How to Hedge in the Age of Trump

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Why Insure Something that Does Not Break?

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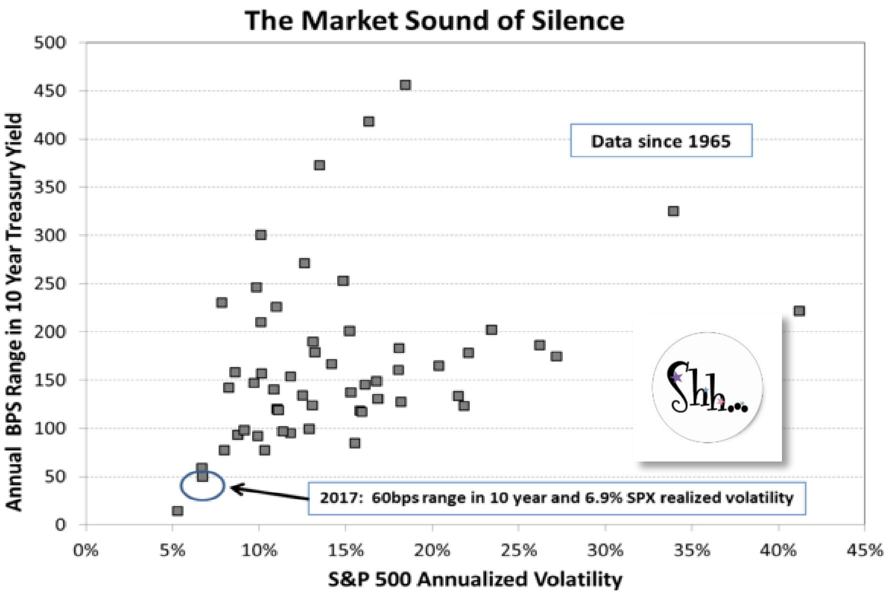
- In 2017, the realized volatility of the S&P 500 Index was the lowest in more than 53 years.
- But the average VIX in 2017 of 11.2 cleared the market at a tremendous premium to the actual experienced level of SPX volatility (6.8%) last year.
- Remarkably, the realized volatility of the SPX when just considering the down days in 2017 was 6.6%

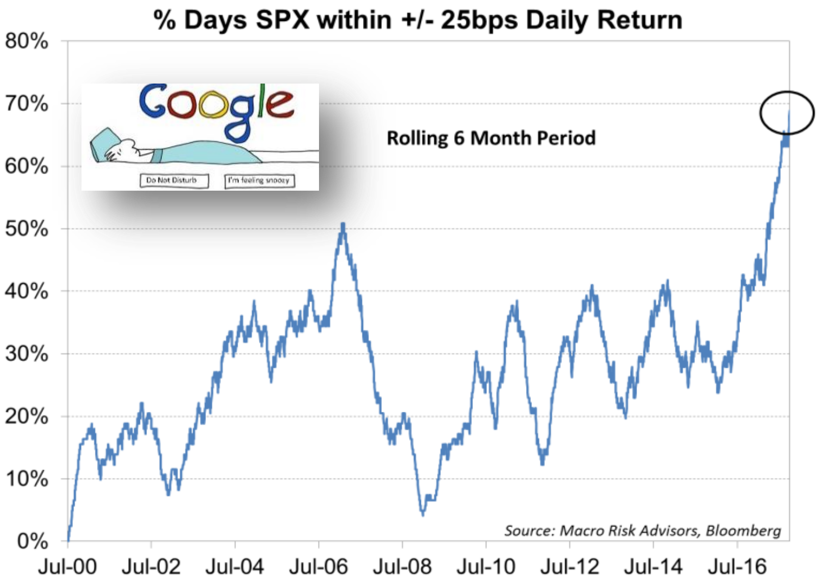
SPX Realized Vol	2017	2016	2015	2006	2005
Realized Vol	6.8%	13.1%	15.5%	10.0%	10.3%
Realized Vol Up days	6.9%	12.7%	15.6%	10.1%	9.7%
Realized Vol Down days	6.6%	13.5%	15.4%	9.9%	10.9%
Realized Vol Up-Down	0.4%	-0.7%	0.2%	0.2%	-1.2%
Realized Vol Up/Down	1.05	0.94	1.02	1.02	0.89
# days	250	251	251	250	251
# up days	143	131	119	140	141
# down days	107	121	133	111	111
Average VIX	11.1	15.8	16.7	12.8	12.8
% Premium Avg. VIX to Realized Vol	63.9%	20.8%	7.7%	27.6%	24.8%

Source: Macro Risk Advisors, Bloomberg

Because the Rent is Too (Damn) High…

- In the Treasury market, 10-year yields remained within a 60 basis-point range in 2017, the tightest since 1965.
- In combination, well behaved rates, equity prices and credit spreads were the basis for a bumper year in carry. The Sharpe Ratio on certain systematic short vol strategies was on the order of 5.





Transition from Low Vol…A Denominator Problem

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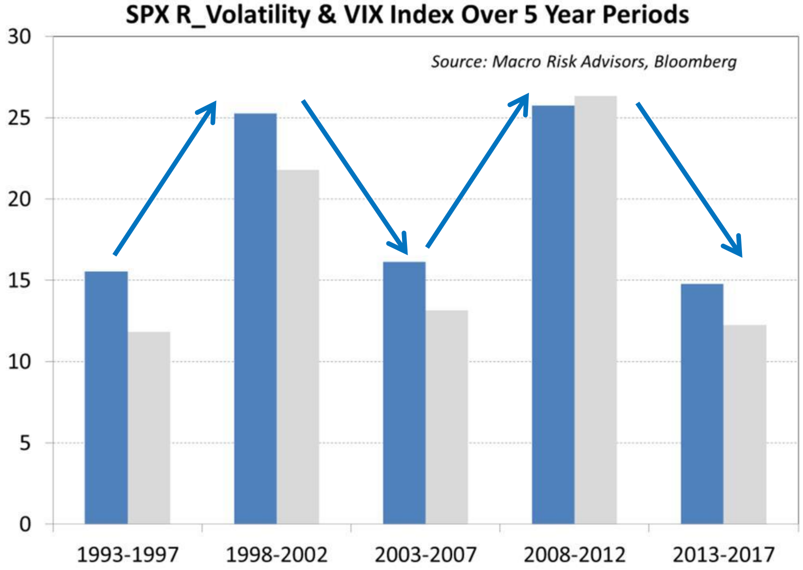
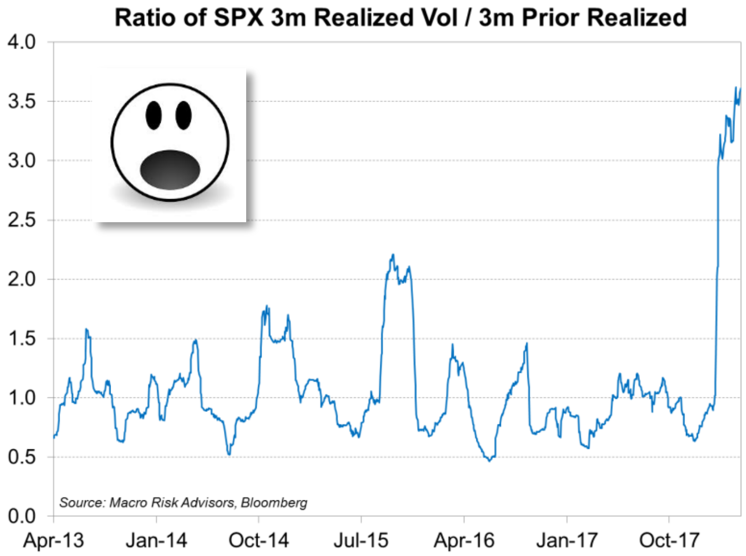
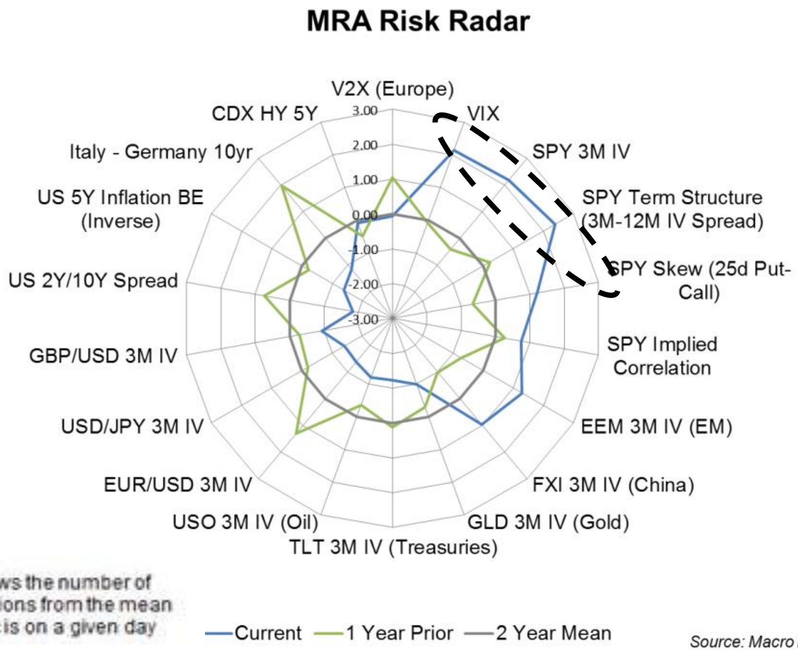
- Realized volatility in the S&P 500 Index was 20 percent last quarter, up from just 6 percent in the fourth quarter. That is a tremendous increase.
- Now, market participants are being forced to revisit the challenges that come when the regime governing risk is in flux, a process that has led to considerable disruption in past cycles.



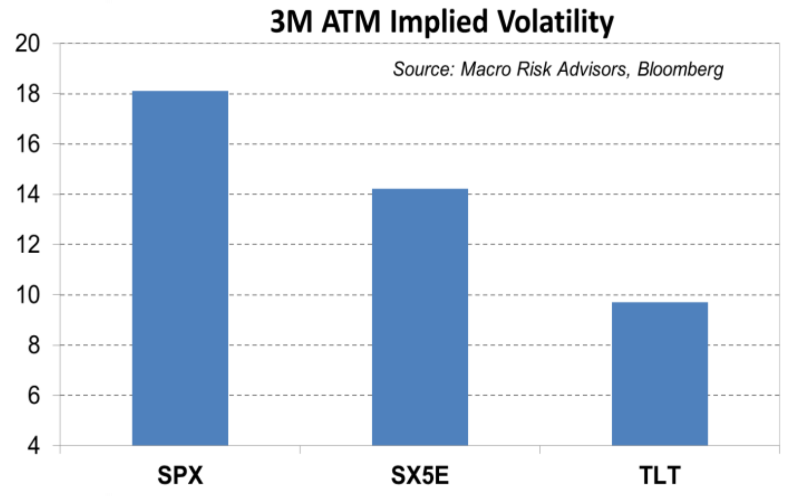


...And Now a US Centric Landscape of Risk

- There is considerably more volatility in US equities relative to cross-asset risk proxies.
- Relative to SPX implied volatility, metrics like credit spreads, rate vol, FX vol and gold vol are all low.



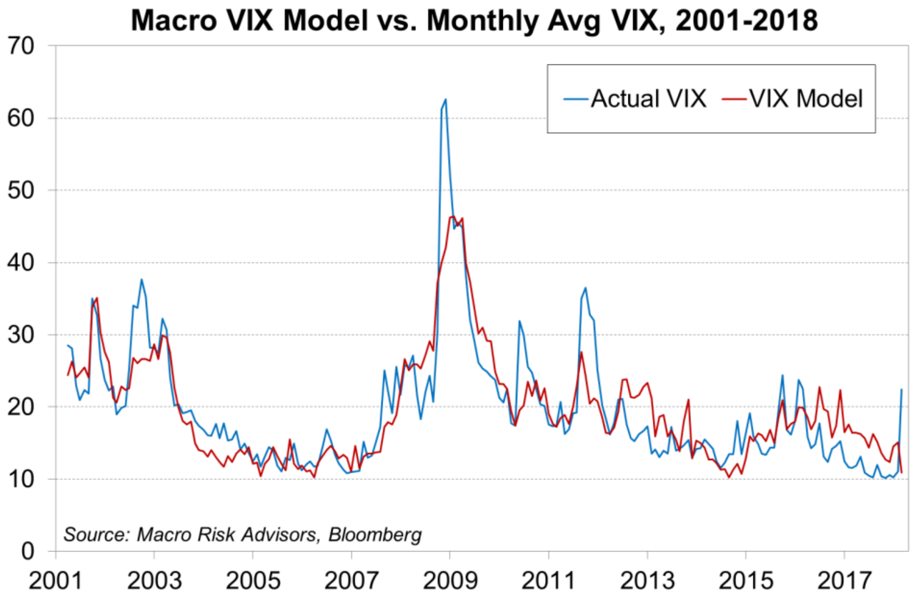
*This chart shows the number of standard deviations from the mean each risk metric is on a given day



Source: Macro Risk Advisors, Bloomberg

Macro Model Suggests Benign Volatility

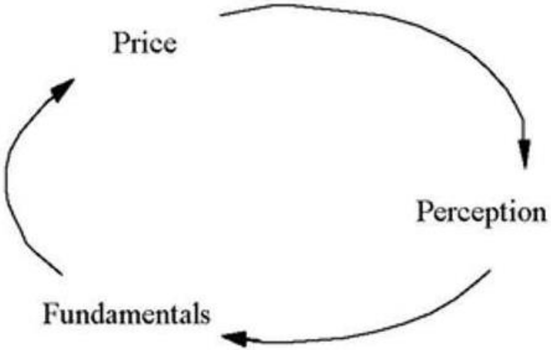
- Variables associated with business activity, corporate profits and uncertainty do a good job of fitting the VIX.
- These variables fail to explain the extent of volatility presently in the US equity market.



MRA Macro Volatility Model Inputs

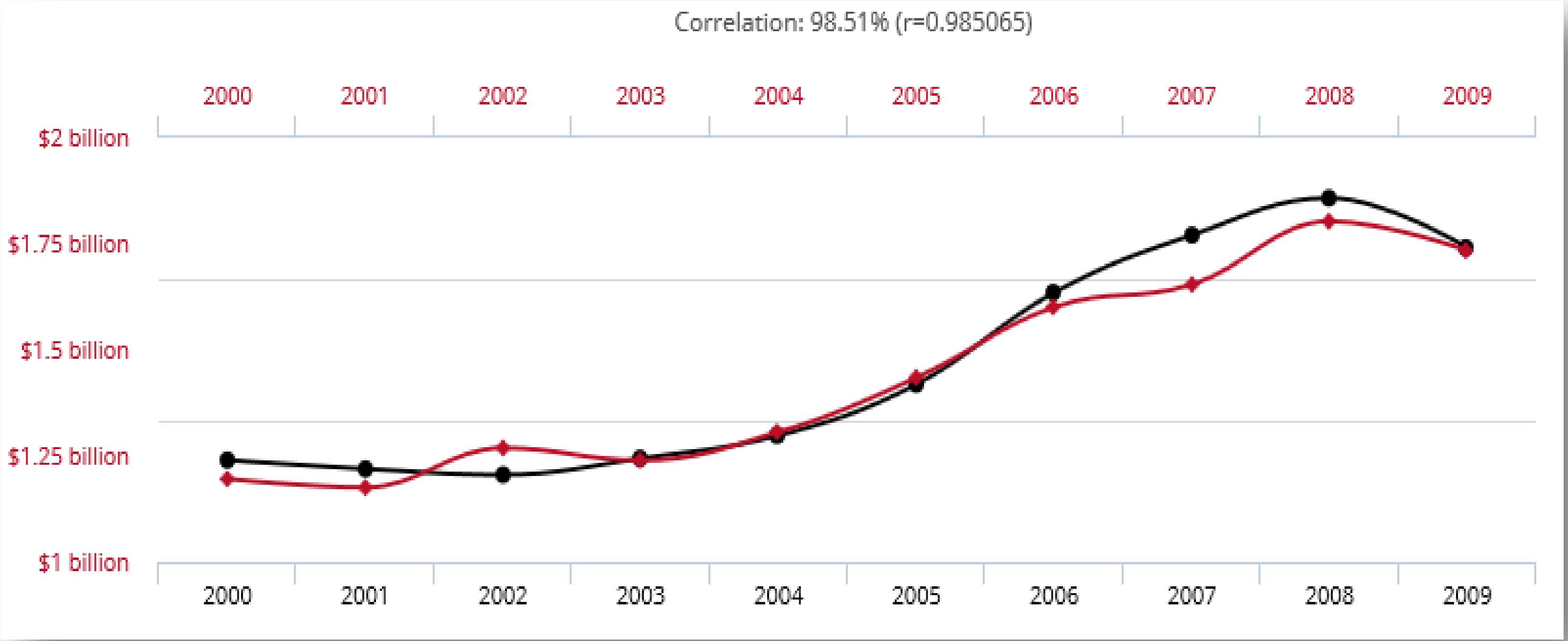
- **GS current activity indicator** –real-time GDP, essentially a composite of various economic data (PMI, new orders, etc.). High current activity ~ low vol
- **Economic surprise volatility** –measure the "surprise" of econ data relative to expectations. We find that the volatility of this index itself, rather than its direction, contributes to volatility.
- **Economic Policy Uncertainty index** – this tracks news coverage about monetary and fiscal policy uncertainty, economic forecast disagreement, and data on expiring tax provisions from the CBO. Higher EPU ~ higher market volatility.
- **Return on assets** – we use this as a measure of corporate performance. When companies are doing well, equity volatility is low, and vice versa.

But Risk Taking is Reflexive…



Through the lens of reflexivity, market prices are a call to action. Markets have been powered by a feedback loop in which rising asset prices, low volatility and return seeking capital, were enablers of one another. Expanding asset markets have been the result of capital being reinvested into a system in which carry trades have benefited from exceptionally low volatility. The feedback increases confidence and further promotes risk taking, generating more wealth in the process. An asset price centric assessment of risk acknowledges that this cycle bears important similarity to previous periods during which risk taking itself became a chief accelerant to the inevitable period of disruption that markets face.

A Brief Interlude on Correlation…



Found...The Perfect Fit!

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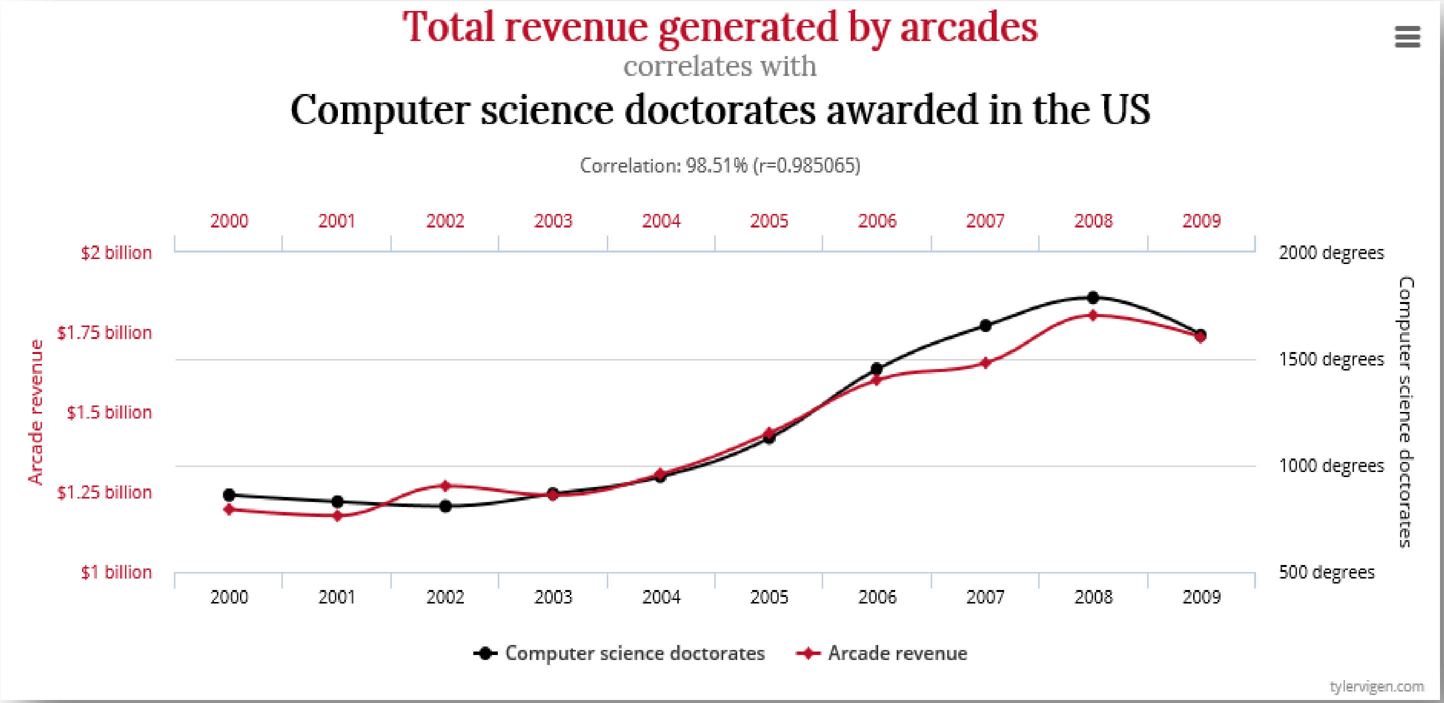

Market Malfunction Through the Years…

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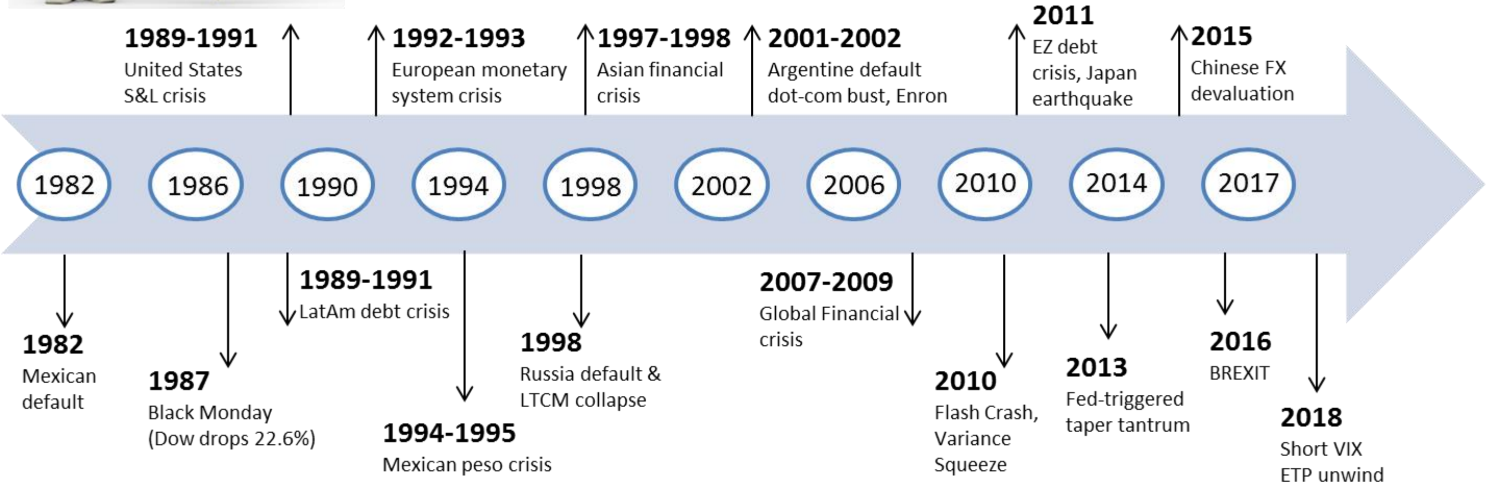
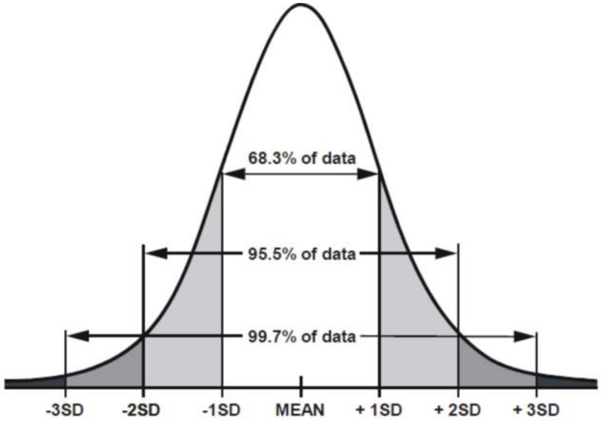
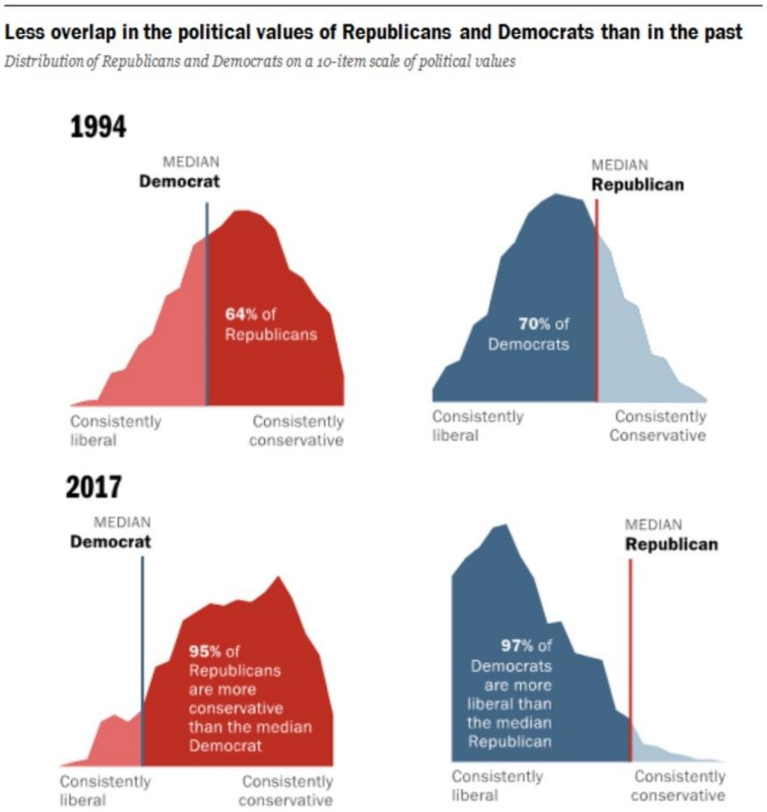


Asset Price Returns, Like Politics, are Not Normal

- In the statistical sense, "normally distributed" returns conform to the bell-curve, neatly defined by a mean and a standard deviation.
- In this construction, a two-standard-deviation event would be expected to occur roughly 5% of the time.
- A 3SD event would be expected to occur just 0.25% percent of the time. A 4SD event is incredibly rare, expected to occur just once every 60 years.
- The 5SD event? Once every 47,000 years.



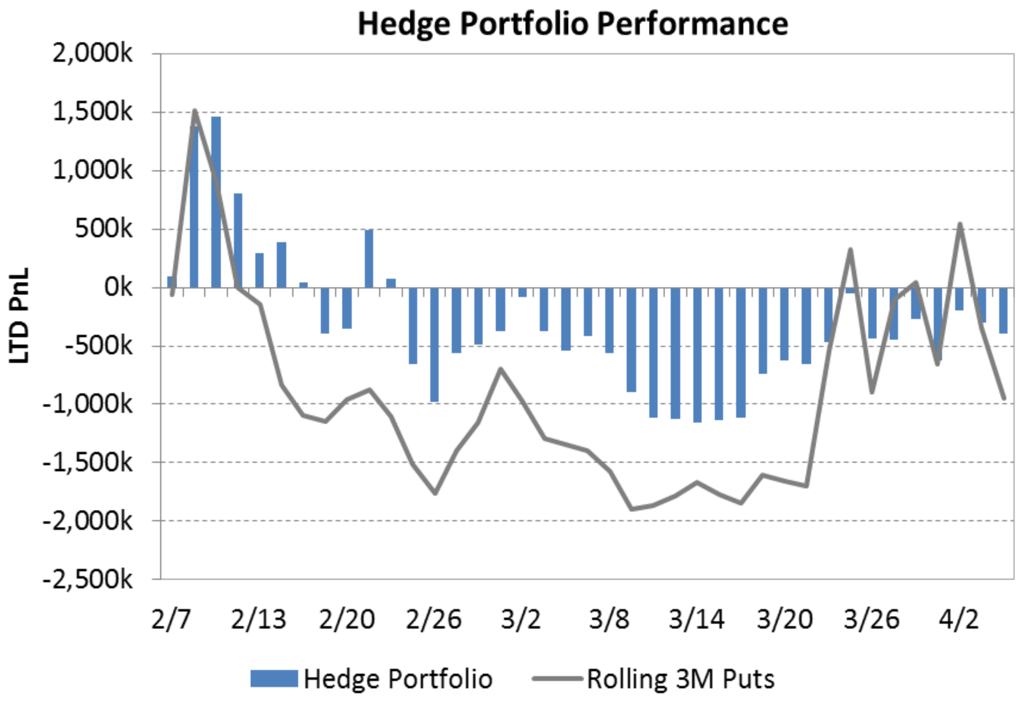


Cross Asset Convexity Hedges

Asset Class	Trade Structure	Expiration	Convexity	Basis Risk	Risk Themes and Trade Structure Details
Equity Barrier	SPX Down and Out Put (“RKO”)	3 Months	Low	Low	Gradual slide in SPX that results from a modest re-evaluation of corporates. Trade carries very well in a sideways, low realized volatility environment for the SPX.
Equity / FX Hybrid	SPX Put Contingent on Lower Euro	6 Months	High	Medium	Unanticipated move to the top left of the USD smile; stretched positioning driven by fickle capital long the Euro, traditional, pricing advantage driven by SPX / Euro correlation dynamics. Stronger USD tightens financial conditions.
Equity / Rates Hybrid	SPX Put Contingent on Higher Rates	6 Months	High	High	Taper tantrum risk scenario in which unwelcome inflation or change in Fed rhetoric/leadership imposes risk to market and both stock and bond prices both sell-off.
Credit	HY Credit Payer Swaption	2 Months	High	Low	Low level of implied vol in credit options along with vulnerability of credit to higher rates and better carry profile relative to SPX options in scenarios where stock prices rise.
Rates	Receiver Swaption on 2 Year Swaps	6 Months	High	Medium	Short positioning in 2 year note, coupled with low implied vol, positive carry via receiver and low swaption volatility make owning duration via optionality interesting for risk off.

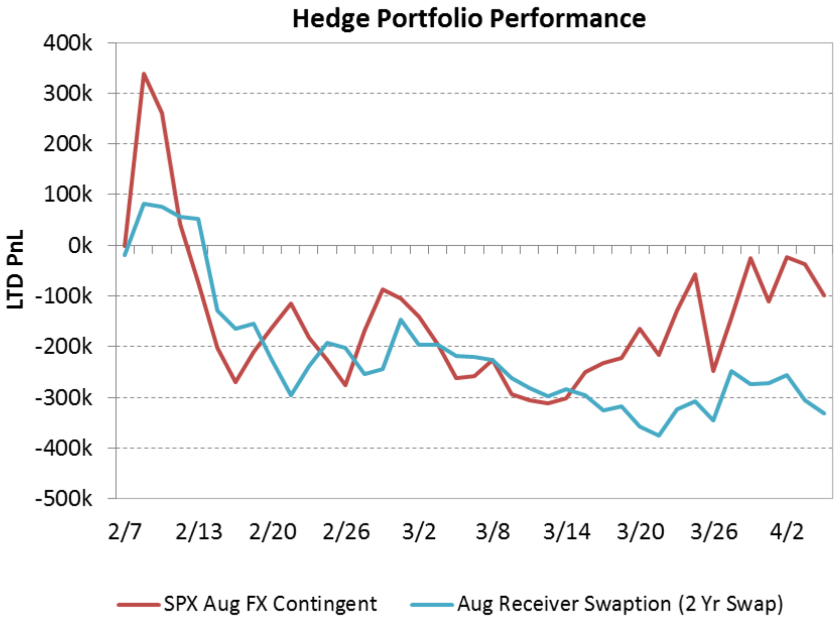
Cross-Asset Hedging Portfolio

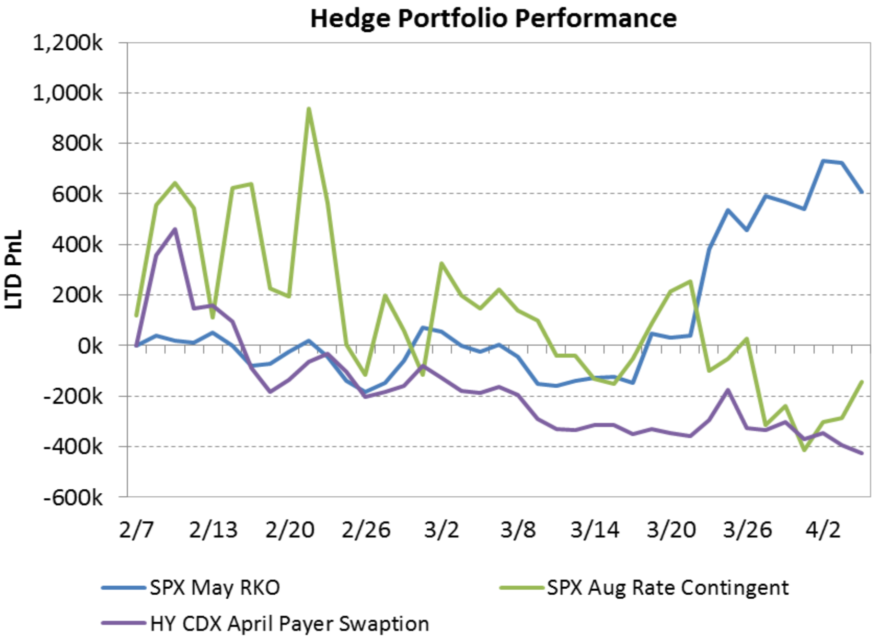
- Given the multitude of challenges in owning SPX downside puts as a hedge (vol shortfall, roll-down, strike skew and a market that only went up), developing a playbook of "proxy" hedges is important.
- Here, we assume basis risk in order to construct more efficient hedges by capitalizing on both macro research and the market pricing of vol and correlation surfaces.
- Right, we show the model-based performance of the proxy hedge portfolio versus a simple equivalent initial premium spend (of $2.5mln) in 3 month, 95% of spot puts in the SPY.



Side by Side on Cross-Asset Hedges

- By diversifying across asset classes and utilizing trade structure, a balanced hedging portfolio can be implemented.
- Below, the SPX down and out put compensates for losses elsewhere.





Equities are Short the Straddle on Rates

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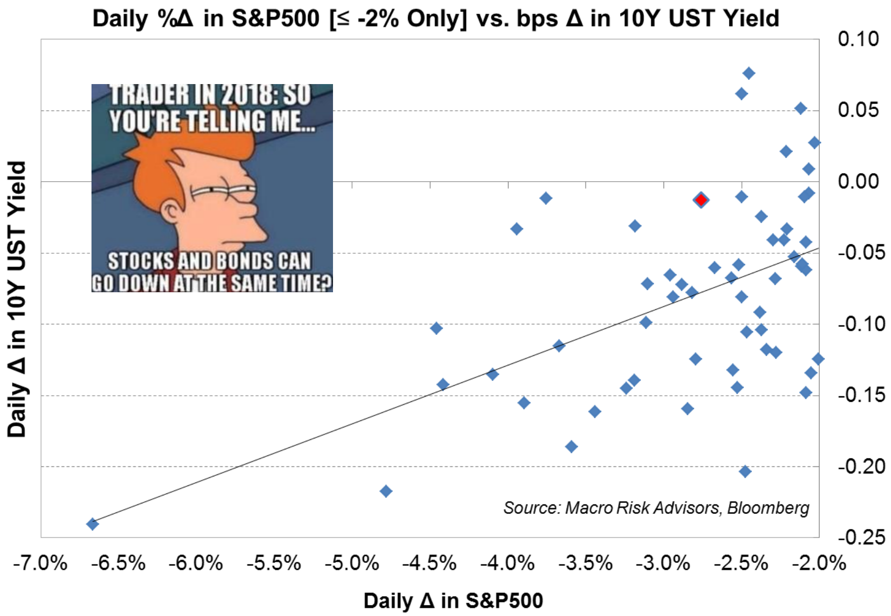
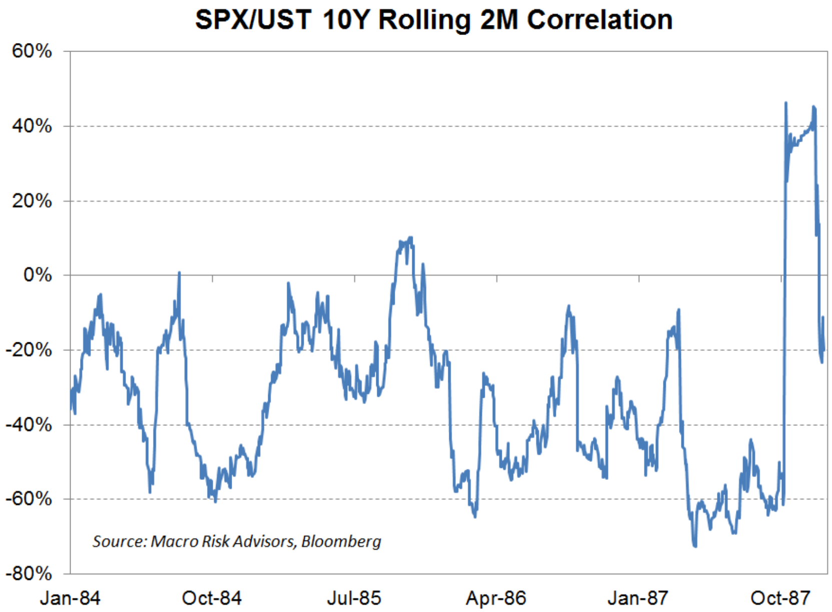
- Embedded in today's risk dynamic is the view that the Fed can guide the market along with an implicit promise that the path to normalization will be substantially gradual.
- Equity investors are "short the straddle on rates". If rates swiftly rise or fall, a negative outcome is likely for equity investors.





THANK YOU!