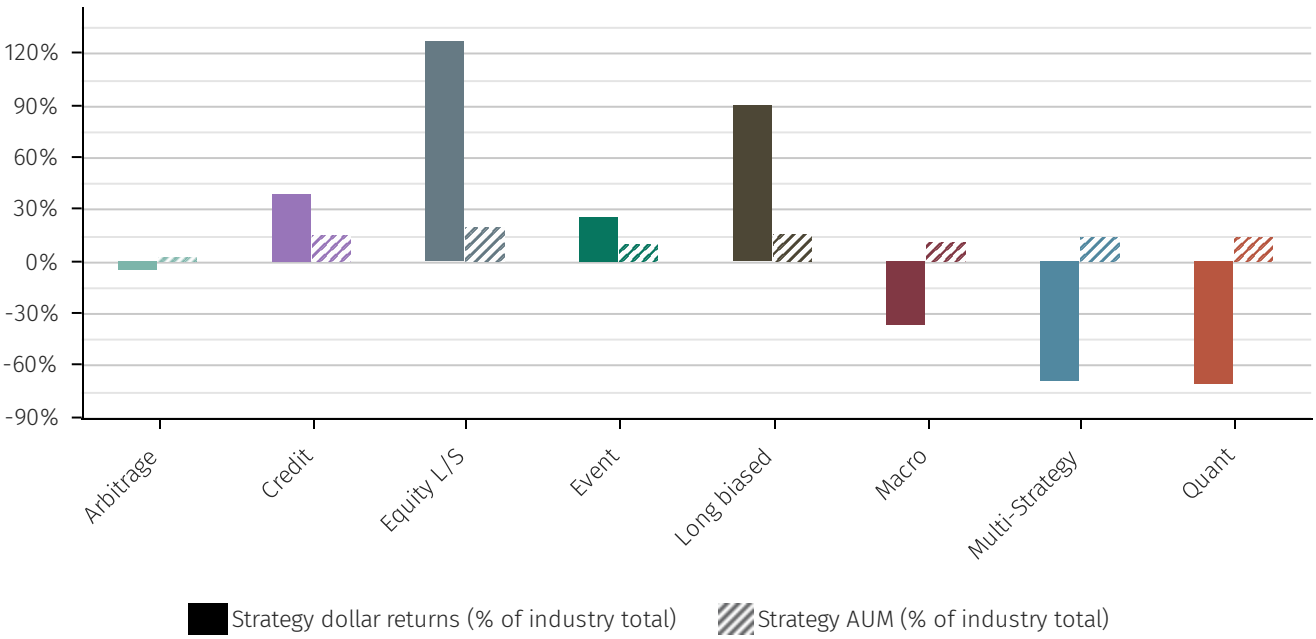
There was significant negative performance (or 'dollar destruction') across equity l/s and long biased strategies in particular. Event and credit strategies were also net dollar 'destroyers' during the period.

Multi-strategy continues to 'rule' as far as its relative place in the hedge fund industry pecking order is concerned. While multi-strategy funds account for 15% of the industry AUM, they massively outperformed relative to their size. Quant and macro also enjoyed a strong year from a dollar generation perspective – with much of those generated during the peak of the crisis, at the time equity l/s, long-biased and credit strategies were haemorrhaging returns.

NET DOLLAR PERFORMANCE BY MASTER STRATEGY (1 YR)



STRATEGY DOLLAR RETURNS AND AUM RELATIVE TO THE INDUSTRY (1 YR)*



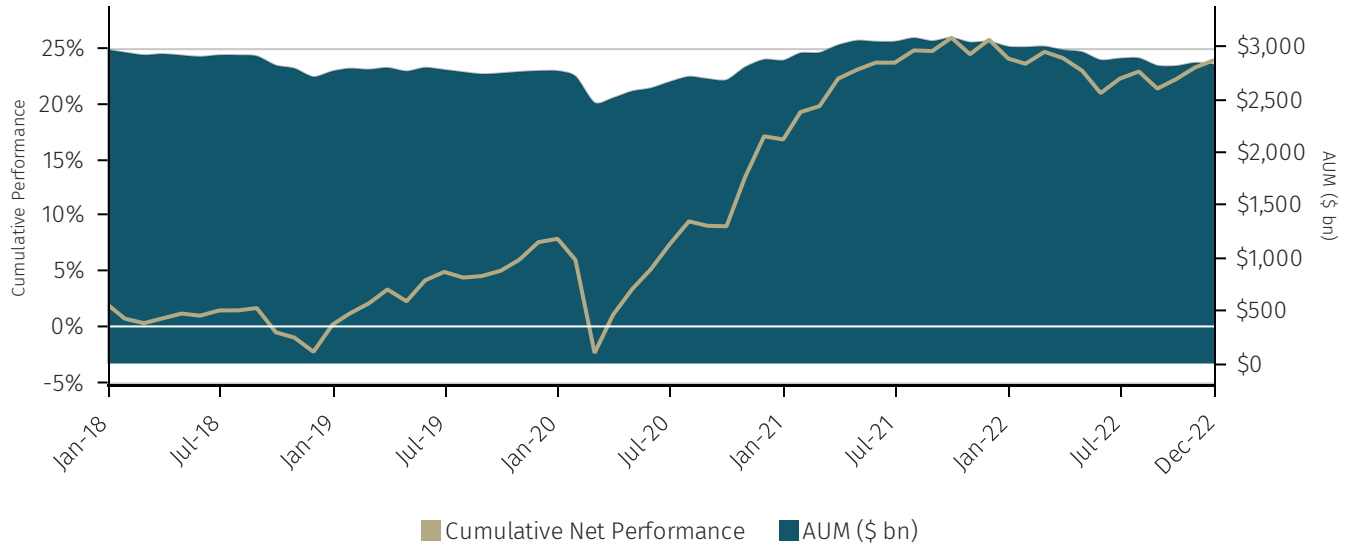
Note - When the hedge fund industry composite has a negative return for the reporting period, those strategies that contributed negative returns will show on the chart as a positive contribution to the overall negative return. Strategies that have generated positive returns during a period of losses for the hedge fund composite are displayed as a negative contribution to the overall negative return.

Industry assets, flows and fees

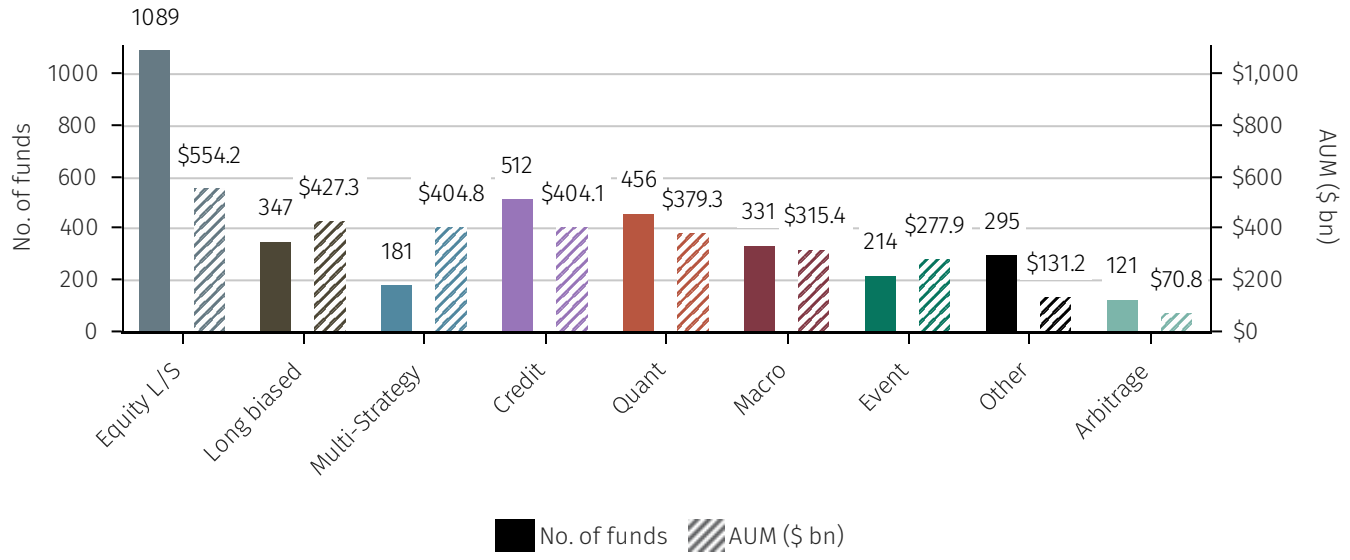
Industry assets have shrunk due to a combination of outflows and negative performance. Despite significant outflows and poor returns, equity l/s remains the largest strategy, running $554bn in Aurum's monitored universe. Long biased strategies are at $427bn, having shrunk by well over $60bn. Multi-strategy assets have risen to $405bn, having increased this year by nearly $50bn, most of which was due to positive P&L.

Credit and event have also shrunk due to negative P&L and outflows, while quant strategies have – interestingly – also shrunk overall, due to significant outflows outweighing the strong P&L generated during the period.

HF COMPOSITE ASSETS (5 YR)*



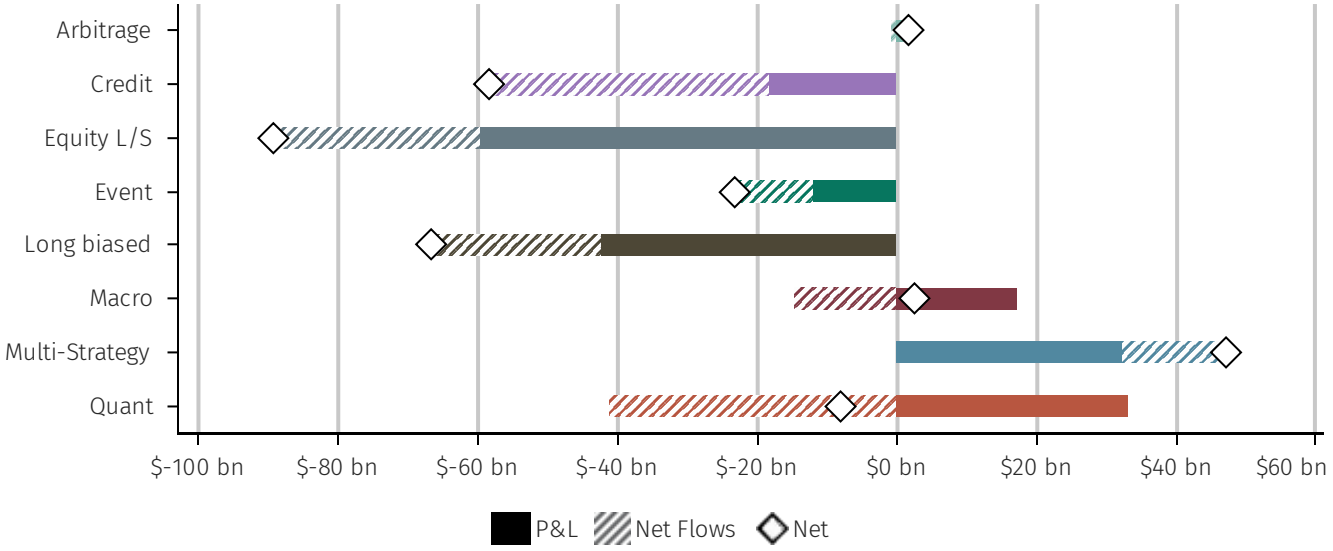
NUMBER OF FUNDS AND AUM BY MASTER STRATEGY



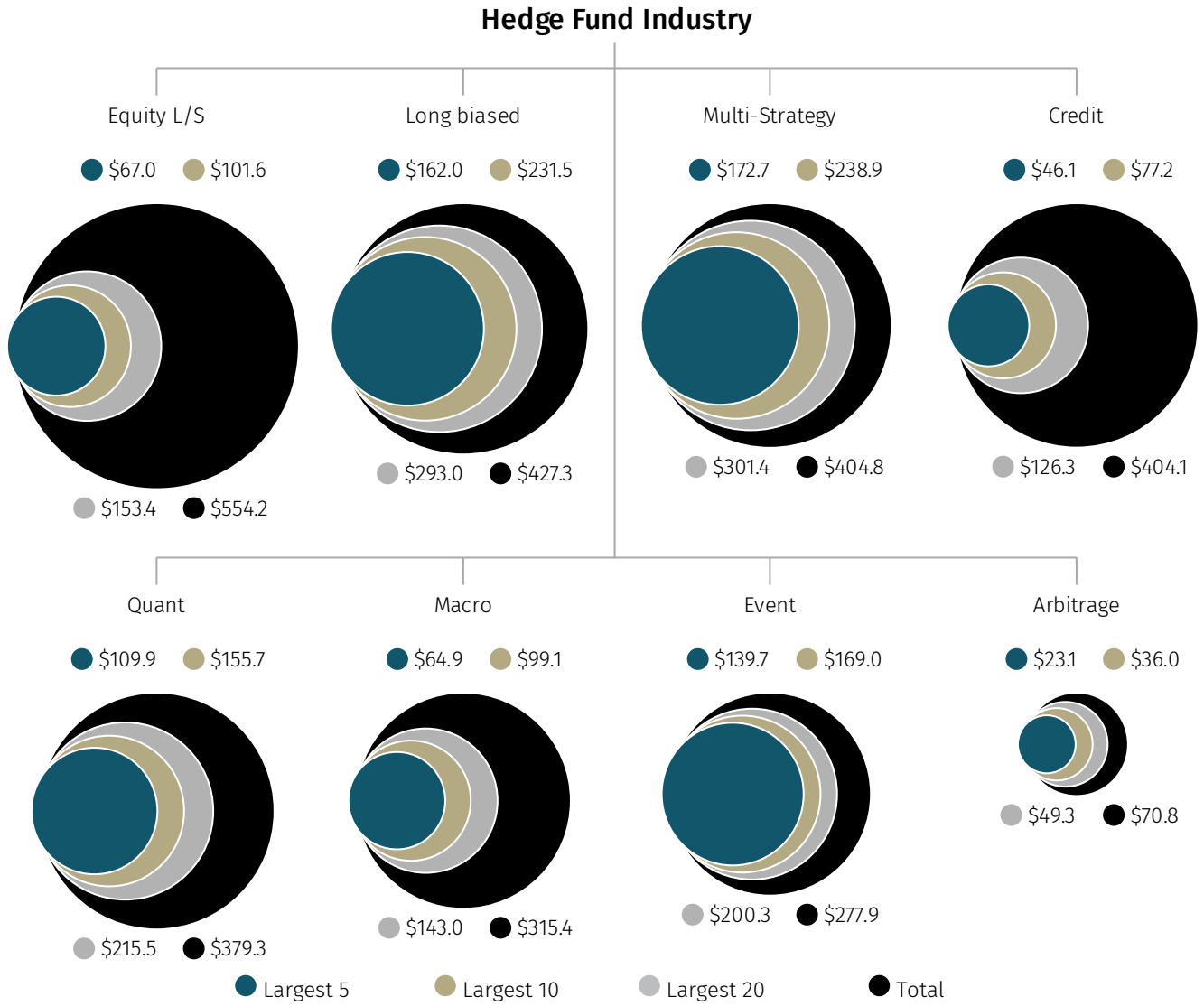
*Includes funds which are active but have not report to Aurum within the last 12 months

Source: Aurum Hedge Fund Data Engine.

CHANGE IN AUM BY MASTER-STRATEGY (1 YR)

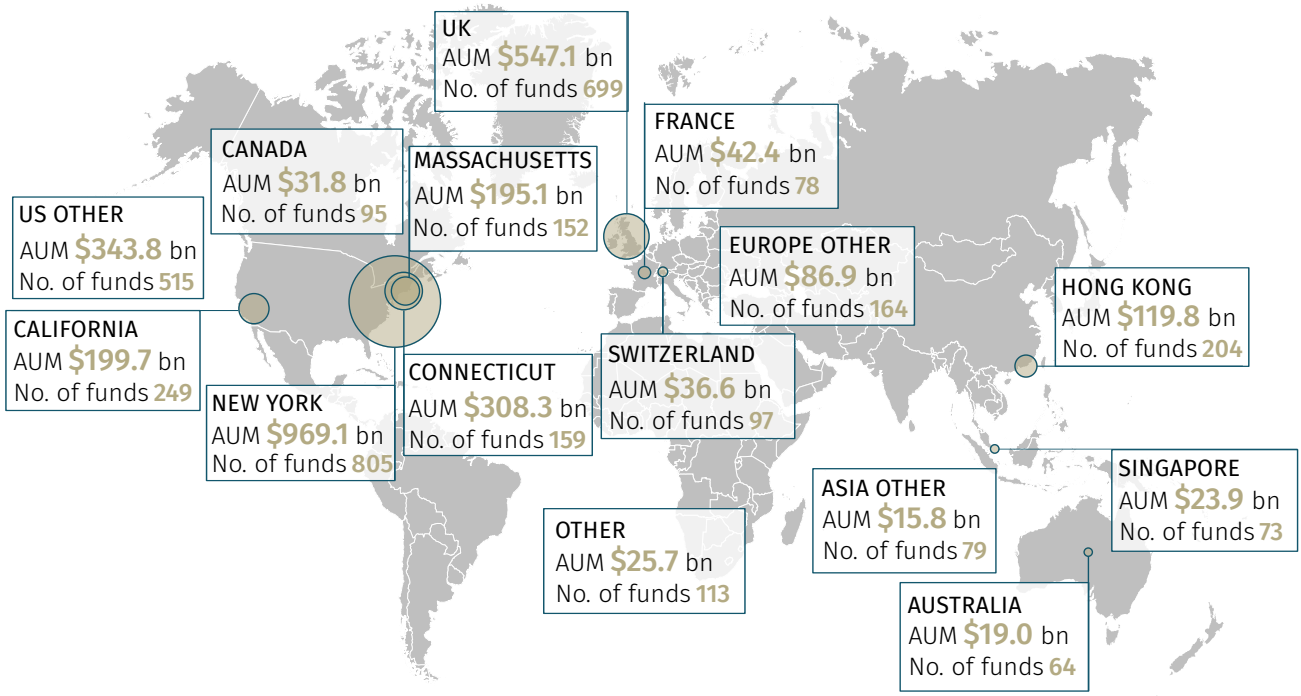


SUB-STRATEGY FUND CONCENTRATION ($ BN)



Source: Aurum Hedge Fund Data Engine.

ASSETS UNDER MANAGEMENT BY LOCATION



Strategy analytics packs

Links to individual strategy chart packs below. Our full strategy page including all the chart packs can be found here: https://www.aurum.com/hedge-fund-strategy-definitions/

- Arbitrage strategy analytics pack
- Credit strategy analytics pack
- Equity long short strategy analytics pack
- Event strategy analytics pack
- Long biased strategy analytics pack
- Macro strategy analytics pack
- Multi-strategy analytics pack
- Quant strategy analytics pack

TERMS AND CONDITIONS

	Median Redemption Notice (Days)	Median Redemption Frequency	Weighted Avg. Redemption Total (Days)[1]	Weighted Avg. Management Fee	Weighted Avg. Performance Fee
Arbitrage	**30**	**Monthly**	**107**	**1.38%**	**19.57%**
Convertible Bond	45	Quarterly	111	1.29%	18.11%
Opportunistic	60	Quarterly	146	1.29%	21.28%
Tail Protection	30	Monthly	46	1.16%	18.04%
Volatility Arbitrage	28	Monthly	88	1.67%	19.38%
Credit	**60**	**Quarterly**	**167**	**1.22%**	**16.84%**
Credit	60	Quarterly	145	1.12%	15.44%
Distressed	90	Quarterly	226	1.55%	19.68%
Equity l/s	**45**	**Monthly**	**138**	**1.46%**	**18.86%**
Asia Pacific Long / Short	30	Monthly	132	1.56%	20.18%
European Long / Short	30	Monthly	83	1.26%	19.30%
Fundamental Equity MN	30	Monthly	99	1.64%	18.71%
Global l/s	45	Quarterly	182	1.46%	19.06%
Other l/S	38	Monthly	75	1.34%	16.58%
Sector	45	Quarterly	145	1.59%	18.01%
US Long / Short	45	Quarterly	140	1.30%	19.15%
Event	**60**	**Quarterly**	**193**	**1.48%**	**19.38%**
Activist	90	Quarterly	198	1.50%	18.93%
Merger Arbitrage	30	Monthly	73	1.30%	17.78%
Multi-strategy	60	Quarterly	226	1.47%	19.95%
Opportunistic	60	Quarterly	166	1.54%	19.47%
Long biased	**30**	**Monthly**	**82**	**0.86%**	**10.49%**
Macro	**30**	**Monthly**	**98**	**1.45%**	**18.60%**
Commodities	30	Monthly	73	1.43%	18.50%
Emerging Markets	30	Monthly	79	1.12%	14.60%
FIRV	30	Monthly	113	1.55%	22.93%
Global Macro	30	Monthly	101	1.54%	18.08%
Multi-Strategy	**45**	**Monthly**	**154**	**1.83%[2]**	**20.76%**
Quant	**5**	**Monthly**	**52**	**1.62%**	**17.69%**
CTA	3	Weekly	34	1.33%	15.24%
Quantitative Equity MN	30	Monthly	71	1.36%	15.00%
Quant Macro/GAA	6	Monthly	29	1.95%	19.33%
Risk Premia	4	Weekly	27	0.67%	5.70%
Statistical Arbitrage	30	Monthly	111	2.43%	25.09%

1. Weighted Avg. Redemption Total (Days) is the weighted Avg. of both redemptions notice days and redemption frequency days.
2. Some funds operate a pass through fee structure in addition to, or instead of, a traditional management fee. Aurum does not currently include funds which operate a pass through structure within this management fee calculation (even if they also separately charge a management fee), accordingly the weighted average management fee above excludes funds with this fee structure.

Definitions

ARBITRAGE

Strategies that look to benefit from mispricing's of the same instrument/asset or extremely closely related instrument. The strategy covers the following areas: convertible bond arbitrage, tail protection, volatility or opportunistic trades in this area, including but not limited to other areas such as capital structure arbitrage, ETF arbitrage or arbitrage of other closely related instruments.

Convertible bond:
Traditionally the strategy looks to isolate mispriced components of convertible securities in order to capture a return to fair value. CB's essentially consist of a bond plus an embedded call option on the equity. Key valuation components relate to the credit (bond component) and the volatility (option and equity component). Those components other than the component believed to be mispriced are typically hedged in order to isolate the mispricing.

Tail protection:
Strategy that explicitly look to benefit from large market moves, typically either in the form of large spikes in volatility (either from implied or realised volatility), or from significant moves in the underlying spot price (long gamma) or a particular asset or assets. Some tail protection strategies also look to benefit from sudden/large moves in spread relationships, which are typically tight, but which can move to extremes during periods of stress.

Volatility arbitrage:
Traditionally the strategy looks to identify the mispricing of volatility. Funds may incorporate exposure to factors such as implied volatility, realised volatility, dividends, skew, term structure and correlation. Funds may be biased short, long or neutral to Greek exposures such as delta, vega and gamma.

Opportunistic:
Strategy that look to benefit from inconsistent/mis-pricing of the same instrument/asset or extremely closely related instruments/assets. Opportunistic arbitrage strategies typically have the flexibility to trade across multiple areas, but tend to specialise in a combination of volatility trading, convertible bonds and capital structure arbitrage trades. But they may also focus on other niche areas in order to capitalise upon perceived mis-pricing. The narrow arbitrage focus is why they are better considered as part of arbitrage, rather than in the broader multi-strategy classification.

CREDIT

Strategies that focus the vast majority of their trading on debt instruments, or instruments that are far more 'debt-like' in nature.

Credit:
Typically focusing upon investments in higher yielding (but still performing) non-investment grade securities, primarily corporate - and sometimes sovereign - debt. The strategy is typically expressed with a net long bias. More relative value-oriented credit funds take a more balanced long/short approach (although still typically have a net long bias). Relative to longs, the short positions may be outright, related by sector, and/or within the same capital structures. Whilst not heavily trading oriented (given the associated costs) the strategy is more event-focused than passive and as such tends to have shorter investment horizons than something like the Distressed category. Returns are generated from a blend of coupon income and capital appreciation due to spread tightening (or widening on shorts).

Distressed:
Strategy typically invests in non-investment grade corporate - and sometimes sovereign - debt, which is frequently stressed (e.g., performing, but priced at a significant discount to par) or defaulted (e.g., where a balance sheet restructuring will occur). Some also invest in deeply discounted and/or subordinate structured product. Time horizon is typically longer dated.

EQUITY LONG/SHORT

Investing in global stocks, both on the long and short side. Most funds have a fundamental bias, value and/or growth-oriented investment theses. Some managers may also be more tactical/technical in their approach, taking into account flows, positioning on the street and market dynamics as part of the investment decision making process.

US equity long/short:
Investing the all or the vast majority of their portfolio into US stocks, both on the long and short side. Most funds have a fundamental bias, value and/or growth-oriented investment theses. Some managers may also be more tactical/technical in their approach, taking into account flows, positioning on the street and market dynamics as part of the investment decision making process.

Asia pacific equity long/short:
Investing the all or the vast majority of their portfolio into Asian Pacific stocks, both on the long and short side. Most funds have a fundamental bias, value and/or growth-oriented investment theses. Some managers may also be more

tactical/technical in their approach, taking into account flows, positioning on the street and market dynamics as part of the investment decision making process.

European equity long/short:
Investing all or the vast majority of the portfolio in European stocks, both on the long and short side. Most funds have a fundamental bias, value and/or growth-oriented investment theses. Some managers may also be more tactical/technical in their approach, taking into account flows, positioning on the street and market dynamics as part of the investment decision making process.

Global Equity Long/Short:
Investing the portfolio in global stocks, both on the long and short side. The fund is agnostic to country/region to maintain flexibility. Most funds have a fundamental bias, value and/or growth-oriented investment theses. Some managers may also be more tactical/technical in their approach, taking into account flows, positioning on the street and market dynamics as part of the investment decision making process.

Fundamental equity market neutral:
Investing the portfolio in stocks, both on the long and short side. To classify as 'equity market neutral' funds are expected to run with a very tight net exposure bias, which over the longer term should be close to zero. Note, different funds use different methodologies, e.g., some may run to be 'beta neutral', while others may be cash neutral (with a tolerance band around the zero level). The distinguishing characteristic is that such funds are typically very low net at all times, but some may run with varying degrees of factor or industry exposure, while others may have more stringent risk parameters around such exposures. Most funds have a fundamental bias, value and/or growth-oriented investment theses. Some managers may also be more tactical/technical in their approach, taking into account flows, positioning on the street and market dynamics as part of the investment decision making process.

Sector:
Investing the portfolio in a specific sector, both on the long and short side. The funds may or may not be agnostic to country/region to maintain flexibility, however sector specialist funds tend to be US focused given that it is a very deep/broad market with sectors that are large enough to accommodate diversified sector specific portfolios. Most funds have a fundamental bias, value and/or growth-oriented investment theses. Some managers may also be more tactical/technical in their approach, taking into account flows, positioning on the street and market dynamics as part of the investment decision making process.

Other l/s:
Long short equity investing, which does not readily fit into the other classification taxonomy.

EVENT DRIVEN

Broad strategy category covering funds that invest in securities of companies facing announced and anticipated corporate events. This includes, but is not limited to: M&A, Spin-offs, Company restructurings, some distressed situations (although if this is the dominating part of the strategy it will be classified as 'credit-distressed'). The strategy identifies mispriced securities with favourable risk/reward characteristics based upon differentiated views of value-unlocking catalysts, event-probabilities and post-event valuations.

Activist:
Activist hedge funds invest in companies that they feel are undervalued and the managers then attempt to drive the value creation process by influencing corporate management to undertake initiatives that they feel will benefit shareholders. This can include a number of activities, including but not limited to: capital structure restructuring, change in operating strategy/capital allocation, change in the board/management, change in corporate governance or the outright sale of the enterprise. Funds typically own large stakes in the companies they invest in as investors need to be a large enough shareholder to influence management.

Merger arbitrage:
Strategy typically involves taking positions in the securities of a company being acquired in a merger or acquisition. Due to the risk of a deal-break as well as time value of money, the securities typically trade at a discount to the deal-price/value (deal-spread). Primary risk is when deals break, which can lead to asymmetric losses to the downside. Funds will typically trade cash deals and also share-for-share deals, where the fund will short the securities they expect to receive upon deal closure (locking in the deal spread). In addition to M&A, managers may also invest in other situations that involve process driven catalysts.

Multi-strategy:
Whilst these are funds investing across multiple strategies, they are characterised by their overwhelming focus on the broad event-driven space and therefore placed in their own category. Such funds consistently generate a significant portion of their P&L from the primary event-driven investing categories: merger arbitrage, soft-catalyst event-driven situations (spin-offs, spin-outs, share- class arbitrage, non-mandatory shareholder elections, index-rebalancing, holdco/subsidiary relative value trade, high probability potential merger 'targets', etc.) and/or activist investing. Some funds may also allocate a portion of their capital to Distressed (which can fall under the category of event- driven investing), however, if the majority of the risk is in consistently in the distressed arena, it falls under the 'credit/distressed' categorisation.

Opportunistic:
Has some similarities to the event-driven 'multi-strategy' classification however, as the name suggests, these funds tend to be very opportunistic and dynamically adjust their capital allocation between various event-driven trades. These funds tend to also be more value and soft catalyst oriented. Such funds may also place 'special situations' trades, looking to unlock value taking various positions in the capital structure (i.e., could be debt or equity). Opportunistic funds have the flexibility to trade all areas of the event space (M&A, Activist, soft catalyst and distressed investing) but will do so on an opportunistic basis, they also may concentrate a large portion (or even at times all) of the risk in a specific area, unlike event driven - multi-strategy funds, which are typically always allocated across multiple sub-strategies at all times.

LONG BIASED

Long only or overwhelmingly long-biased strategies. Covers multiple asset classes.

MACRO

Macro funds take positions (can be either directional or relative-value) in currencies, bonds, equities and commodities, based on fundamental and qualitative judgements. Investment decisions can be based on a manager's top-down views of the world (e.g., views on economy, interest rates, inflation, government policy or geopolitical factors). Relative valuations of financial instruments within or between asset classes can also play a role (or be the dominant part) in the investment process. Primary areas of focus are the liquid instruments of G10 countries, although they may also include emerging markets.

Fixed income relative value:
Fund generates all or a substantial majority of the P&L/risk from relative movements across fixed income assets and their derivatives. Funds are typically looking to profit from arbitrage, mean-reversion or positive carry. Most traders aim to be either duration neutral or 'risk neutral' (i.e., matching DV01 across long and short positions). Most managers incorporate some use of leverage as an integral part of the strategy. Note - that some managers in the space may also trade a smaller portion of the book in more 'classic' directional macro trades, but funds in the FIRV category are generating a minority of the risk from this area.

Commodities:
These funds are primarily focused on trading commodity futures and options from both the long and short side. They can occasionally include the tactical use of equities, currencies, or fixed income instruments, but commodity futures/options should make up the bulk of the risk. The manager is typically looking for longer term trends and supply/demand imbalances within and between commodity markets.

Global macro:
Macro funds take positions (can be either directional or relative-value) in currencies, bonds, equities and commodities, based on fundamental and qualitative judgements. Investment decisions can be based on a manager's top-down views of the world (e.g., views on economy, interest rates, inflation, government policy or geopolitical factors). Relative valuations of financial instruments within or between asset classes can also play a role (or be the dominant part) in the investment process. Primary areas of focus are the liquid instruments of G10 countries, although they may also include emerging markets. Macro managers that do not have a particular specialisation in areas such as commodities, emerging markets or fixed income relative value fall under this more general classification.

Emerging markets:
Macro funds take positions (can be either directional or relative-value) in currencies, bonds, equities and commodities, based on fundamental and qualitative judgements. Investment decisions can be based on a manager's top-down views of the world (e.g., views on economy, interest rates, inflation, government policy or geopolitical factors). Relative valuations of financial instruments within or between asset classes can also play a role (or be the dominant part) in the investment process. Primary areas of focus are the emerging markets.

MULTI-STRATEGY

A hedge fund where the capital is deployed across multiple strategies and asset classes. Funds are typically extremely diversified and employ multiple PMs/risk taking groups.

QUANT

Systematic strategies: Funds trade securities based strictly on the buy/sell decisions of computer algorithms. Quant strategies primarily fall into the following categories: Quantitative Equity Market Neutral, Statistical Arbitrage, Quant macro/GAA (Global Asset Allocation), CTA, and risk-premia.

CTA:
CTAs (Commodity Trading Advisors) take primarily directional positions in index level or macro instruments, such as futures or FX contracts, in a systematic fashion. Technically, a CTA is a trader of futures contracts as defined by the CFTC and historically, there were many CTAs who were not systematic; such traders are more likely to be classified as 'Global Macro'. CTAs are

typically extremely systematised with straight through processing from signal generation to execution. Many, but by no means all, CTAs are trend following (using historical prices to determine predictable 'trending patterns') buying into markets where prices are rising and selling where markets are falling. When rising markets slow down/stop rising, trend-followers typically reduce its position and will eventually reverse its position into a short position, which it will hold until the market starts to rally again. The strategy is known for running with profits and cutting losses. Other models used in CTAs may include carry, seasonality, mean reverting or pattern recognition systems, models driven by fundamental data or non-traditional data sources. Some CTAs can also trade very short-term signals driven by market microstructure anomalies and patterns.

Quant macro / GAA:
GAA (Global Asset Allocation) is a systematic approach to Global Macro, with managers taking positions in global markets based on quantitative analysis, taking in information based primarily on economic data, but also incorporating price related information. The strategy is highly data and technology intensive. The positions tend to be relative value based, but they may also take directional positions in instruments such as futures, FX and baskets of equities, ETFs, swaps and other instruments. Signals may be arranged into relative value asset class models, cross asset class models / directional trades. Signals are also often classified under a number of factor headings: value, carry, momentum etc.

Statistical arbitrage:
Statistical arbitrage funds typically take price data and its derivatives, such as correlation, volatility and other forms of market data, such as volume and order-book information to determine the existence of patterns. These patterns can help the manager forecast the future return of a stock, often over a relatively short timeframe. Typical signal types are: mean-reversion, momentum and event-driven. Mean- reversion looks to take advantage of the phenomenon of short-term price movements occurring due to supply/demand imbalances then moving back to an equilibrium level. Momentum models look for patterns in price data that suggest that price movements will be more persistent (i.e., trend). Other statistical arbitrage funds will look to incorporate more discrete information into their process from events (e.g., publishing of analyst earnings estimates, news flow, etc.). Whilst statistical arbitrage funds tend to focus more on 'technical' models, some may also incorporate some longer-term models that are driven by fundamental data (e.g., stock value models, growth, etc.), however, if these models are the more dominant driver of risk, then the fund is likely to be classified as Quantitative Equity Market Neutral. Statistical arbitrage funds are typically run with a very low level of beta and are market neutral, however, this may not always be the case, with some funds able to take significant directional risk; however, given the higher frequency trading nature of such funds, they are not expected to have significant correlation to markets over time.

Quant equity market neutral:
Traditional QEMN strategies take fundamental data, such as analyst earnings estimates, balance sheet information and cash flow statement statistics, and systematically rank/score stocks against these metrics in varying proportions. The weights of the scores of the different fundamental data sources may be fixed or dynamic. Managers may construct a portfolio using an optimisation process or by applying simpler rules combined with risk constraints so as to create a portfolio that is dollar and/or beta neutral, and typically with minimal sector exposure. Traditional QEMN portfolios consists of exposure to: Value (looking for stocks mispriced relative to their fundamental value, e.g. based on P/E, P/B, cash flow, etc.); Quality (looking at metrics such as levels of debt, stability of earnings growth, balance sheet strength); momentum (looking at past returns over a preset timeframe ranging from days to months); however, these are common factors that are relatively easy to exploit/replicate - hence the proliferation of risk-premia products that operate in this space.

Risk premia:
Hedge fund risk premia products typically seek to capture the fundamental insights of a class of hedge fund strategies (hedge fund risk premia / alternative risk premia) along with a meaningful proportion of the expected returns those strategies can earn - using a dynamic but clearly defined process. Funds typically have exposure to a well-diversified portfolio of hedge-fund premia. Premia can cover everything from equity premia (Equity market neutral - trading across value, quality, growth and momentum factors, as well as EM premia), macro premia (e.g., trend following, or EM premia), to arbitrage strategies (e.g., risk arbitrage - holding a portfolio of merger targets diversified by sector and deal type; convertible arbitrage, etc.). The strategies are typically very well understood, backed up by academic research and implemented systematically.

Bond and equity indices

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