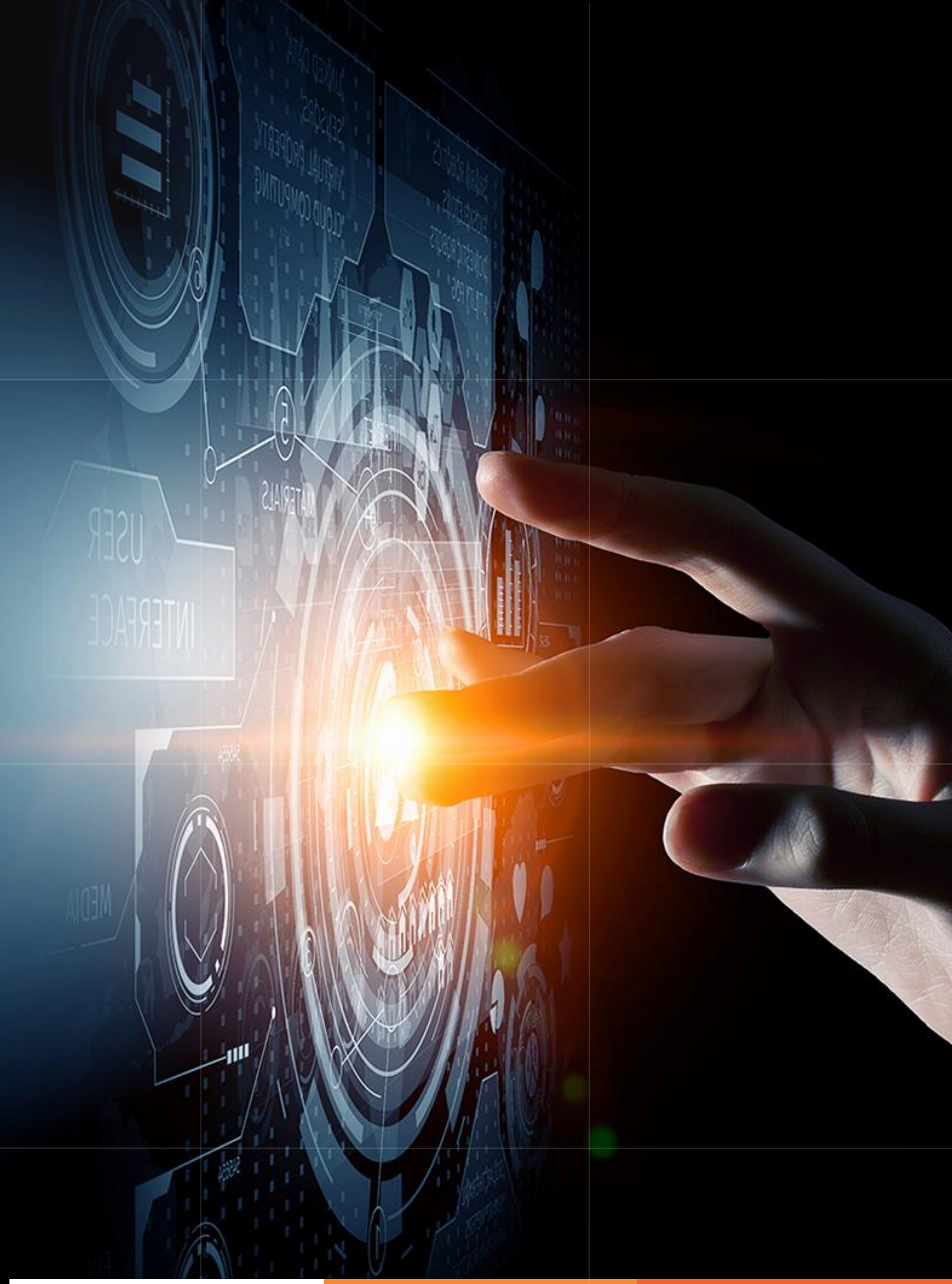
Derivatives Quarterly

May 2021



Introduction

This quarterly publication highlights a range of derivative strategies suitable for institutional investors. While the focus will be on equity market protection, we will also highlight other more topical ideas. For example, in this issue we discuss a range of strategies which offer protection against higher inflation.

The strategies highlighted can be considered for a range of applications – dynamic asset allocation, equity replacement, or downside protection. We provide an overview of each strategy and highlight key considerations for each.

We cover three types of strategy.

Direct equity hedges… p. 2

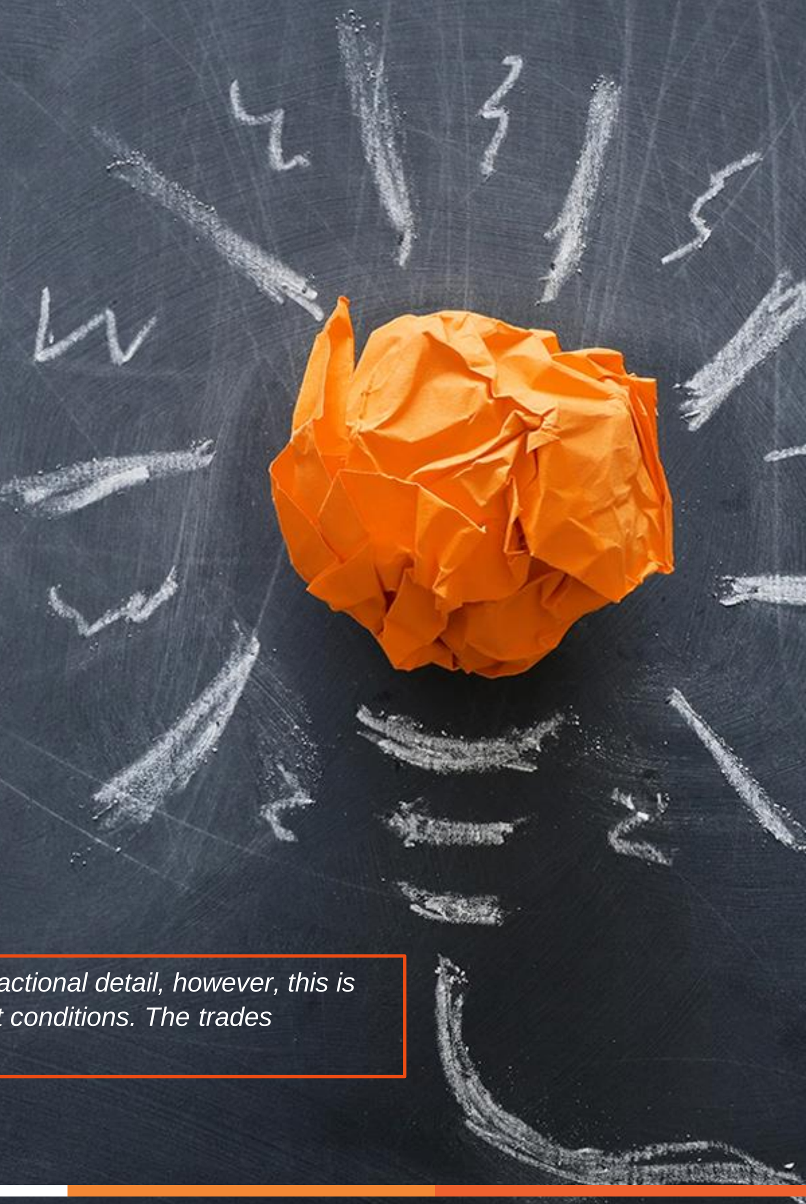
Equity options can offer direct protection against both strength and weakness in the underlying index and are the standard way of implementing an equity hedge.

Indirect equity hedges… p. 6

These strategies aim to protect against equity market weakness by using derivatives on related asset classes rather than the underlying equity index.

Inflation hedges… p. 10

Loose monetary policy across the globe has ignited fears of inflation and the associated risk it presents to real returns. We consider three potential inflation hedges: breakeven inflation swaps, interest rate steepeners, and commodities.



We provide high level outlines of the strategies only. In some places we have included additional transactional detail, however, this is for illustrative purposes only. Actual transaction details will vary with objectives, constraints and market conditions. The trades discussed are not meant as recommendations.

Direct equity hedges

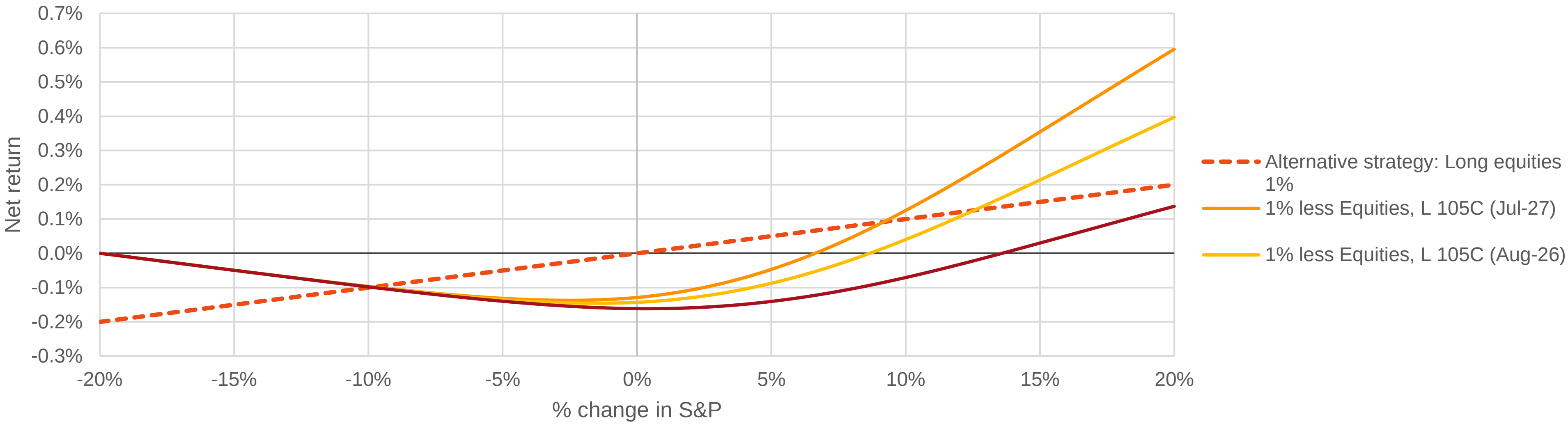
Equity options can offer direct protection against both a rising or falling equity market. While options are commonly used to protect against market falls they can also be used to protect against a rising market for those investors underweight equities. Similarly, they can be used to take a directional view on equity markets without the need to transact in the +underlying physical equity allocation.

Key considerations when determining a suitable strategy include strike/moneyness, tenor and costs. We provide an overview of three different option strategies that may be suitable for providing portfolio protection in either a rising or falling equity market. The charts in the following pages are based on pricing as at 30/4/21.

Strategy	Scenario	Objective	Rationale	Trade example
A. Replace underlying equity exposure by buying equity index calls	Portfolio is overweight equities	Strategy protects against an equity market sell off.	Current call pricing is attractive relative to put pricing.	Sell the underlying equity exposure and purchase an equal notional of 105 index calls
B. Buying index calls and selling OTM index puts	Portfolio is underweight equities	Strategy protects against an equity market rally.	The calls provide upside participation while the sold puts reduce the overall cost of the structure.	Buy 105 calls and sell an equal notional of 85 Puts
C. Buying index put spreads and selling OTM index calls	Portfolio is overweight or long equities	Strategy protects against an equity market sell off.	Selling shorter-dated maturities has historically been attractive due to a higher volatility premium relative to longer-dated maturities. The long put spread cost is reduced by selling the upside call option.	Buy a 95%/85% put spread or put spread collar (i.e., buy a 95%/85% put spread and sell a out-of-the-money call). *For peer-aware investors, Frontier prefers not to sell OTM calls

Strategy A. Replacing underlying equities by buying equity index calls

Performance of option structure which outperforms long equities for large market moves up and down

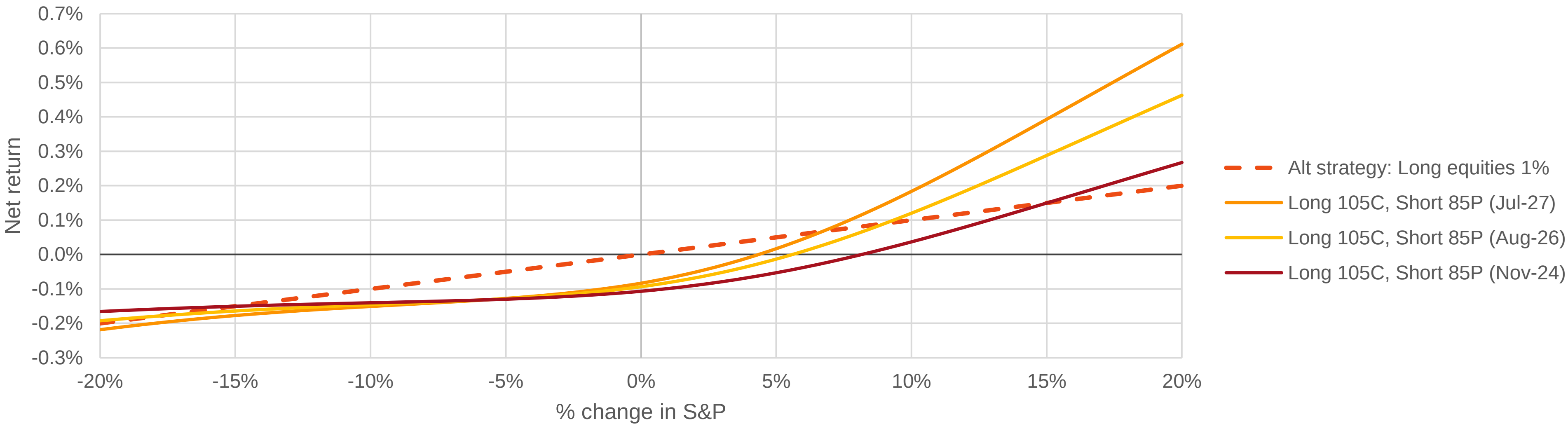


Source: Frontier

Option strategy	Time dimension	Alternative strategy	Option payoffs	Considerations
Reducing underlying equity exposure and purchasing July 2021 expiry 105% SPX 500 calls. Client wanting downside protection for potential equity market sell off.	Outperforms alternative strategy (keeping equity allocation unchanged) with larger market moves in either direction. Size of market move required for outperformance is bigger for expiries further into the future.	Add 1% more equity exposure.	Strategy underperforms on the downside until the market has fallen more than -7%. Strategy underperforms on the upside until the market has rallied more than 7%. Note, the longer the expiry, the larger the move required to outperform long 1% equities.	This option strategy performs well in a scenario where the market moves are more than 7% up/down. This strategy would suit an investor that is concerned about large market moves in either direction, with slightly better protection on the downside.

Strategy B. Buying index calls and selling OTM index puts*

Performance of option structure with increased upside potential relative to long equities



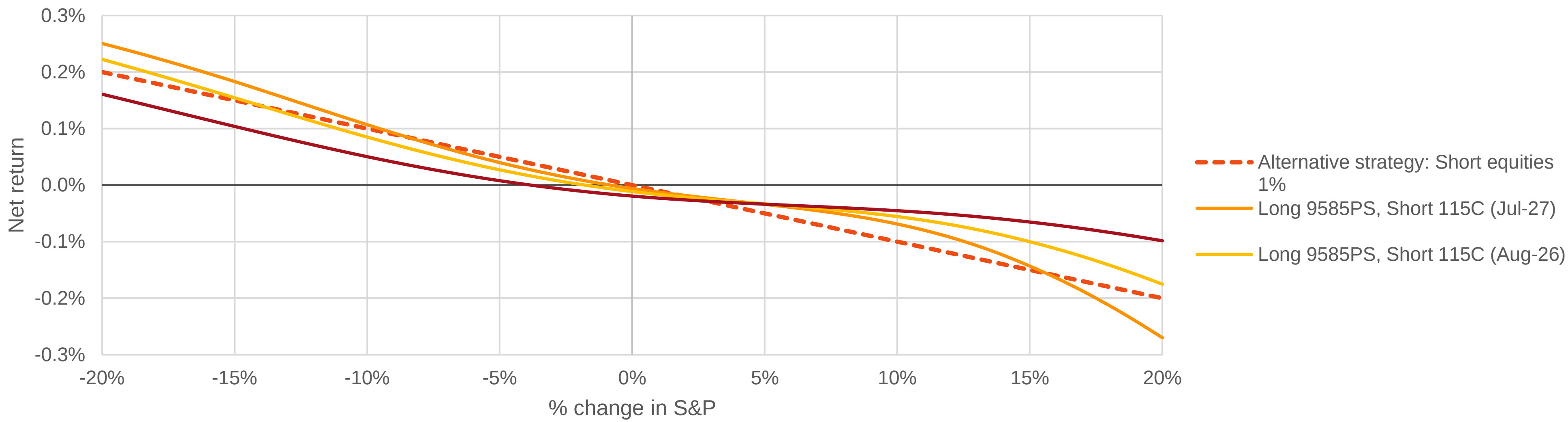
Source: Frontier

Option strategy	Time dimension	Alternative strategy	Option payoffs	Considerations
Buying 105 SPX 500 calls v selling 85 SPX 500 puts. Both have August 2021 expiry Client wanting upside protection for potential equity market rally, if underlying portfolio already positioned for a weak equity market	Performs best if market rallies in the near term as a smaller market rally is required before option outperforms. Size of market move required for outperformance is bigger for expiries further into the future.	1% increase in underlying equity portfolio.	Strategy underperforms on the downside until the market has fallen more than -14%. Strategy underperforms on the upside until the market has rallied more than 7%.	This strategy would suit an investor that is concerned about a near term market rally in the near term. Longer-dated expiries require larger market moves to outperform.

* OTM index put – Out of the money index put, i.e., An option which at the present time would not yield a return as the strike price is below the current level of the underlying index.

Strategy C. Buying index put spreads and selling OTM index calls**

Performance of defensive option structure with lower loss potential for upside market moves



Source: Frontier

Option strategy	Time dimension	Alternative strategy	Option payoffs	Considerations
95/85 put spread with cost reduced by the sale of a 115 call, both with Aug 2021 expiry. Client wanting downside protection for potential equity market sell off but with reduced cost.	Performs best if market falls in the near term as a smaller market move is required before option outperforms. Size of market move required for outperformance is bigger for expiries further into the future.	Decrease equity weighting by 1% to the underlying portfolio.	Strategy underperformance depends on when market moves occur. On the downside, this is not until the market has fallen more than -10%. Strategy outperforms on the upside until the market has rallied more than 17%.	This strategy would suit an investor that is concerned about a material market sell off. While the strategy will perform poorly in a market rally, it will outperform relative to the alternative strategy (short equities).

** OTM index call – Out of the money index call, i.e., An option which at the present time would not yield a return as the strike price is above the current level of the underlying index.

Put spread – strategy involves buying one put spread and selling another put spread with different strikes.

Indirect equity hedges

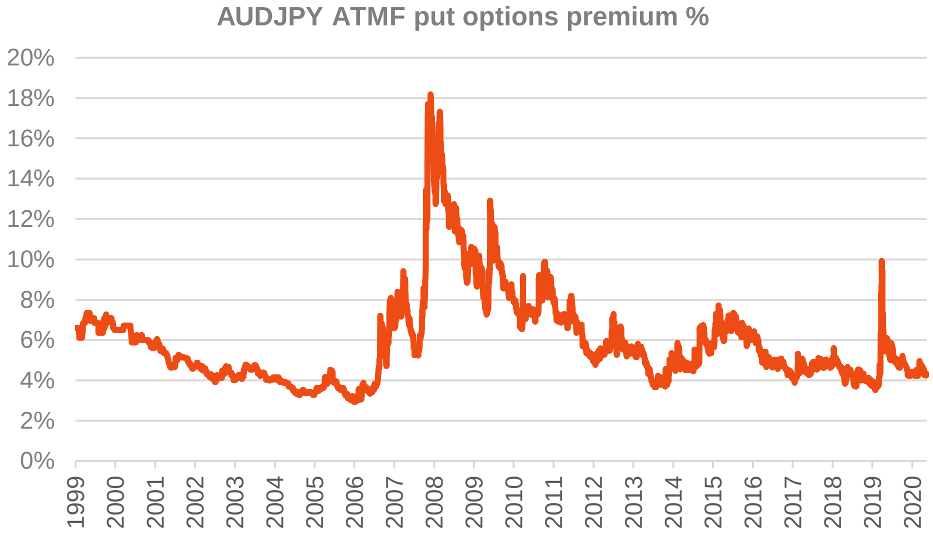
Costs are a key consideration for any downside protection strategy. Indirect hedging – using derivatives on one asset to hedge another (e.g., equities) – is one way of managing costs. While indirect hedges can provide more effective hedging, they also introduce a degree of basis risk.

Key considerations when determining a suitable hedge include, but are not limited to, the relationship between assets, cost, and basis risk. We consider several indirect hedges for providing portfolio protection from a falling equity market environment.

Strategy	Scenario	Objective	Rationale	Trade example	Risk
A. AUDJPY currency options	Portfolio is long equities.	Strategy protects against an equity market sell off.	Options on the Australian dollar Japanese Yen cross are priced at a discount to equity options. Historically, holding AUDJPY put options has profited when equity markets fall.	Purchase an AUDJPY put option.	Equities fall without a similar move in AUDJPY.
B. Interest rate swaptions	Portfolio is long equities and is sensitive to increasing interest rates.	Strategy protects against an increase in rates.	A payer swaption is a more direct hedge for a higher interest rate environment, which could cause equity markets to fall.	Purchase a payer swaption.	Falling equities are caused by something other than higher rates.
C. VIX options	Portfolio is long equities.	Strategy protects against an equity market sell off.	Strategy profits when volatility increases.	Purchase a VIX option.	Equities fall but volatility is unchanged. E.g., a long slow equity market decline.

Currency options

Buying ATM AUDJPY put option



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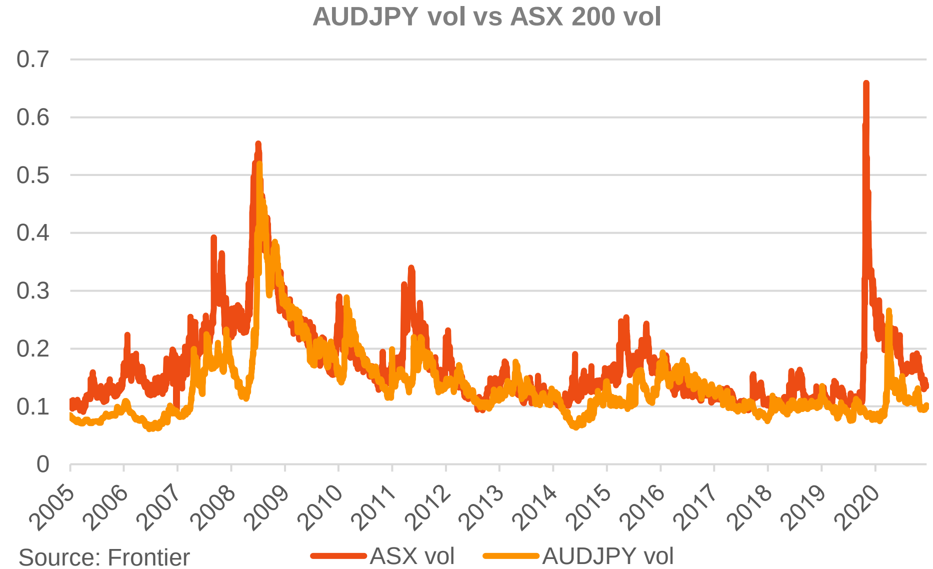
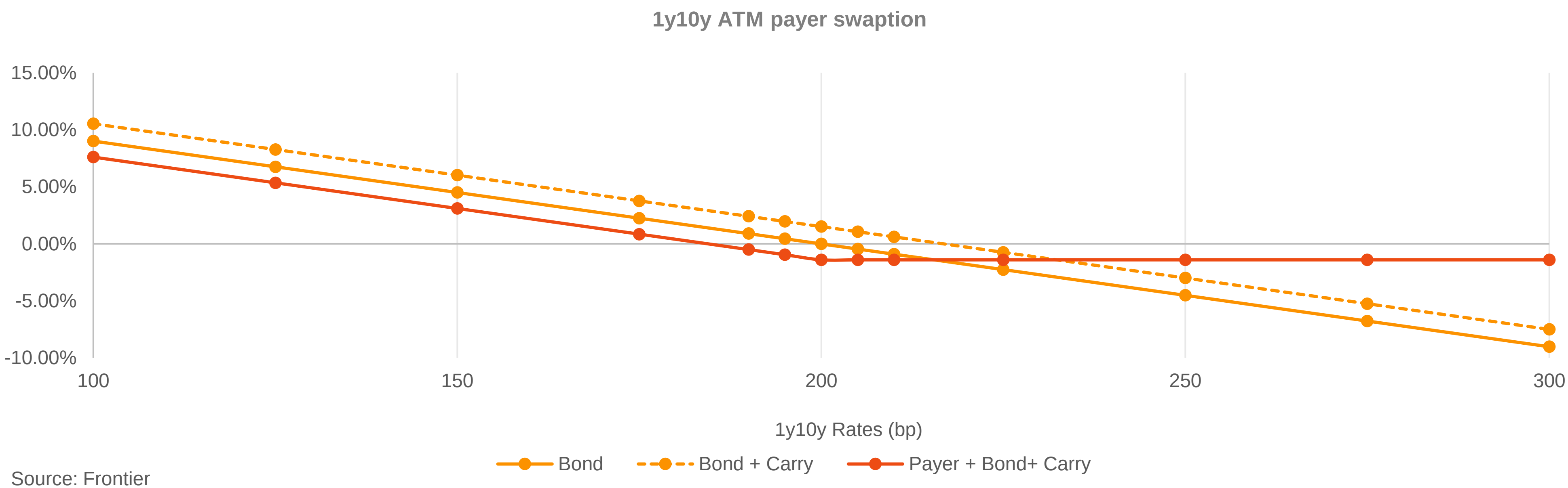


Source: Frontier

Indirect hedge strategy	Alternative strategy	Option payoffs	Considerations
Buying ATM AUDJPY put option May 2022 expiry (ie. 12mths). Client wanting downside protection for potential equity market sell off, if underlying portfolio already positioned for a strong equity market.	Decrease in underlying equity portfolio or purchase an ASX 1yr put option.	Strategy begins to perform when AUDJPY sells off from current levels. Strategy underperforms if currency rallies, however, loss is limited to the premium cost.	This strategy would suit an investor that is concerned about a near term market sell off. There is basis risk between the magnitude of the fall between AUDJPY and ASX, ie. the ASX may experience a large drawdown and the AUDJPY is unchanged.

Swaptions

Buying a payer swaption and holding physical bonds

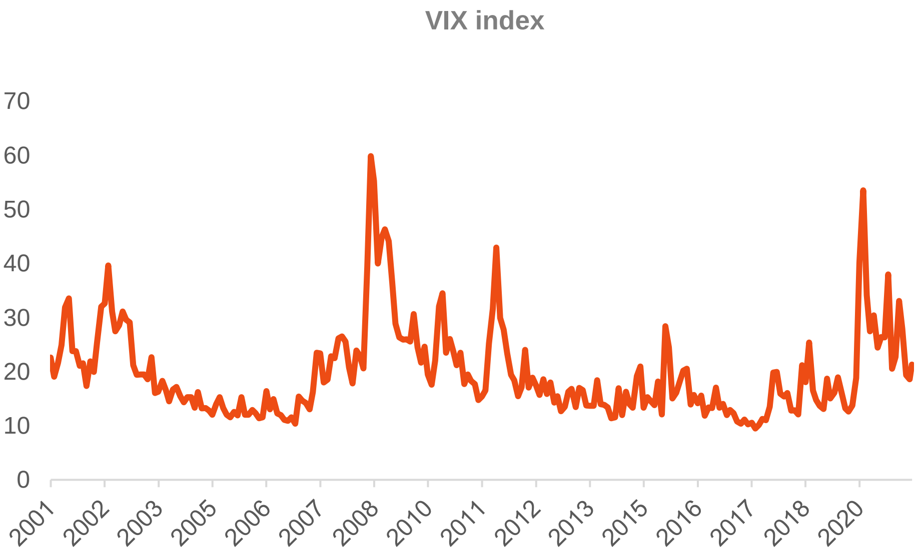


Source: Frontier

Indirect hedge strategy	Alternative strategy	Option payoffs	Considerations
Buying 1y10y ATM payer swaption. Client wanting downside protection for potential equity market sell off from a rise in interest rate yields, if underlying portfolio already positioned for a strong equity market. This strategy would also protect the bond holdings within a portfolio from higher yields.	Decrease in underlying equity portfolio (or bond holdings). Worth noting that reducing exposure in either equity or bond holdings will forego potential returns.	Yields need to move substantially from current yields before options or swaptions breakeven, with 1y10y swaption needing a ~32bp sell off before an at-the-money swaption would be in-the-money.	This strategy would suit an investor that is concerned about a near term rise in interest rate yields. Holding the underlying bond will earn yield income and carry which is additive to any potential capital gains from duration movement (i.e. prices higher, yields lower). This additional income can potentially insulate the portfolio from a small sell off in interest rates (i.e. prices lower, yields higher).

Implementation options for the VIX

The VIX is a tradable 'fear index' on the S&P 500 index



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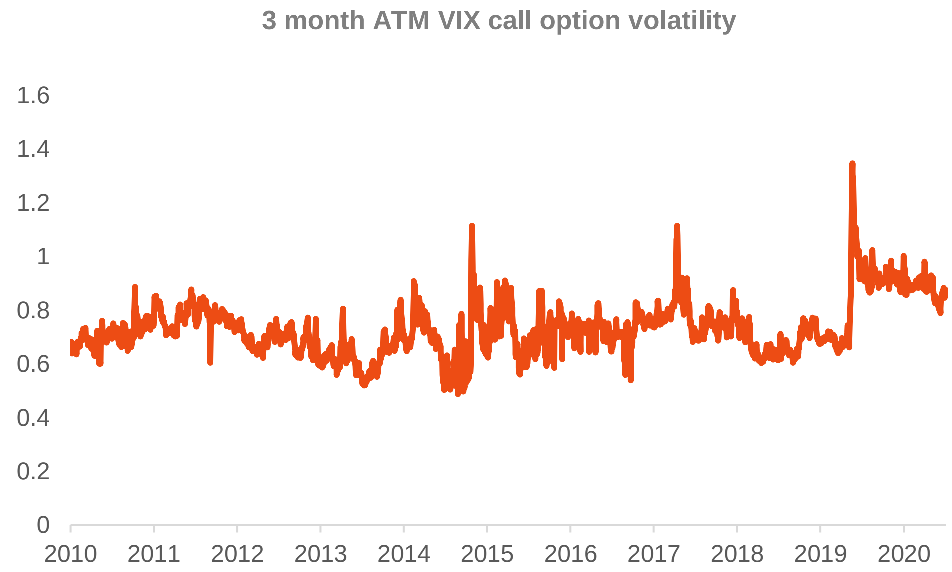


Source: Frontier

Indirect hedge	Return profile in equity drawdown	Considerations
VIX futures	VIX usually rises when equities fall with material rises observed in deep market stresses.	VIX can also retrace very quickly, and so active monetisation decisions should be considered. Futures can be an effective and efficient monetisation tool, as futures are generally more liquid than options.
Call options on the VIX	This strategy profits when the VIX rises but only loses the premium if the VIX falls.	The options market is becoming more liquid. As with any option, consideration needs to be given to the strike and maturity of the options. Roll risk can be managed by using a staggered maturity approach. Given volatility pricing remains elevated post COVID-19, one way to cheapen the outright VIX calls is to sell VIX puts to finance the purchase of these calls. Not only does this add to a long VIX delta profile, it also reduces the cost of the trade at inception.

Inflation hedges

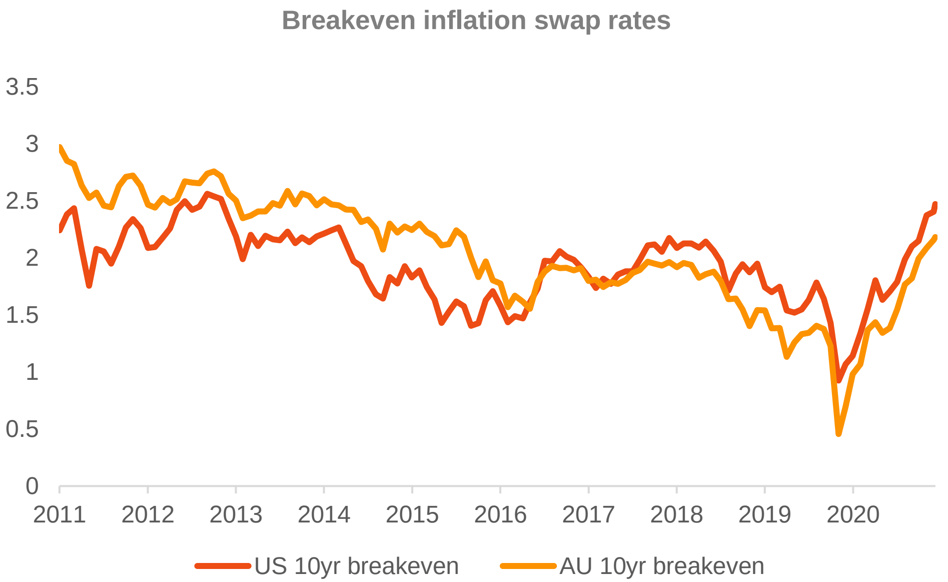
Loose monetary policy across the globe has ignited fears of inflation and the associated risk to real returns. We consider several inflation hedges that can provide portfolio protection in a rising inflationary environment.

For a more detailed discussion of inflation hedging using inflation linked bonds and inflation linked swaps see our paper, Hedging against unexpected inflation rises. The paper can be found at https://www.frontieradvisors.com.au/hedging-against-inflation/

Strategy	Scenario	Objective	Rationale	Trade example
A. Inflation linked swaps	Portfolio is sensitive to higher inflation.	Strategy protects against higher inflation.	Inflation swaps are positively correlated with changes in inflation expectations with returns based on CPI outcomes.	Buy a US 10y breakeven inflation swap, (pay fixed and receive inflation).
B. Interest rate curve steepener	Portfolio is sensitive to higher inflation.	Strategy protects against higher inflation.	Long term yields can rise more than shorter term yields as the market prices in the future rate hikes needed to control inflation.	Enter a 2s10s interest rate steepener, (receive 2yr and pay 10yr).
C. Long energy commodities basket	Portfolio is sensitive to higher inflation.	Strategy protects against higher inflation.	Higher inflation is often associated with higher commodity prices. A long commodity exposure can outperform during periods of higher inflation.	Buy a basket of energy commodities via a long only derivative structure.

Inflation linked swaps

Buy US 10yr breakeven inflation swap



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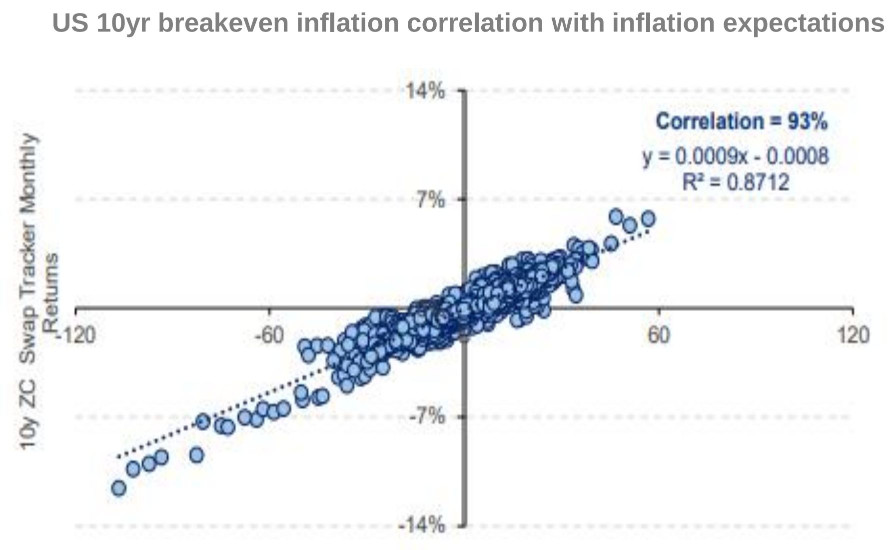
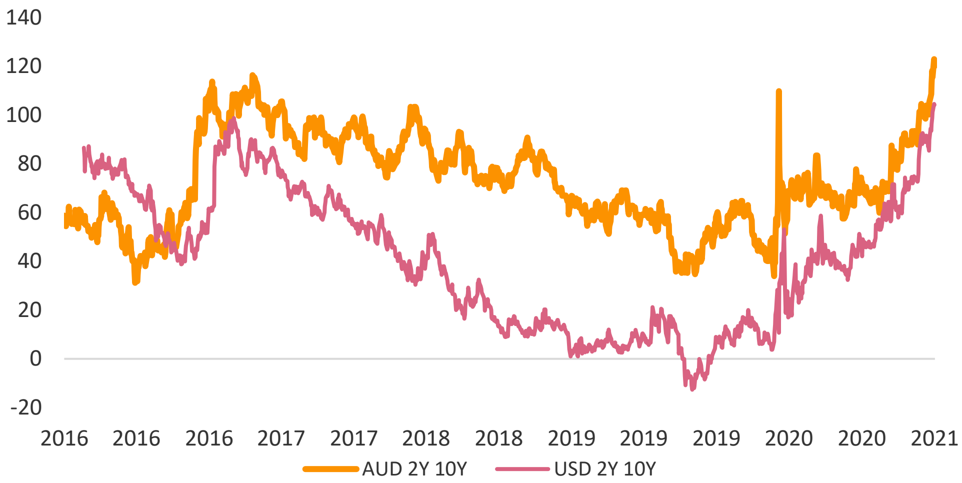


Source: Citibank

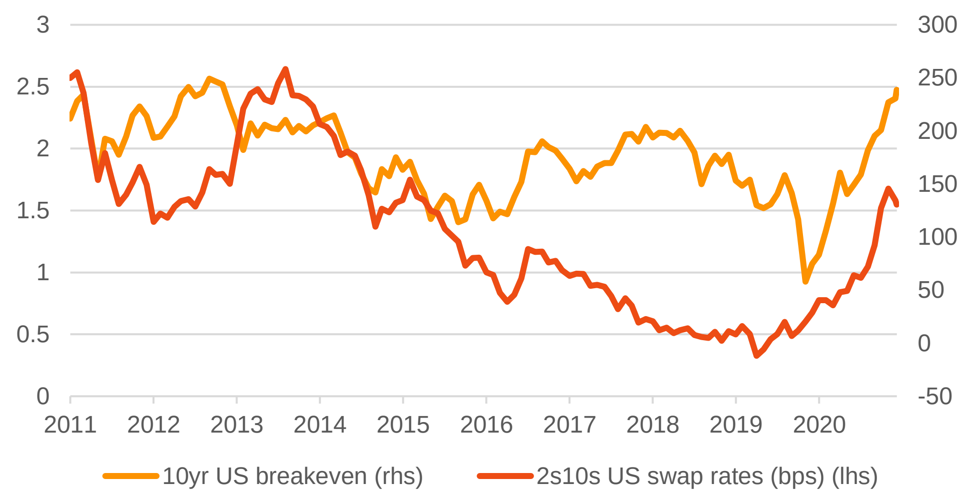
Inflation hedge	Return profile in rising inflation	Considerations
Buy a US 10y breakeven inflation swap. A breakeven inflation swap is a derivative in which a fixed rate payment on a notional amount is exchanged for a payment at the rate of inflation, providing the buyer of the swap with implicit inflation protection.	A breakeven inflation swaps can provide investors with inflation protection, as the swap returns are closely aligned with underlying inflation outcomes. Breakeven inflation rates have been rising with the broader recovery in risk assets, with inflation expectations rising faster than nominal yields leading to extremely low real yields.	The US inflation market is considerably more liquid than the Australian inflation market, providing an alternative implementation option for investors. While more liquid, US inflation swaps will create basis risk against Australian inflation expectations or outcomes.

Interest rate steepener

Long 2s10s swap curve steepener



Source: Frontier

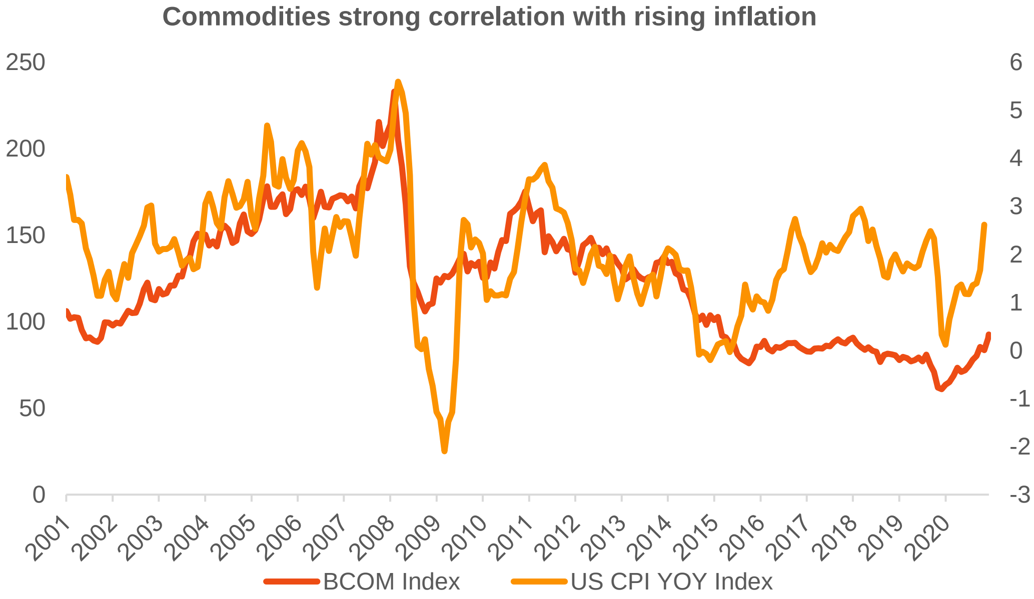


Source: Frontier

Inflation hedge	Return profile in rising inflation	Considerations
Enter a 2s10s interest rate steepener, where the investor receives 2yr yields and pays 10yr yields. Central banks have communicated that interest rates will remain low for several years, with the view that inflation needs to overshoot before there would be any reason to raise short term interest rates because of inflationary concerns.	With short term interest rates anchored by central bank monetary policy, interest rate curves have been steepening with the broader recovery in risk assets due to the positive rollout of vaccines and slowdown in new COVID-19 cases. As the market becomes more sensitive to higher inflation expectations, longer term yields have been rising higher than shorter term yields due to accommodative central bank policy.	This strategy has basis risk between inflation expectations and central bank policy. With central banks using yield curve control as a form of monetary policy, the demand of long end bonds remains strong and this could be a headwind towards longer end yields rising further from here without higher realised inflation. If central banks become less accommodative and begin to signal a change to monetary policy around short term interest rates (either yield curve control or increasing cash rates), the 2s10s yield curve could flatten considerably.

Commodity strategy

Long a basket of energy commodities via a derivative strategy



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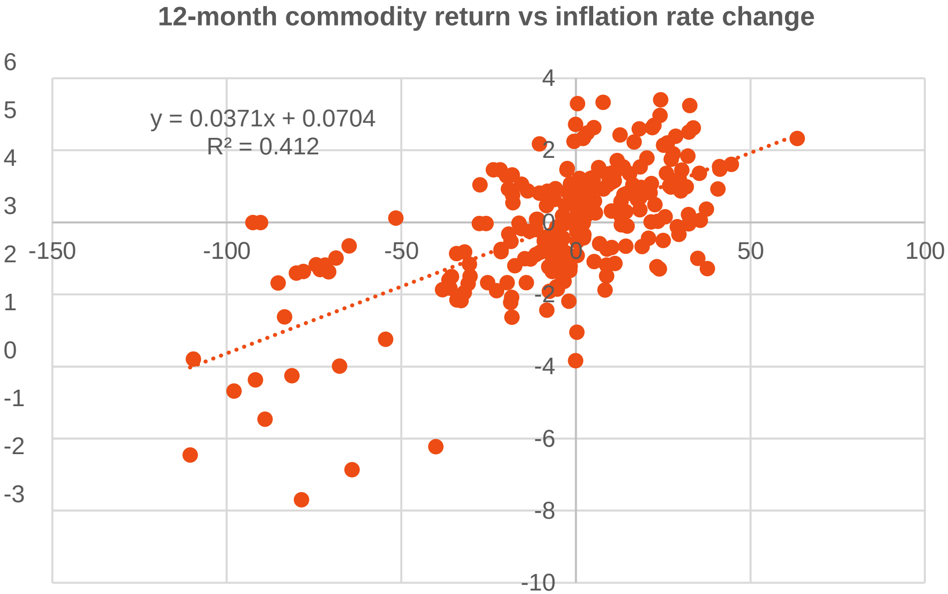

Source: Frontier, Bloomberg Commodity Index vs US CPI YoY

Inflation hedge	Return profile in rising inflation	Considerations
Buy a basket of energy commodities via a long-only derivative structure. Commodities can be a diversifier for equities and bonds during periods of higher inflation.	Energy commodities have a strong correlation with rising inflation environments outperforming during periods of higher inflation.	The strategy is positively exposed to rising energy prices. The strategy will have basis risk, however, with price movements between energy commodities and inflation potentially diverging over different time horizons. i.e., Certain commodities prices may be impacted by demand/supply factors, which may cause a divergence from the rate of inflation.

Alternatives and derivatives research team

Frontier has been advising clients on the use of options since 2014. We have advised defined contribution, defined benefit and insurance clients and have worked with various option implementation managers.

Frontier advises clients on a range of derivative issues including:

- overlay manager selection,
- strategy selection,
- structuring, and
- monetisation.

If you or your fund are interested in derivatives, particularly to manage risk, Frontier can assist. Please reach out to a consultant or to a member of the Alternatives and Derivatives Team.

Alternatives and Derivatives Team members:

Scott Pappas – Principal Consultant

James Bulfin – Senior Consultant

Joe Clark – Senior Consultant

Iain McMahon – Senior Consultant

Claire Casucci - Consultant

Donna Davis - Associate

Level 17, 130 Lonsdale Street
Melbourne, Victoria 3000
Tel: +61 3 8648 4300

frontieradvisors.com.au
@frontier_adv

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