ARBITRAGE STRATEGY DEEP DIVE

12-month review to October 2020

Arbitrage strategies generated an average return of 7.1% over the last 12 months; this figure is in line with the broader equity markets over the time period, but realising a fraction of the volatility, thus producing a significantly higher Sharpe, consistency, and with a more favourable drawdown profile.

This category of hedge fund strategies is often overlooked: even within Aurum's wide database of more than 4,000 funds, this is the smallest category, both in terms of AUM and by number of funds represented. It is also a very heterogeneous strategy, which we have sub-divided into the following areas: Convertible Arbitrage, Volatility Arbitrage, Opportunistic Arbitrage, and Tail Protection. Aurum have not observed a recent period where the differences between the sub-strategies are as pronounced as 2020.

Analysing the performance and growth of the four sub-strategies paints very different pictures. Starting with **Tail Protection**, the largest outlier strategy: on a 12m rolling basis, it is the best performing sub-strategy (+19.3%), with returns unsurprisingly driven by a hugely positive month in March (+24.4%), whilst all other sub-strategies struggled that month. Additionally, it seems all observed funds in the bucket did as advertised in a month like March – delivering positive performance in a market left-tail event – though the extent to which they achieved that varied drastically: the top to bottom decile range was 65.4% to 3.0% - the largest dispersion of any sub-strategy. Positive performance in March for Tail funds, however, wasn't enough to offset the performance 'bleed' in other years: the 5-year cumulative return is negative (-17.9%), though in many cases, this is in line with the fund mandates.

Volatility Arbitrage ("Vol Arb") covers a wide range of fund strategies; they may be opportunistic, biased long, short, neutral to volatility and/or to the underlying market. As a result, March performance was very mixed – the top to bottom decile range was 17.7% to -18.3%, likely a result of positioning into the month, and ability to capture the trading opportunities it created. The average return is less compelling: the sub-strategy was down -4.8% in March, leaving the 12m returns at just -1.0%. We are also aware of a number of vol funds that suffered catastrophic losses during that period and subsequently were forced to close, highlighting how risky some of those strategies can be when the short legs on these trades move disproportionately, such as the S&P / VIX indices in the month.

Both the Tail and Vol Arb sub-strategies observed, on average, have struggled to deliver consistent returns over the past several years, and as a result have seen a net outflows in the past 12m.

The above trends aren't true for **Convertible** and **Opportunistic Arbitrage** sub-strategies. Both suffered notable drawdowns in March (-6.3% and -9.7%, respectively), but both bounced back strongly and consistently in the following 6 months, thus generating 12m returns of 11.9% and 11.1% respectively, outperforming the master strategy, the HF Composite*, and the broad equity markets over the period. Indeed, the two sub-strategies have performed very strongly in the last 3 and 5 years, generating an attractive annualised compound return with a high Sharpe. It seems investors have taken notice: both buckets have seen net inflows in the last 12m.

In all, at a high level it's been a good period for Arbitrage strategies as a whole, but there have been notable differences in performance depending on the mandate of this broad and diverse strategy.

NET RETURN OF MASTER AND SUB-STRATEGIES

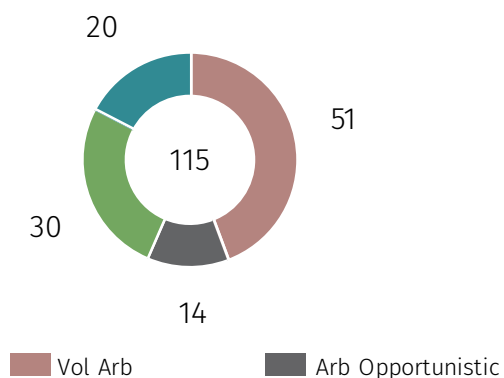|	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	YTD	1 YR
Arbitrage	0.1%	0.3%	0.8%	0.5%	-2.8%	1.0%	0.8%	2.1%	2.0%	0.9%	1.0%	0.3%	6.6%	7.1%
Convert Arb	0.5%	0.9%	0.9%	0.8%	-6.3%	3.3%	1.2%	2.6%	3.3%	2.5%	0.9%	0.8%	10.3%	11.9%
Arb Opportunistic	0.3%	1.3%	1.2%	0.4%	-9.7%	3.2%	2.2%	3.9%	3.8%	2.5%	1.7%	0.4%	9.4%	11.1%
Tail Protection	-1.1%	-1.0%	0.9%	7.6%	24.4%	-5.4%	-2.3%	0.2%	-1.1%	-1.2%	-0.5%	0.2%	21.9%	19.3%
Vol Arb	0.2%	0.0%	0.5%	-1.2%	-4.8%	1.2%	0.7%	1.0%	1.0%	-0.3%	0.9%	0.0%	-1.2%	-1.0%
HF Composite*	1.1%	1.6%	0.3%	-2.2%	-8.3%	4.0%	2.4%	1.8%	2.4%	2.0%	-0.4%	-0.2%	1.2%	3.9%

All figures and charts use asset weighted returns unless otherwise stated. All data is sourced from Aurum Hedge Fund Data Engine.
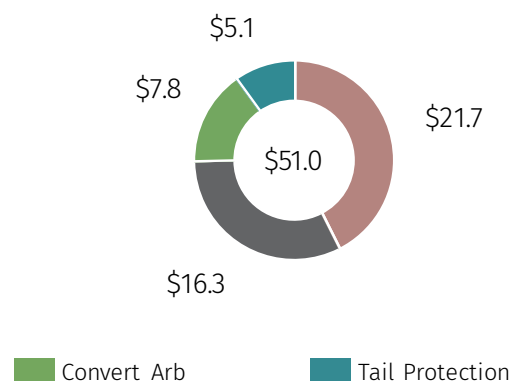** Aurum Hedge Fund Data Engine Asset-Weighted Composite Index.*

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/

Key Numbers

NUMBER OF FUNDS

20
51
115
30
14

- Vol Arb
- Arb Opportunistic
- Convert Arb
- Tail Protection

AUM ($ BN)

$5.1
$7.8
$51.0
$21.7
$16.3

- Vol Arb
- Arb Opportunistic
- Convert Arb
- Tail Protection

STRATEGY NET RETURN (1 YR)

7.1%

Oct-19 ——— Oct-20

SUB-STRATEGY NET RETURN (1 YR)

19.3% Tail Protection
11.9% Convert Arb
11.1% Arb Opportunistic
-1.0% Vol Arb

STANDARD DEVIATION (1 YR)

5.6% Vol Arb
8.7% Convert Arb
12.4% Arb Opportunistic
26.8% Tail Protection

SHARPE RATIO (1 YR)*

-0.31 Vol Arb
0.74 Tail Protection
0.84 Arb Opportunistic
1.23 Convert Arb
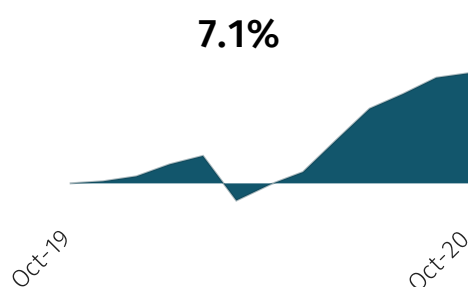
NET POSITIVE/NEGATIVE MONTHS (1 YR)

91.7% positive months

8.3% negative months

AUM CHANGE $BN (1 YR)

$4.8 +P&L
$-1.8 -P&L
$11.9 Inflows
$-12.5 Outflows
$2.4 Total

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*Risk Free Rate = period average of 3-month US Libor 0.88%. Source: Bloomberg.
Source: Aurum Hedge Fund Data Engine.

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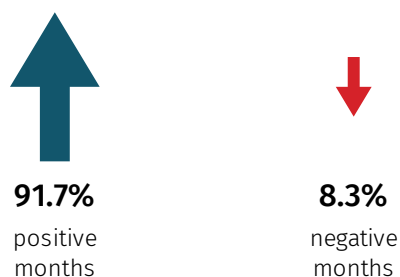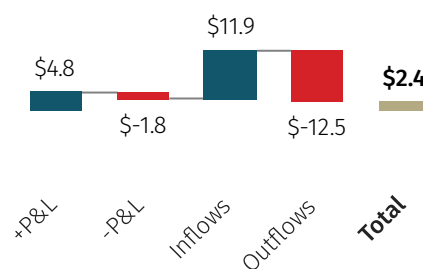
Master Strategy Performance

NET MONTHLY RETURN (5 YR)

Legend: Monthly Returns, NAV
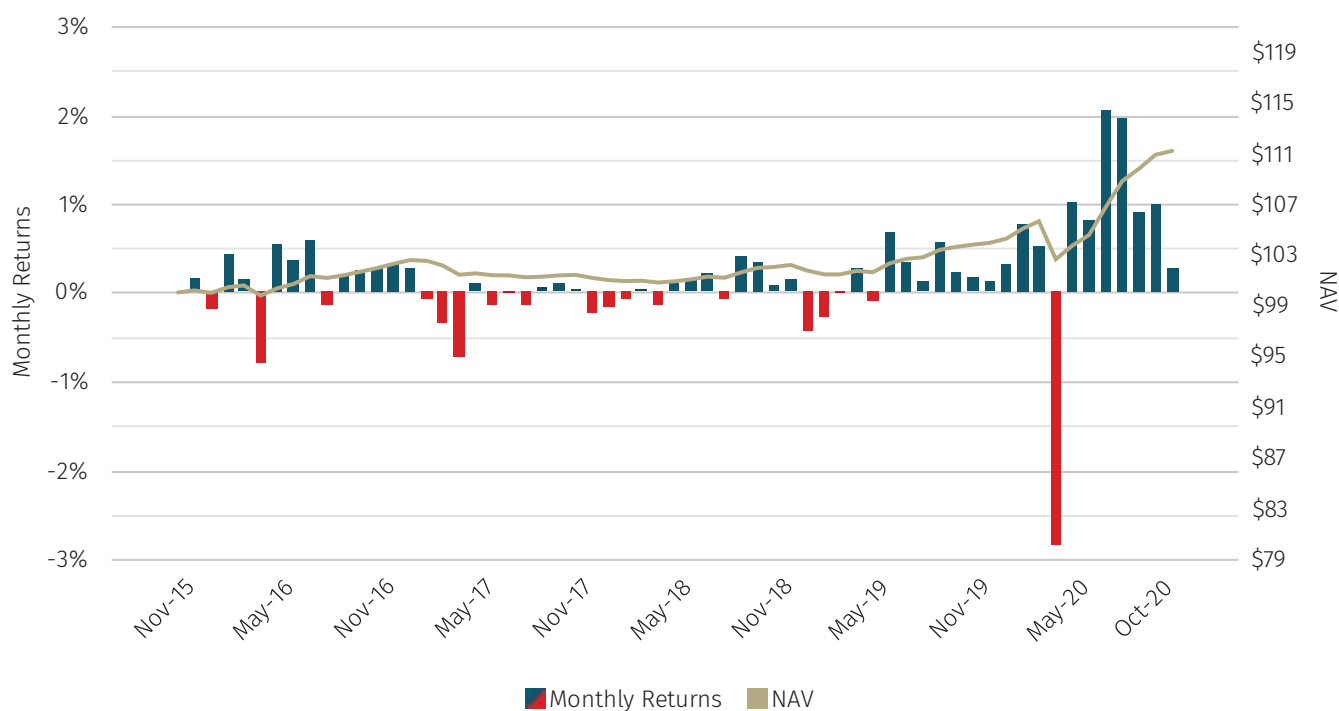
RELATIVE RETURN VS HF COMPOSITE (1 YR)

Legend: Arbitrage, HF Composite*
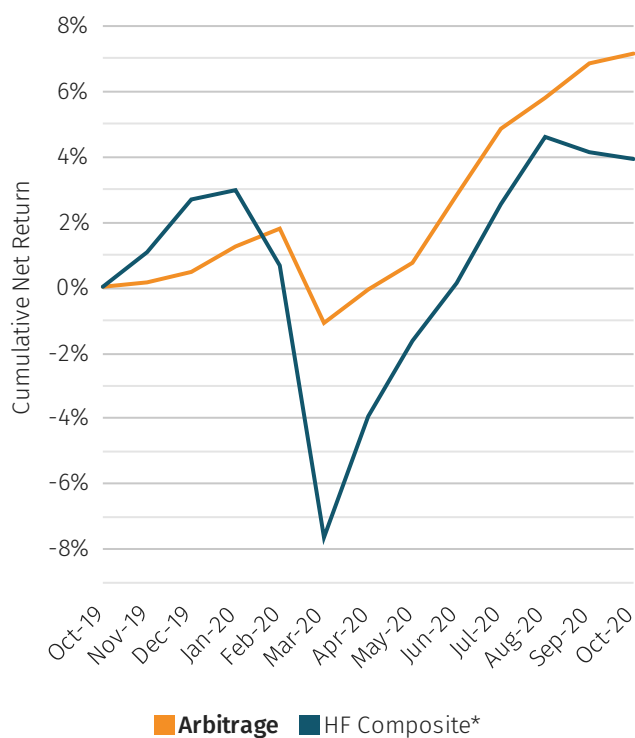
NET RETURN (ANNUALISED)

Legend: 1 Yr, 3 Yr, 5 Yr

VOLATILITY (ANNUALISED)

Legend: 1 Yr, 3 Yr, 5 Yr

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*HF Composite = Aurum Hedge Fund Data Engine Asset Weighted Composite Index
Source: Aurum Hedge Fund Data Engine.

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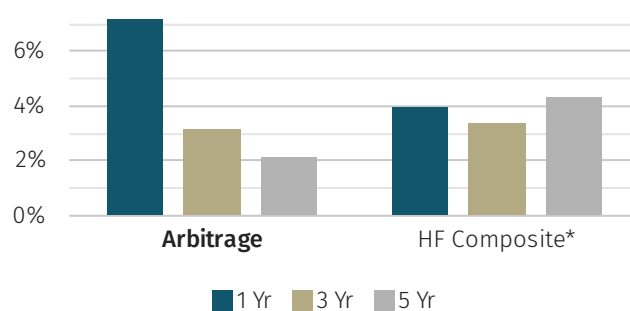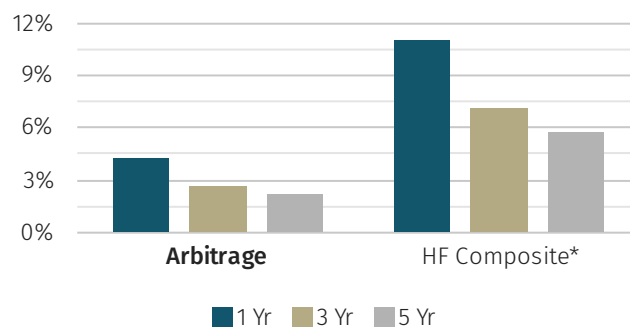
ROLLING 12 MONTH NET RETURN (5 YR)

Legend: Arbitrage | Convert Arb | Arb Opportunistic | Tail Protection | Vol Arb
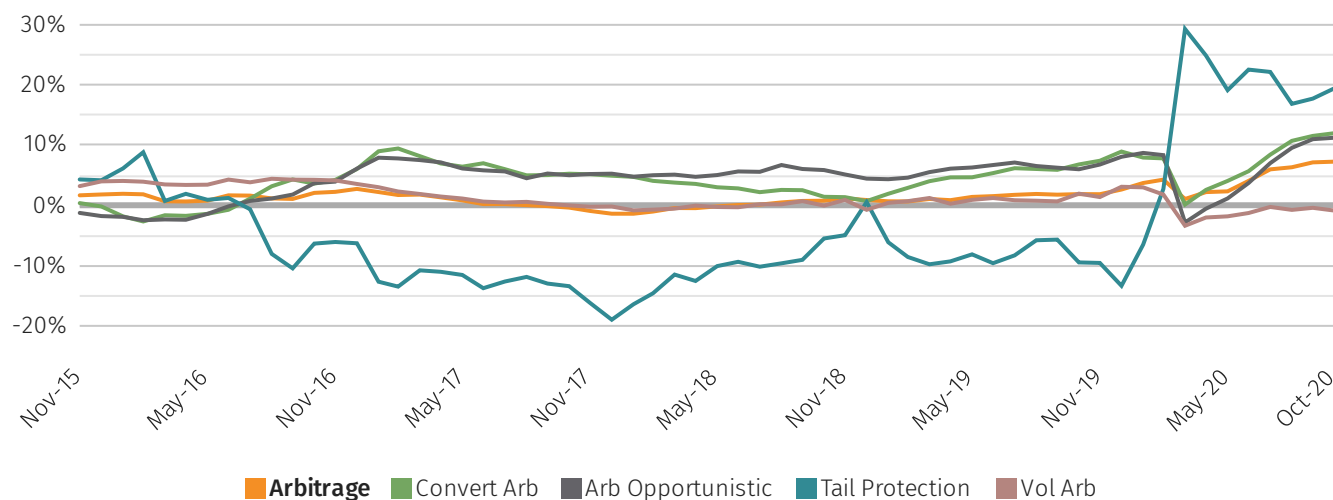
CUMULATIVE NET RETURN (5 YR)

Legend: Arbitrage | Convert Arb | Arb Opportunistic | Tail Protection | Vol Arb
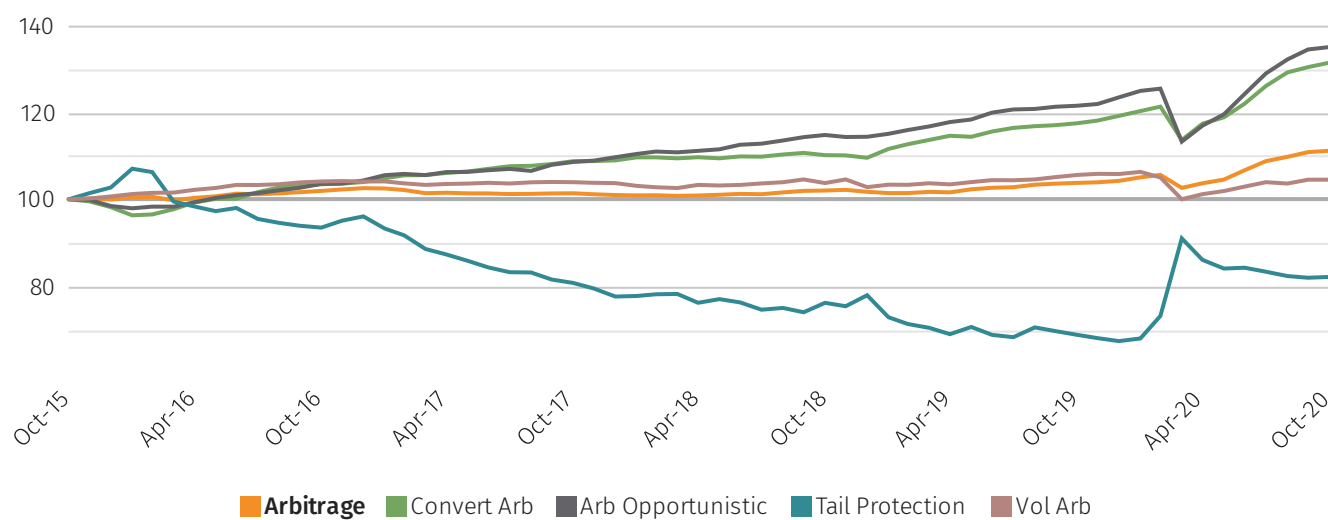
COMPOUND ANNUAL RETURN (ANNUALISED)

Legend: Arbitrage | Tail Protection | Convert Arb | Arb Opportunistic | Vol Arb
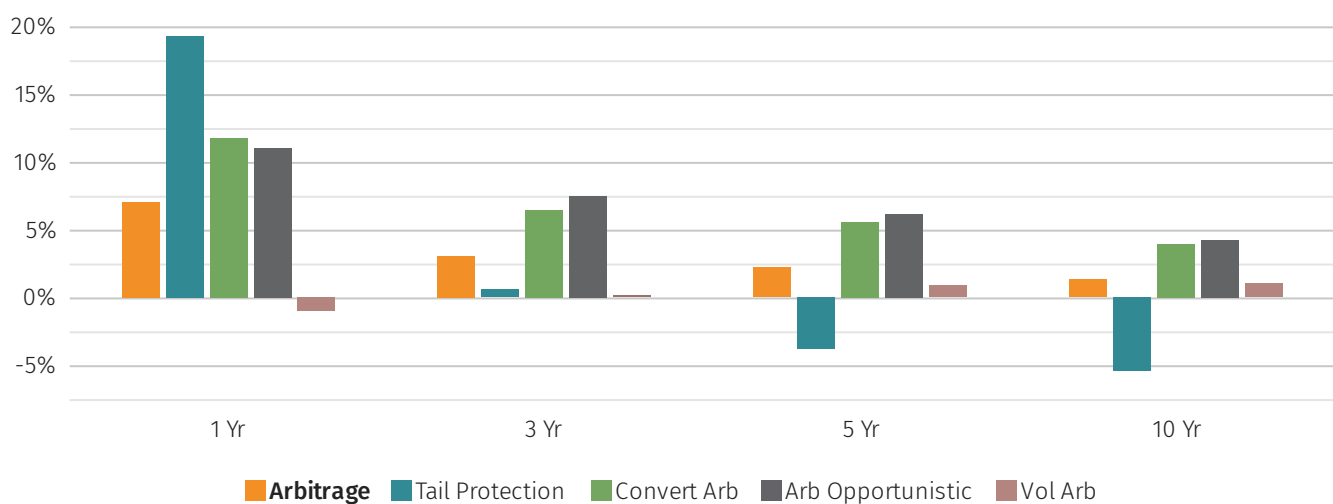
Monthly Performance Dispersion

10th Percentile
25th Percentile → Mean
Median → 75th Percentile
90th Percentile

Equally weighted returns

MASTER STRATEGY NET RETURN DISTRIBUTION
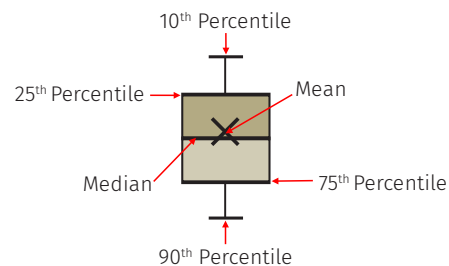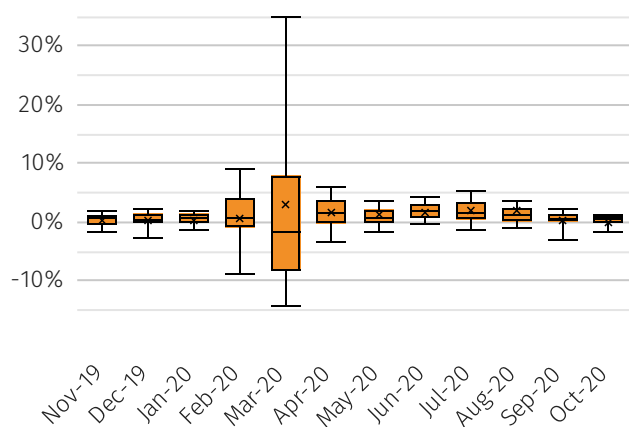
SUB-STRATEGY NET RETURN (1 YR)
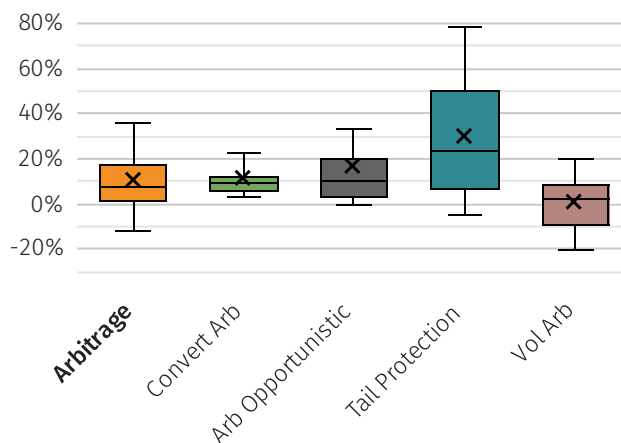
SUB-STRATEGIES NET MONTHLY RETURN DISTRIBUTION

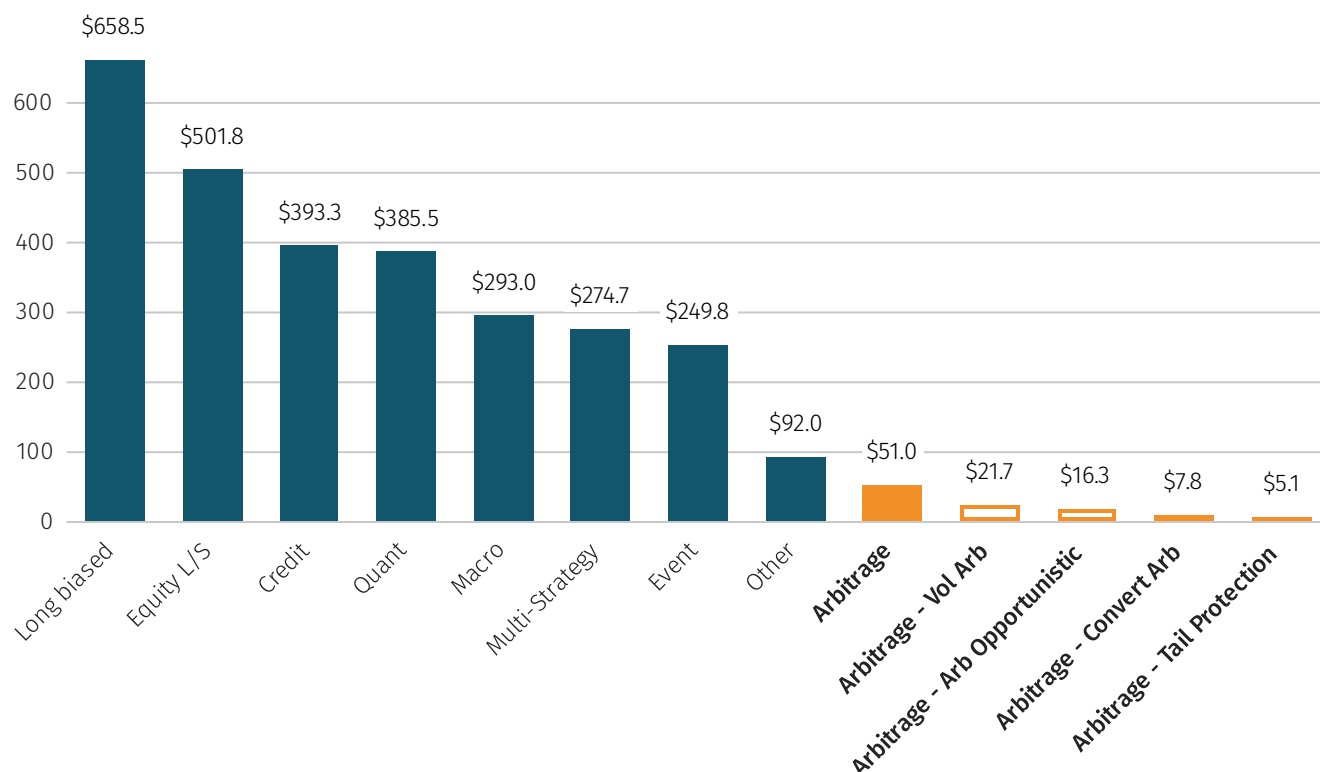### Vol Arb

Arb Opportunistic

Convert Arb

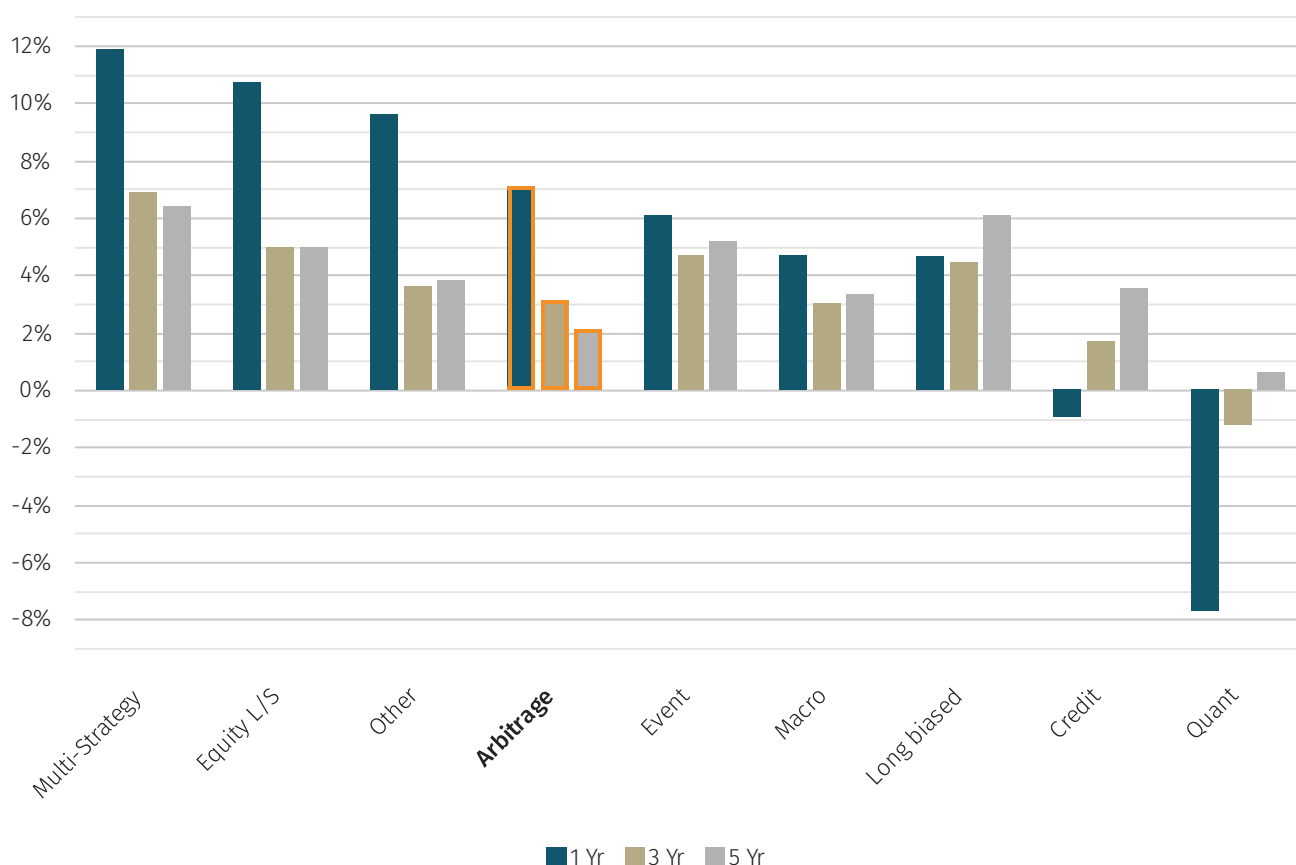

Tail Protection

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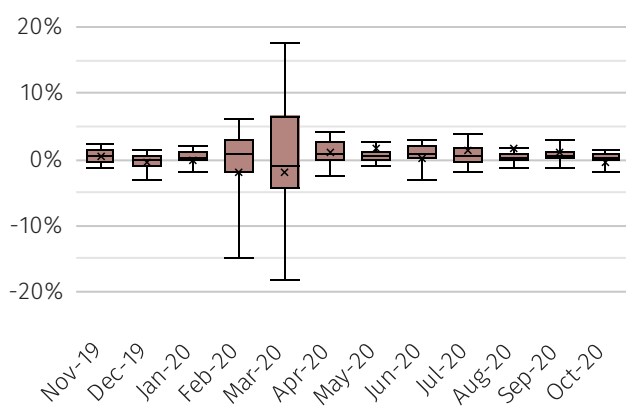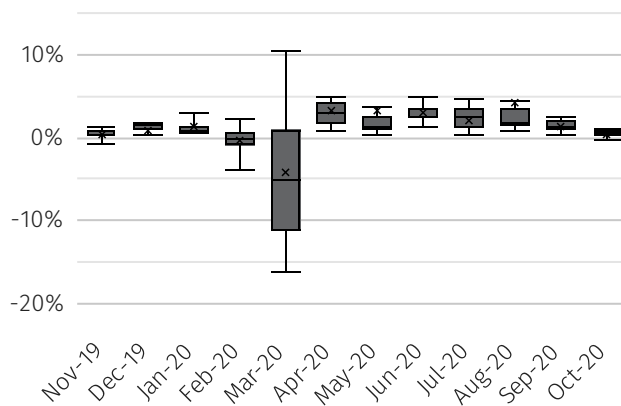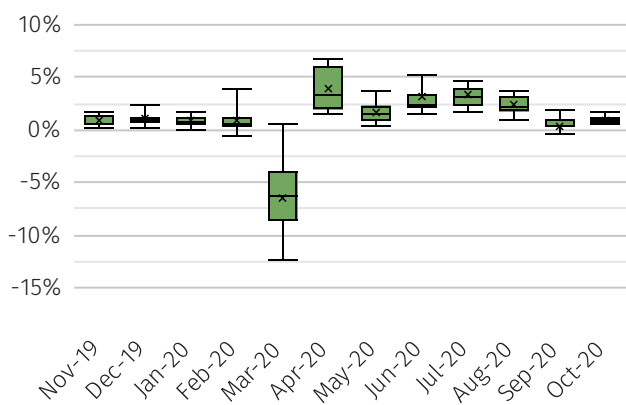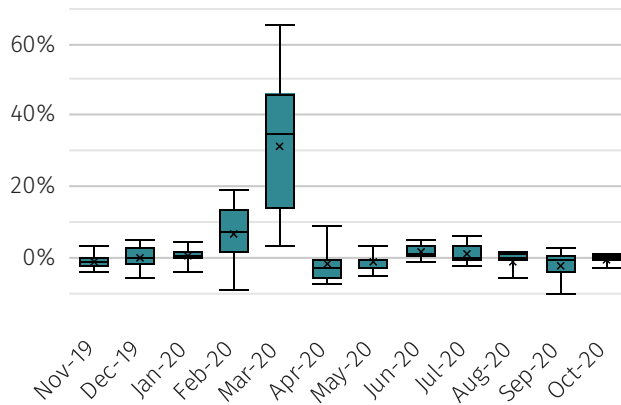
Master Strategy Overview
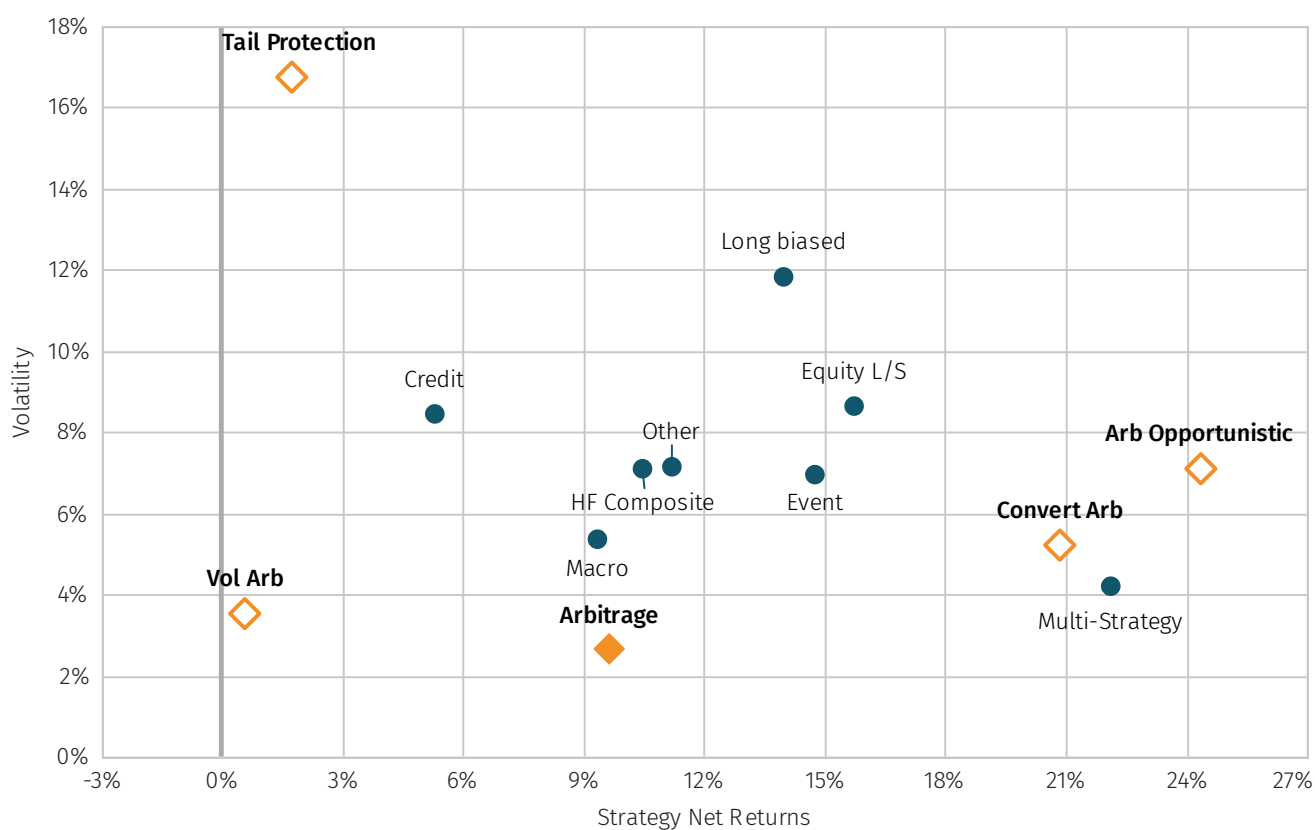
AUM OF MASTER STRATEGY – OCTOBER 2020 ($ BN)

MULTIPLE PERIOD – HIERARCHICAL ANNUALISED NET RETURN

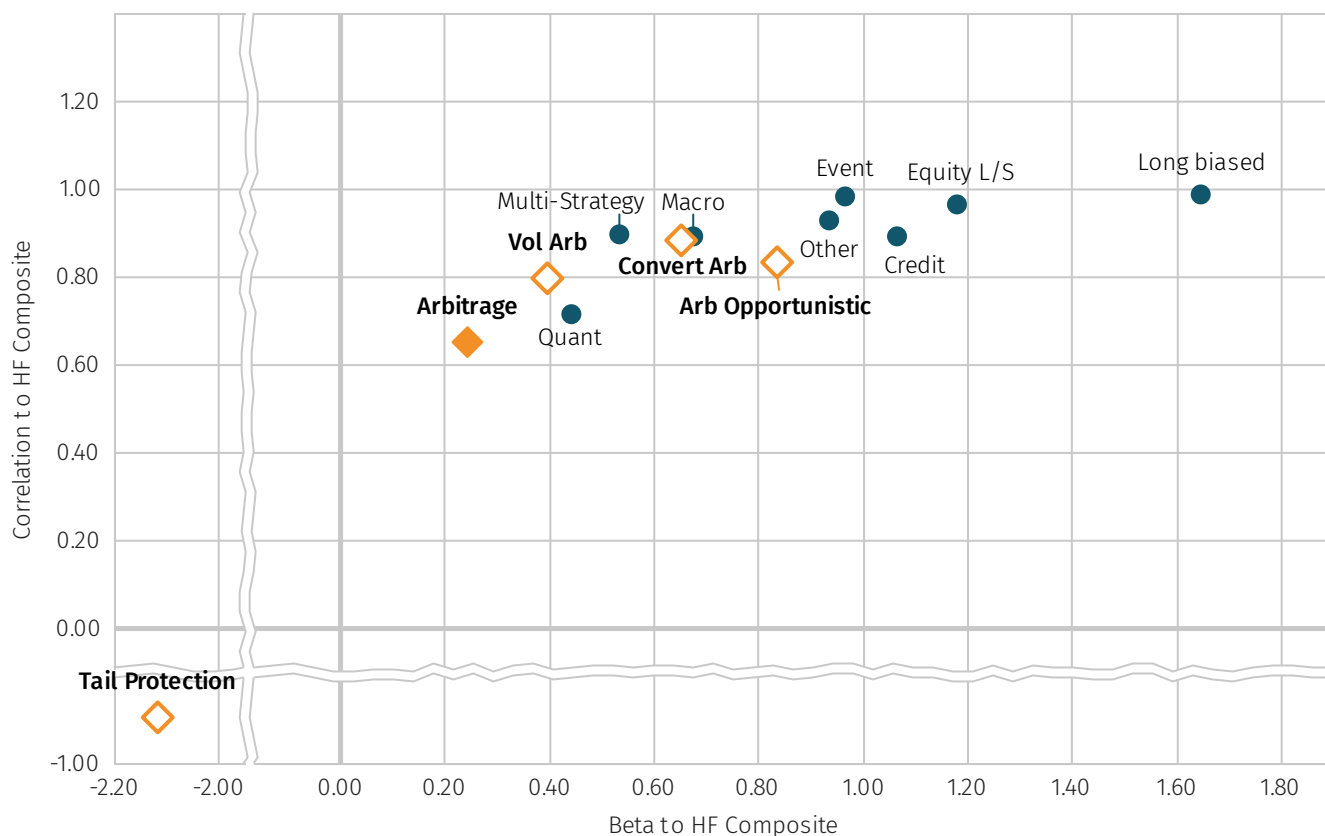| 1 YEAR	3 YEAR	5 YEAR	10 YEAR
Multi-Strategy 11.9%	Multi-Strategy 6.9%	Multi-Strategy 6.4%	Multi-Strategy 7.0%
Equity L/S 10.7%	Equity L/S 5.0%	Long biased 6.1%	Long biased 5.4%
Other 9.6%	Event 4.7%	Event 5.2%	Equity L/S 5.4%
Arbitrage 7.1%	Long biased 4.5%	Equity L/S 5.0%	Event 4.8%
Event 6.1%	Other 3.6%	Other 3.9%	Other 4.8%
Macro 4.7%	Arbitrage 3.1%	Credit 3.5%	Credit 4.5%
Long biased 4.7%	Macro 3.0%	Macro 3.3%	Macro 2.9%
Credit -0.9%	Credit 1.7%	Arbitrage 2.1%	Quant 2.6%
Quant -7.7%	Quant -1.2%	Quant 0.6%	Arbitrage 1.4%

MASTER STRATEGY NET ANNUALISED RETURNS

Legend: ■ 1 Yr ■ 3 Yr ■ 5 Yr

STRATEGY NET TOTAL RETURN VS ANNUALISED VOL (3 YR)

AURUM

SHARPE RATIO BY HEDGE FUND STRATEGY (3 YR)*

Multi-Strategy	Arbitrage - Convert Arb	Arbitrage - Arb Opportunistic	**Arbitrage**	Event	Equity L/S	Other	Long biased	HF Composite	Macro	Credit	**Arbitrage - Tail Protection**	**Arbitrage - Vol Arb**	Quant
1.18	0.89	0.81	0.49	0.43	0.40	0.28	0.28	0.25	0.24	0.03	0.00	-0.44	-0.67
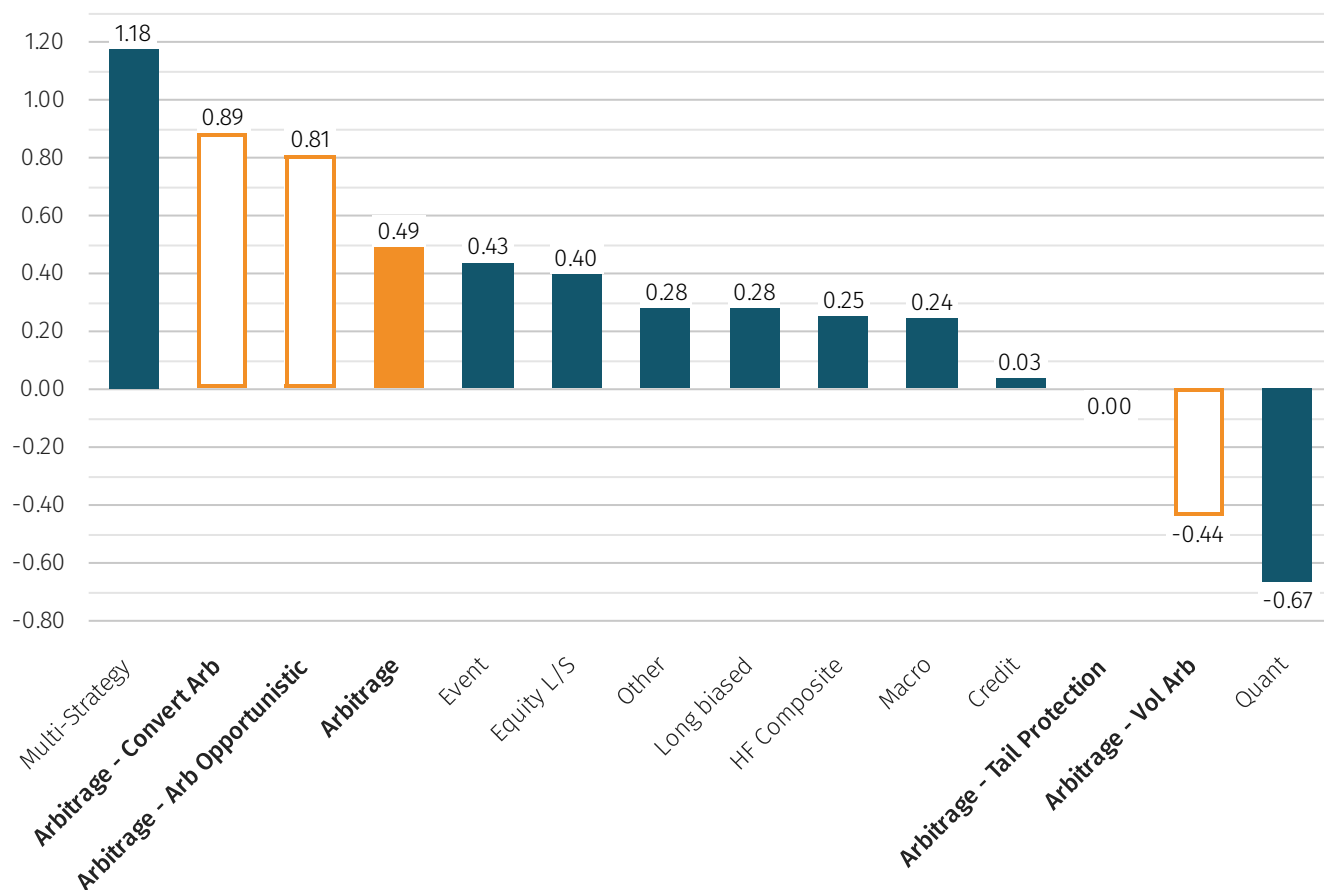
STRATEGY CORRELATION AND BETA TO HF COMPOSITE (3 YR)

Arbitrage Universe

NUMBER OF FUNDS AND AUM BY SUB-STRATEGY

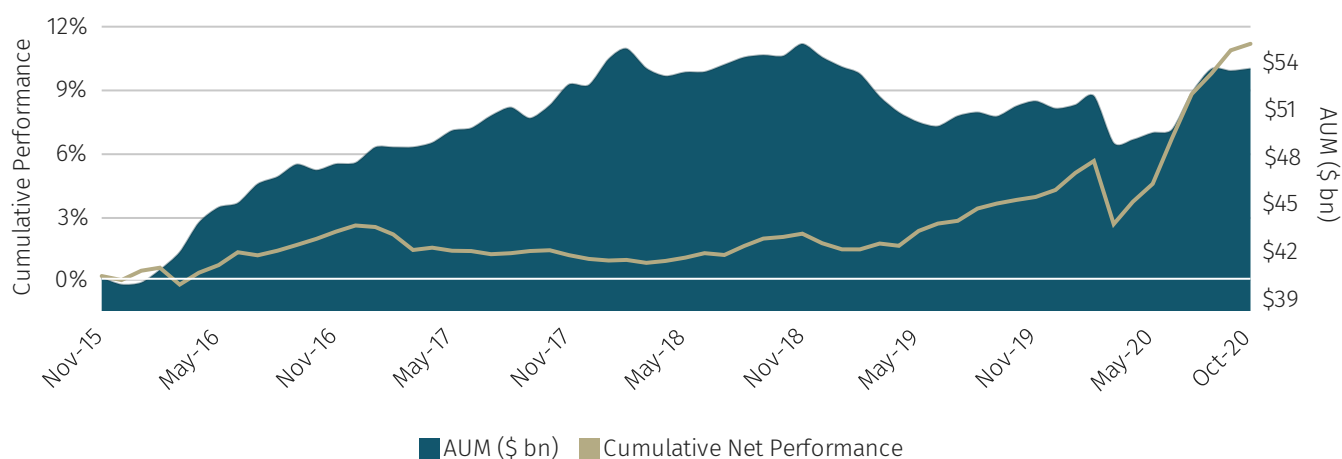|	Vol Arb	Arb Opportunistic	Convert Arb	Tail Protection
No. of funds	51	14	30	20
AUM ($ bn)	$21.7	$16.3	$7.8	$5.1

Legend: ■ No. of funds ■ AUM ($ bn)
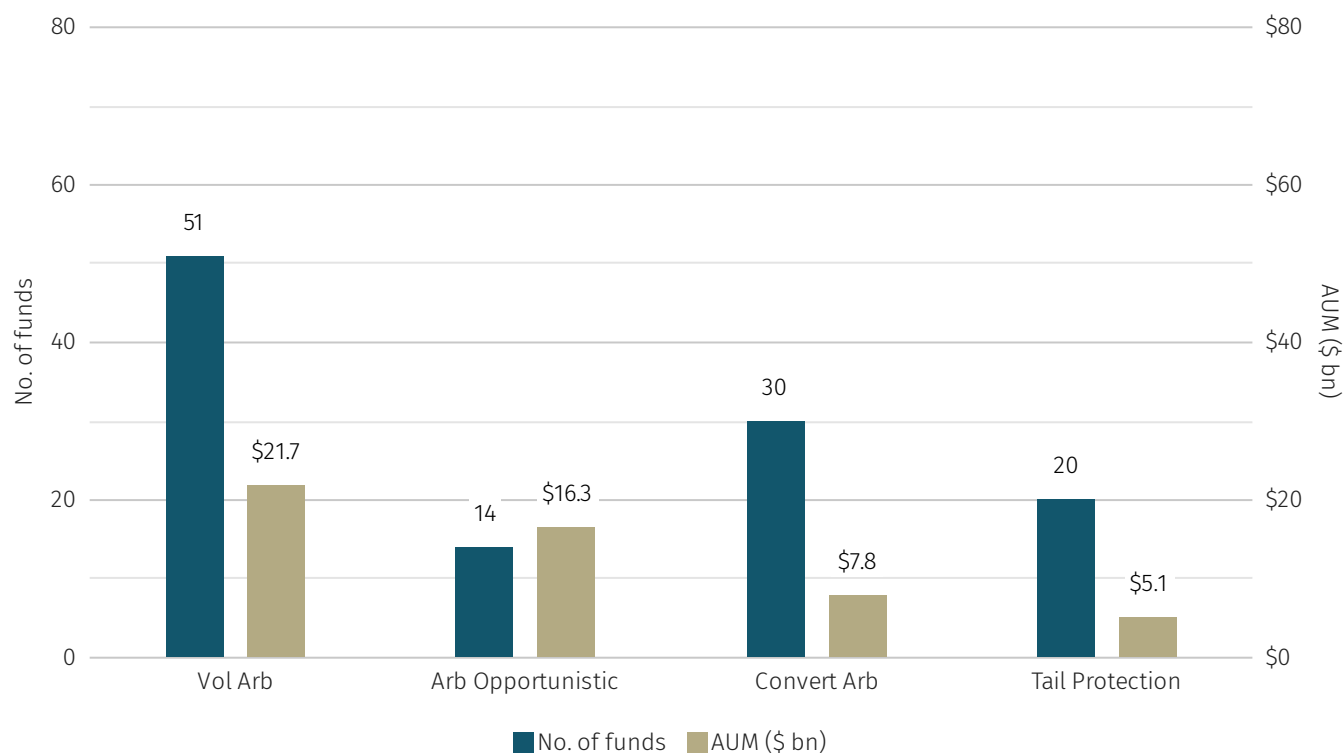
SUB-STRATEGY FUND CONCENTRATION ($ BN)

Arbitrage

Vol Arb — $19.7 (Largest 20), $21.7 (Total), $11.8 (Largest 5), $16.1 (Largest 10)

Arb Opportunistic — $16.3 (Largest 20), $16.3 (Total), $14.4 (Largest 5), $16.1 (Largest 10)

Convert Arb — $7.0 (Largest 20), $7.8 (Total), $3.9 (Largest 5), $5.4 (Largest 10)

Tail Protection — $5.1 (Largest 20), $5.1 (Total), $4.0 (Largest 5), $4.7 (Largest 10)

Legend: ● Largest 5   ● Largest 10   ● Largest 20   ● Total

AURUM
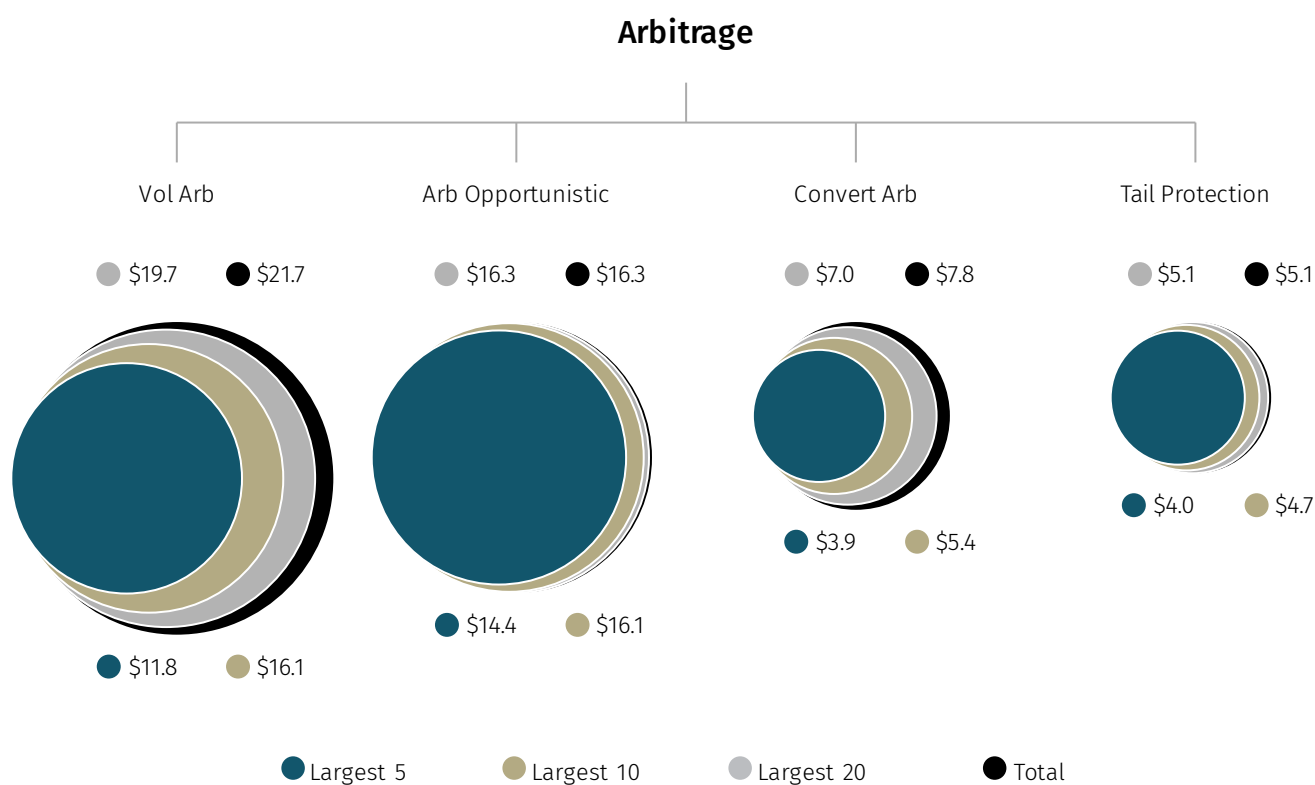
ASSETS UNDER MANAGEMENT BY LOCATION

NEW YORK
AUM **$21.9** bn
No. of funds **28**

UK
AUM **$6.7** bn
No. of funds **26**

ILLINOIS
AUM **$3.3** bn
No. of funds **6**

EUROPE (ex UK)
AUM **$4.3** bn
No. of funds **14**

US OTHER
AUM **$4.7** bn
No. of funds **22**

CALIFORNIA
AUM **$4.7** bn
No. of funds **14**

CONNECTICUT
AUM **$4.3** bn
No. of funds **6**

OTHER
AUM **$1.0** bn
No. of funds **6**
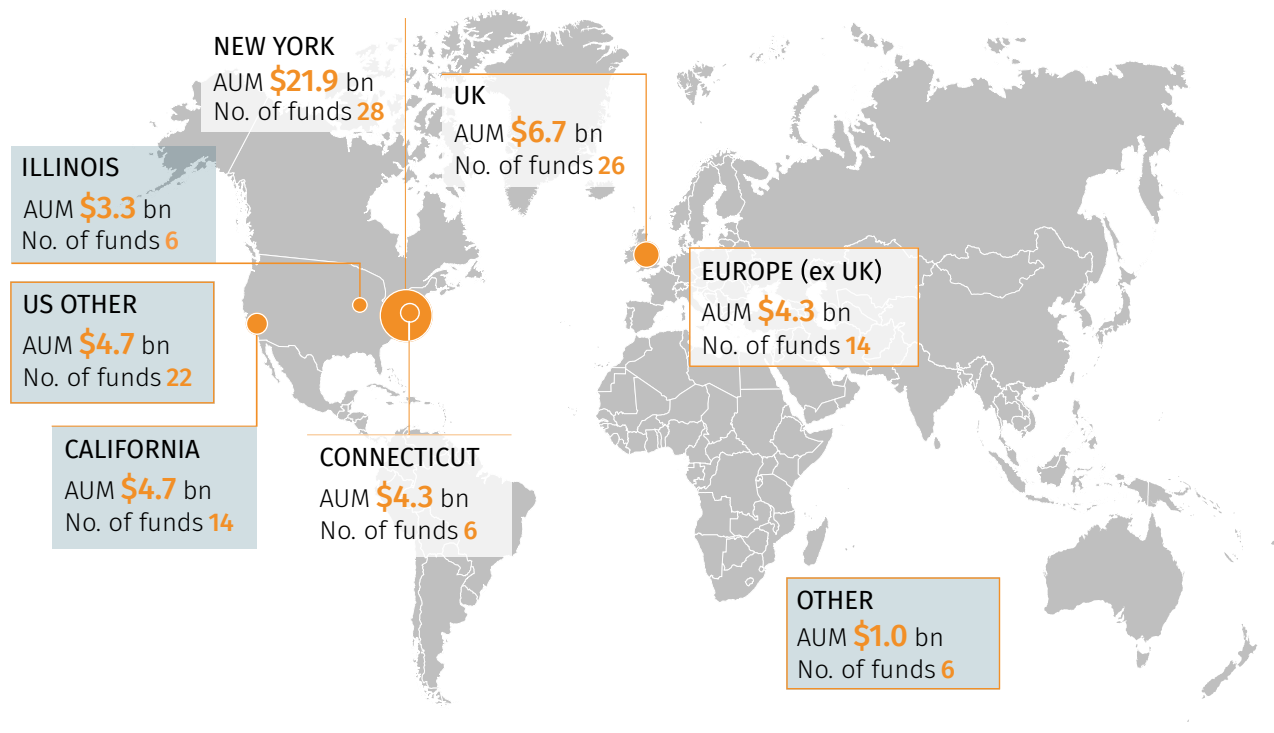
MASTER STRATEGY ASSETS (5 YR)*

Legend: AUM ($ bn) · Cumulative Net Performance

12-MONTH CHANGE IN AUM BY SUB-STRATEGY

Categories: Tail Protection, Convert Arb, Arb Opportunistic, Vol Arb

X-axis: $-3 bn, $-2 bn, $-2 bn, $-1 bn, $-1 bn, $0 bn, $1 bn, $1 bn, $2 bn, $2 bn, $3 bn, $3 bn

Legend: P&L · Net Flows · Net

AURUM

*Includes funds which are active but have not reported to Aurum within the last 12 months
Source: Aurum Hedge Fund Data Engine

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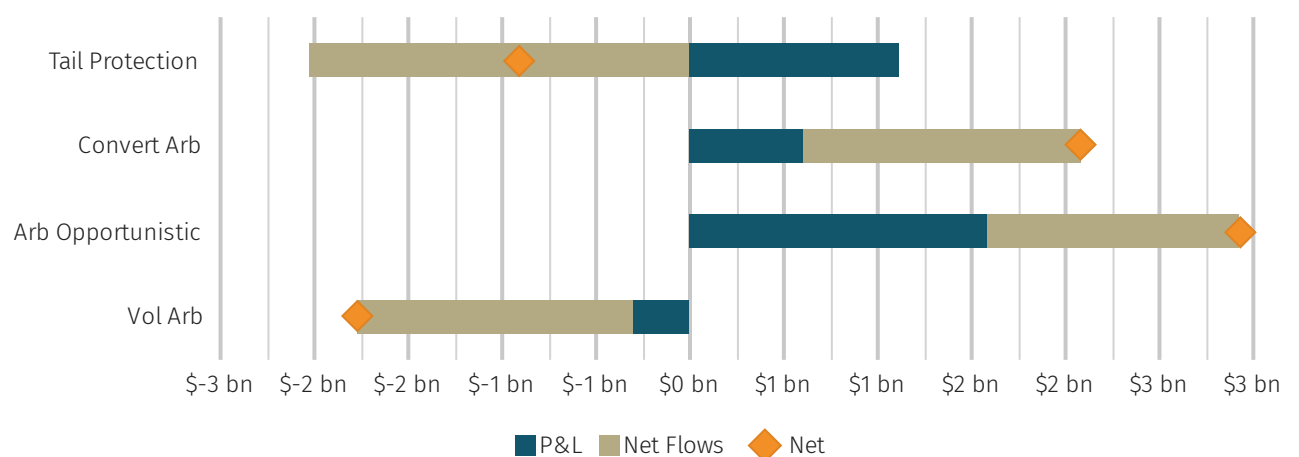
TERMS AND CONDITIONS

	Median Redemption Notice (Days)	Median Redemption Frequency	Weighted Avg. Redemption Total (Days)*	Weighted Avg. Management Fee	Weighted Avg. Performance Fee
Arbitrage – MASTER	**30**	**Monthly**	**113**	**1.57%**	**20.59%**
Arbitrage - Convertible Bond	45	Monthly	95	1.30%	18.39%
Arbitrage - Tail Protection	30	Monthly	92	1.89%	19.40%
Arbitrage - Volatility Arbitrage	30	Monthly	92	1.66%	21.21%
Arbitrage - Opportunistic	60	Quarterly	153	1.43%	20.99%

Weighted Avg. Redemption Total (Days) is the weighted Avg. of both redemptions notice days and redemption frequency days.

Definitions

Arbitrage - 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.

Arbitrage - Tail Protection:
Strategies 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.

Arbitrage - 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.

Arbitrage - Opportunistic:
Strategies 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.

AURUM

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