

	Month	Quarter	FYTD	1 year	3 years	5 years	Since Inception <sup>^</sup>
	%	%	%	%	% p.a.	% p.a.	% p.a.
Perennial Volatility Alpha Trust*	1.4	0.8	-2.3	-	-	-	3.1
RBA Cash Rate Target	0.1	0.4	0.5	-	-	-	1.0
<b>Value Added (Detracted)</b>	<b>1.3</b>	<b>0.4</b>	<b>-2.8</b>	-	-	-	<b>2.1</b>
Net Performance	1.3	0.5	-2.6	-	-	-	1.5

\*Gross performance ^Since inception: 14 March 2017. Past performance is not a reliable indicator of future performance.

### Perennial Volatility Alpha Trust

The Trust aims to outperform the RBA Cash Rate Target by investing in global equity derivatives that provide volatility exposure such as futures and options on the CBOE S&P 500 VIX index (VIX).

#### Trust manager

Michael Pollard

#### Risk profile

High

#### Trust FUM

\$0.9 million

#### Distribution frequency

Annual

#### Trust redemption price

\$0.9705

Any material changes to risk profile, strategy, key service providers or portfolio managers during the period

Nil

#### Minimum initial investment

\$100,000 (wholesale investors only, as per Reg. S761G of the Corps Act 2001)

#### Trust inception date

March 2017

#### APIR code

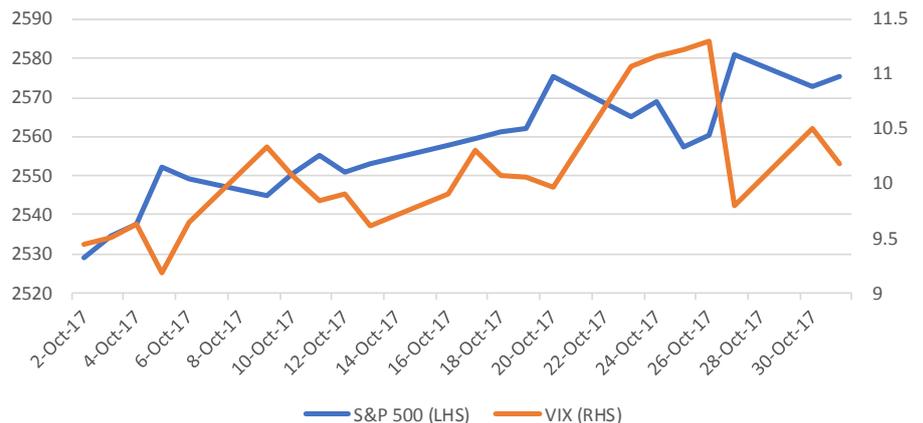
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The month of October was a reasonably quiet one in terms of news flow, though we did see a very brief period of risk off activity in the back half of the month, where the VIX front month future moved through three different handles. As is the custom in recent times the market moves had largely reverted intraday, rather than continuing for a period of days. Buy-the-dip is certainly alive and kicking. It is, however, interesting to note a slight change in dynamics in the relationship between the VIX and equity markets. October was a strong month for the S&P 500, but we saw the VIX rise for much of the month, along with the equity index. This is probably a reasonable outcome when the market keeps setting record highs, and we have also seen more intraday volatility on the S&P 500, but such rationality has largely been missing in recent times.

S&P 500 and VIX Spot Both Up



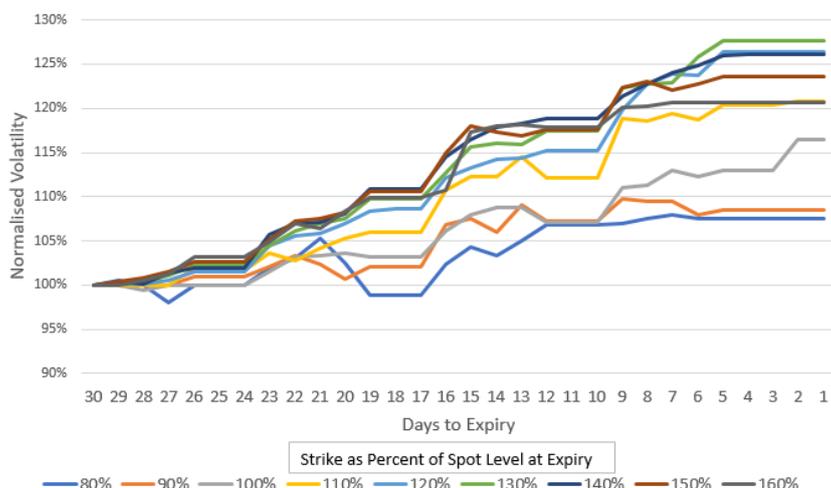
Source: Perennial / Bloomberg

Portfolio returns were driven by similar themes to recent months. We had two outright long positions, one generating a small profit, and the other a larger loss. The net loss of 1% on these longs was more than offset by good returns from our carry trades, leaving the whole portfolio up 1.4% for the month.

It is also worth noting that due to the current small size of the fund our execution costs have meaningfully detracted from returns. With a larger fund size we will have the ability to reduce these costs considerably.

As mentioned previously our carry trades have a modest long (VIX) bias, and returns are really generated by taking advantage of certain structural features of the VIX option market. As such we are constantly analysing how this market behaves. One piece of research we recently conducted was exploring how VIX options behave coming in to expiry. Looking at options on equity indices you will tend to observe the implied volatilities of out-of-the-money (OTM) options rising coming in to expiry, whereas at-the-money (ATM) options tend not to exhibit this behaviour. This is sensible – as OTM options decay towards zero it would not make sense to sell these “lottery tickets” too cheaply. However on VIX the whole range of strikes, including the ATM ones, tend to rise coming in to expiry. This can be seen in the graph below where we have calculated the median volatility trajectory in the month leading up to expiry for a range of strikes (relative to VIX spot at expiry), from 2010-2017.

VIX Implied Volatility Rallies in to Expiry, Median 2010-2017



Source: Perennial / OptionMetrics

VIX is more “non-normal” than equity indices, with the ready capacity for very large moves from previously calm states. In addition the market is too large for those that might sell rich implied volatilities on a delta-hedged basis to fully keep this in check. Furthermore we have seen in recent months a much larger move upwards coming in to expiry, than the median lines above would suggest. If you are interested in any further information please be in touch. Certainly something to be aware of if you are structuring VIX option trades.

## Portfolio Characteristics (since inception)

	Trust	S&P 500
Volatility	9.4%	7.0%
Downside Volatility	5.0%	4.9%
Upside Volatility	8.0%	5.1%
Maximum Drawdown	-5.4%	-2.2%
Return	3.1%	10.1%
Sharpe Ratio	0.4	2.1
Sortino Ratio	0.7	3.0
Calmar Ratio	0.6	4.5
Correlation to Equity Market	-14%	-

Source: Perennial and Bloomberg

## VIX Strategies Utilised (since inception)

Strategy	Utilised*
Long Breakout	8.4%
Short Breakout	1.2%
Long Reversion	9.0%
Short Reversion	7.8%
Carry	36.1%
Cash	44.6%

Source: Perennial and Bloomberg

**Long breakout:** positioned long for expected short-term rise in VIX

**Short breakout:** positioned short for expected short-term fall in VIX

**Long reversion:** position long for expected short-term reversion to mean

**Short reversion:** position short for expected medium-term reversion to mean

**Carry:** positioned to earn structural decay over the short to medium term

\*measured by number of days the strategy was in use from inception

Signatory of:



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