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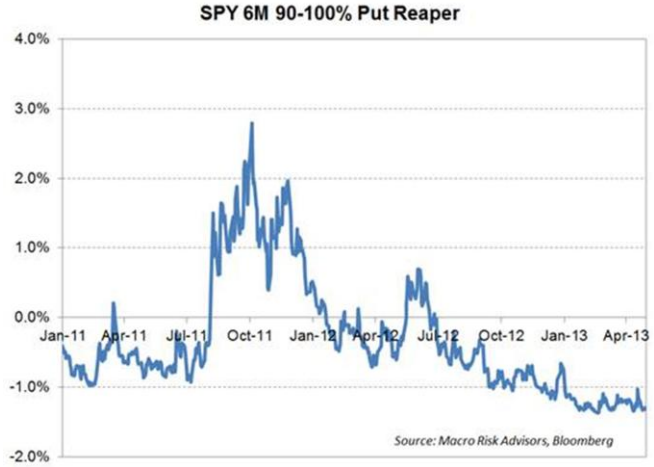
Remember 'Da Reaper!

Here's a chart we created yesterday to illustrate the rolling cost of our "put reaper" structure. Recall, this trade is short a near the money put and long 2x (or more) downside put combination. The trade provides a great deal of convexity on a down move, with minimal premium outlay. The reaper must be managed and should not be held too close to expiration. As both vol and skew have compressed, this structure has gotten as cheap as we have seen it.



- What does the macro landscape look like and where are the vulnerabilities most concentrated? What distortions are most significant given Central Bank policies?
- Given this, what do the various vol surfaces look like? What is the market giving you and where do you see inconsistencies?
- What trades do what you need them to do? (ie, strike and tenor selection) We are entirely focused on the mark to market behavior of trades especially as they are sensitive to the passage of time, the movement of spot and changes in vol inputs.

FX Volatility…Low and Reasonable Carry

- The Eurozone remains the biggest systemic risk out there. And yet 6 month euro vol remains in the 16th percentile for the past year. And the spread of implied to realized is less than 1 vol over. Skew in the euro has also flattened considerably.
- Aussie dollar vol is also interesting. Very leveraged consumer, lots of beta to China (we are skeptical in general on the rampant credit growth in China). 6 month implied vol in AUD of 8.3% towards the lows (25th percentile). Carry reasonable (1.4 vols over realized) and AUD behaves a great deal like the VIX (carry currencies tend to be very correlated with the VIX).

Equity Volatility…Believe it or not, not that bad (as we show above)

- Carry better than it's been in some time. 6 month implied to 6 month realized is 1.9 vols. This is in the 24th percentile of spreads observed over the past year.
- Skew also flatter – at 18 vol, the 90%, 6 mo put is in the 6th percentile over the past year.
- US equities have been a real beneficiary of the reflation story. If something on the risk horizon is disrupted, I think easy to argue that US equities – and US equity vol would react commensurately.

Sovereign "quality" spreads…Do Eurozone Fears Re-emerge?

- We have done a good deal of work on shorting French government bonds to buy Germany. This spread looks very much like a Eurozone VIX, having widened huge in 2011 and then come over the past 18 months.
- The deteriorating fiscal backdrop in France and Germany and a view that Europe is just taped together has us looking at this spread as a convex play to Eurozone fears re-emerging and the market again differentiating between France and Germany.

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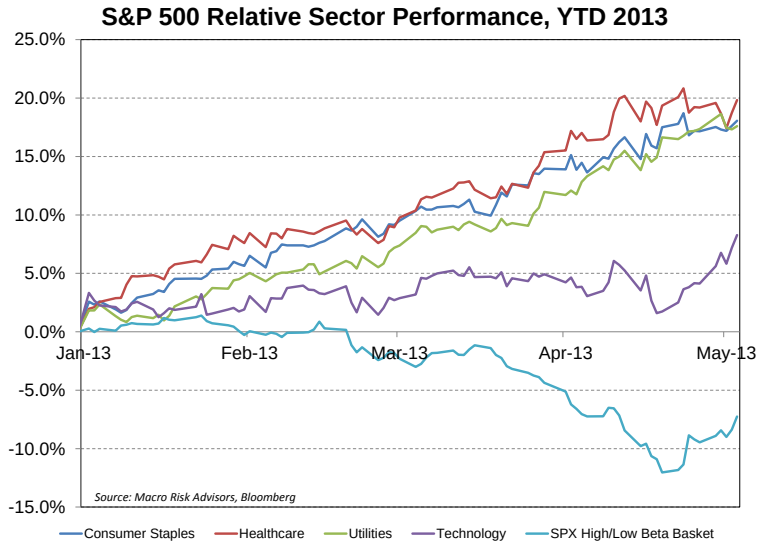
Playing Catch-Up

A question we've consistently fielded throughout the imposing rally YTD in US stocks goes something like, "where is the best place to play catch up?" or "what is the best way to hedge against underperformance in a protracted rally?" While some will point to the disconnect between EM and DM, or any of the several nasty commodity and raw material related price charts, and suggest that these areas "have to converge" with broader risk asset performance, we prefer to look to domestic sector dispersion for opportunity. And opportunity abounds in US tech.

Below is the performance of 3 of the top 4 performing sectors YTD – healthcare, staples, and utilities – as well as that of the tech sector (purple line). Tech is the second worst performer in the SPX, up "only" 7% and dramatically underperforming the broader index by 6% and the top 3 sectors by >10%. The fall of formerly-bullet-proof AAPL has obviously contributed to tech's underperformance, as AAPL represents a ~15% weight within the sector currently.



Further driving the underperformance of tech, however, has been the overwhelming bid to defensive and low beta stocks that we've witnessed over the past several weeks. The light blue line in the chart above plots the YTD performance of our custom index representing an equal-dollar-weighted basket which is long the high beta SPX sectors (energy, financials, industrials, tech, and materials) and short the low beta sectors (consumer staples, healthcare, utilities, consumer discretionary, and telecom). We can see that the trend in place going back to February reversed markedly the last two weeks, as tech, energy and materials led the move higher. Interestingly, we've heard from sources that the reversal wreaked havoc on some stat-arb models, likely exacerbating the move.

While this reversal could be an early sign of exuberant price action to come as investors grow increasingly comfortable owning higher beta and beaten-up "growth-ier" risk assets, we'd point out that any evidence supporting a strengthening of global economic data remains conspicuously absent. Chinese growth and demand for raw materials continues to abate, the Eurozone remains stuck in the mire, and inflation readings remain below target across most every major economy. As such, it doesn't yet seem obvious that investment dollars should start pouring into the pro-cyclical sectors.

Despite the lack of confidence in global growth, however, the market continues to make new highs. And should the natural reaction continue and investors grow emboldened, a migration out along the beta spectrum does seem likely. **In our view, tech sits in the sweet spot, ripe to benefit from rotation towards higher beta risk, while remaining relatively insulated from the disinflationary pressures of a dying commodity super-cycle.** Further, the tech sector offers a reasonably healthy dividend yield given the current environment for income (or lack thereof) – another attribute which has attracted capital to the low beta sectors (see current div yields and YTD changes below).

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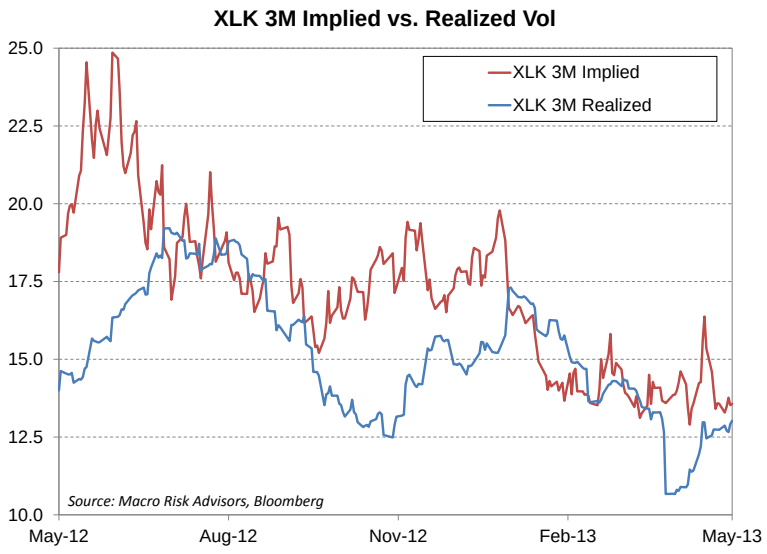
Dividend Yield (%) (past 12 months)			
Sector	**12/31/2012**	**Today**	**Change**
Consumer Staples	3.06	2.62	-0.44
Healthcare	2.01	1.70	-0.32
Utilities	4.14	3.54	-0.60
Tech	1.74	1.70	-0.04
S&P 500	2.24	2.05	-0.19

All considered, we like buying the XLK June 32 calls for 25 cents and/or the XLK Sept 32 calls for 64 cents, outright, referencing Friday's closing price of 31.21. See below for the spread between at the money implied and realized volatility in XLK. Given the circumstances described, XLK call options appear to offer an exceptional value proposition for those looking to play catch up or hedge against underperformance.



For those who wish to play the tech "catch-up" trade via cash ETF, you might consider buying XLK and selling a proportional share of VZ and T, in order to strip out the ~12% telecom weight.

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Theta Harvesting

With the VIX closing yesterday at 12.66 after dropping more than 5 points since mid-April, implied volatility is clearly on the lower end on the scale. That being said, realized volatility year to date is just 11.7 suggesting that even with VIX near the low end of the spectrum, it has still been lucrative to sell volatility as opposed to owning it. Volatility tends to pop when investors least expect it and can lull traders into a false sense of security. That is why when thinking of ways to collect carry, we try to consider ways to collect theta while being cognizant of potential risks.

Below is a screen of SPY Jun expiry 1 x 2 put spreads that are closest to even money (buying the higher strike and selling 2x the lower strike). Although volatility is near its lows, there is still a decent amount of skew in the market. We think these 1x2 shorter dated put spread trades are interesting as cheaper ways to play for a moderate pull back in the market as opposed to steep sell-offs. Consider the following trade highlighted in the table below.

Buy SPY Jun 156 puts and Sell 2x SPY Jun 151 puts, Pay ~8c

This trade initially has no delta, and collects theta, but as time and SPY rallies, grinds lower or stays flat, the trade gets shorter delta.

Strike1	Strike2	Debit (Credit)	Delta
159	155	(0.14)	6%
158	154	(0.11)	5%
157	152	0.09	-1%
156	**151**	**0.08**	**0%**
155	150	0.05	0%
154	149	0.02	0%
153	148	0.01	0%
152	147	-	0%
151	146	(0.03)	0%
150	145	(0.02)	0%

Source: Macro Risk Advisors, Bloomberg

This is by no means a tail hedge, but for those looking to play for a modest pull back, this is a very inexpensive structure. Those worried about the downside can fly it out for an extra 30c by buying the Jun 146 puts. The breakeven at expiry of this trade is 146.08 which is down about 10% from yesterday's close. To be clear, there is near-term mark-to-market risk if we get a large drop lower in the next few weeks, but with earnings basically over, the next ECB meeting June 6th, and the next FOMC June 18th, there seems to be an air pocket of few macro events and hence, theta accruing trades are sensible here.

Long calendar spreads, example: Buy XHB Jan'14 30 put, sell XHB Jun 30 put, Pay 1.42 vs. 31.17

In the table below we show the 6m-3m termstructure spreads of ETFs separated by large cap, sectors and sub-sectors, sorted by the 2-year percentile of the 6m-3m spread. When implied vol termstructures are relatively flat, calendars spreads become more attractive as potential carry trades. The trade involves selling the elevated shorter dated volatility, buying the longer dated with the same strike, and delta hedging with stock. The XHB trade we suggested is initially short gamma, collects theta, and is net long vega. If XHB realized volatility remains muted from now till June expiry and XHB stock remains in a narrow range around the 30 strike, this trade will carry well.

Ticker	60D Realized Vol	60D RV / 3M ATM Vol	3M ATM Vol	3M ATM Vol %-ile	6M-3M 50D Term Structure Spread	Term Structure %-ile (2Y)	6M-3M 50D Term Structure (Normalized)	Term Structure %-ile (2Y)
IWM	17.5	1.04	16.8	8%	0.57	29%	0.03	35%
QQQ	13.8	0.97	14.2	3%	0.95	31%	0.07	47%
SPY	12.4	1.01	12.3	2%	1.08	34%	0.09	57%
DIA	10.0	0.90	11.2	2%	1.07	37%	0.09	61%
XLP	11.2	1.02	11.0	21%	0.29	13%	0.03	15%
XLU	10.0	0.92	10.9	23%	0.62	14%	0.05	19%
XLV	12.4	0.98	12.6	16%	0.36	15%	0.03	20%
XLK	13.1	0.98	13.4	1%	0.93	29%	0.07	47%
XLF	15.6	1.01	15.4	2%	0.77	40%	0.05	54%
XLI	14.7	1.04	14.2	3%	1.13	44%	0.08	66%
XLY	13.7	1.00	13.7	4%	1.16	44%	0.08	65%
XLE	18.3	1.11	16.4	6%	1.16	54%	0.07	67%
XLB	18.4	1.12	16.4	7%	1.19	57%	0.07	70%
XHB	26.2	1.16	22.6	8%	0.27	34%	0.01	37%
IYR	11.8	1.01	11.7	10%	1.21	39%	0.10	65%
XRT	17.0	0.96	17.7	13%	1.02	48%	0.06	57%

Source: Macro Risk Advisors, Bloomberg

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Volatility Floor

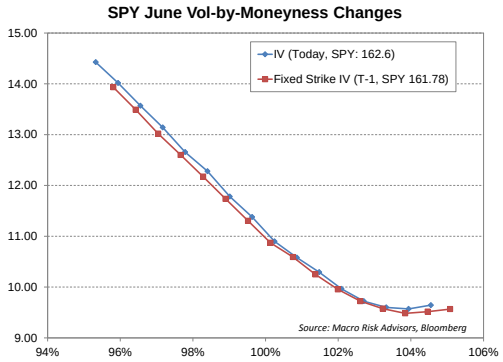
We have been observing an interesting dynamic in the volatility market over the past week. The market is moving higher, but fixed strike implied volatility remains unchanged or actually rallies. Typically, as spot rallies, we would expect at-the-money implied to "roll up the skew curve" (or even underperform). For example, when we rally from 1600 to 1625, typically at-the-money vol is lower, reflecting the lower vol of the 1625 strike. This has not been the case of late.

The table below compares the fix strike volatility across SPY June options. As opposed to vols following the skew curve, in this case, the curve actually shifted higher. We think there are several reasons for this:

1. Volatility is already quite low on an absolute level.
2. Investors are reaching for upside calls to get long exposure.
3. At-the-money volatility was basically unchanged from yesterday. SPX went up a strike and instead of following the skew curve; the fixed strike vols increased making the at-the-money volatility flat. See Chart below highlighting the June Vol-by-Moneyness changes.
4. Realized volatility over the last month is 15, June at-the-money implieds are 11. Gamma has been paying off.

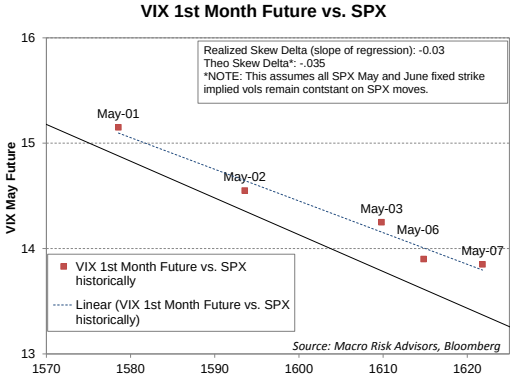
Expiration	Strike	IV (Today)	Fixed Strike IV (T-1)	Fixed Strike 1d change
6/22/2013	155.00	14.43	13.93	0.49
6/22/2013	156.00	14.02	13.49	0.53
6/22/2013	157.00	13.57	13.02	0.55
6/22/2013	158.00	13.14	12.60	0.54
6/22/2013	159.00	12.66	12.17	0.48
6/22/2013	160.00	12.28	11.74	0.55
6/22/2013	161.00	11.78	11.30	0.48
6/22/2013	162.00	11.38	10.87	0.51
6/22/2013	163.00	10.90	10.59	0.31
6/22/2013	164.00	10.58	10.25	0.33
6/22/2013	165.00	10.29	9.95	0.34
6/22/2013	166.00	9.96	9.72	0.24
6/22/2013	167.00	9.72	9.58	0.15
6/22/2013	168.00	9.60	9.48	0.12
6/22/2013	169.00	9.57	9.52	0.05
6/22/2013	170.00	9.64	9.57	0.08

Source: Macro Risk Advisors, Bloomberg



This dynamic points to the potential benefits from owning gamma. If the market is not marking down volatility on up days, investors can be more confident reaching for gamma that has been carrying better lately. Yesterday we had buyers of IWM June 97 calls, neutral, to take advantage of this trend.

The last chart shows a scatter plot of VIX May future closing prices vs. the SPX spot closing prices. We regress the points over the past week and find that over the past week the VIX future has lost ~3c for every point the SPX has risen. The black line below shows the slope of the theoretical skew delta of the VIX May future assuming all SPX fixed strike implied vols remain constant as the SPX moves around and estimate that the VIX May future would lose ~3.5c for every point the SPX rises. Typically the regression line between VIX futures and SPX is steeper than the theo skew delta because of the "normal" stocks up/fixed vol down relationship, but for the past week strong fixed vols have muted moves down in VIX May futures. If this trend continues VIX May futures will continue to be "sticky" to the downside.



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There tends to be a correlation among sectors when it comes to volatility. There is a tendency for volatility to increase across all sectors during macro events as investors sell stocks indiscriminately. Clearly, higher beta sectors are more susceptible to larger sell-offs and thus higher volatility moves and that can create interesting opportunities for pairs trades.

Currently we are seeing the opposite phenomenon, volatility is low everywhere and volatility pairs trades have compressed amongst risk assets. Low beta sector ETFs like XLP and XLV trade at a very tiny discount to much higher beta sectors like XLF, XLI, and EFA. This decline in volatility creates ways to layer on long volatility positions while avoiding a large of amount of costly theta.

One trade to consider is the following:
Buy XLF Sep 19/20 strangle for 1.06 (ref 19.31) on an 11 delta
Sell XLP Sept 40/42 strangle at 1.43 (ref 41.29) neutral on its own

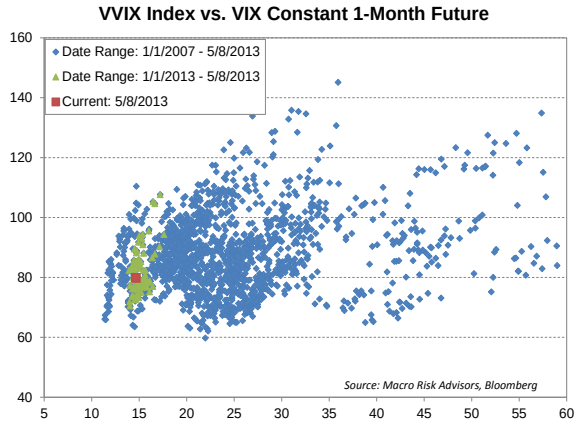
The spread can be put on for about a 4 vol debit (XLF over XLP) and there should be 2x as many XLF strangles bought as XLP strangles sold to keep the trade vega neutral. In the last two years the lowest the 3m realized spread is 1.9 (XLF over XLP) and the average realized spread is 11.8. We think this risk reward sets up quite well here and investors could also consider selling XLP upside to buy XLF upside outright as an outperformance trade.

ETF 3M Implied Vol Spreads

Source: Macro Risk Advisors, Bloomberg — current — 1m ago — Median

3m Implied Vol Pairs	Spread	Current Spread %-ile	1m ago	min	max
XLF 3M IV / SPY 3M IV	2.16	0.0%	12.7%	2.2	22.7
XLF 3M IV / XLY 3M IV	0.83	0.0%	10.1%	0.8	15.1
EFA 3M IV / XLY 3M IV	-0.73	0.3%	21.0%	-0.9	8.3
XLF 3M IV / XLV 3M IV	2.33	0.3%	2.7%	2.0	25.1
XLF 3M IV / XRT 3M IV	-2.99	0.3%	13.9%	-3.1	13.6
EFA 3M IV / SPY 3M IV	0.60	0.5%	23.0%	-0.1	11.2
XLI 3M IV / XLV 3M IV	1.75	0.9%	2.5%	1.3	13.4
XLF 3M IV / XLP 3M IV	4.23	0.9%	1.9%	3.4	31.3
EFA 3M IV / XLV 3M IV	0.77	1.7%	5.3%	0.2	16.3
XLK 3M IV / XLV 3M IV	1.00	1.9%	2.5%	0.0	7.5
EFA 3M IV / XRT 3M IV	-4.54	1.9%	23.4%	-6.9	3.2
XLI 3M IV / XLP 3M IV	3.65	2.1%	1.3%	2.7	19.3
EFA 3M IV / XLP 3M IV	2.67	2.1%	3.7%	1.6	22.3
EEM 3M IV / XLB 3M IV	-0.97	2.1%	5.7%	-1.5	10.1

In the next chart we update the scatter plot of the VVIX index vs. the constant 1-month VIX future. As a reminder, the VVIX index is a VIX calculation on VIX options, so it represents the constant 30-day implied vol of VIX futures. We use a scatter plot vs. the constant 1m VIX future as a visual normalization because VVIX and VIX futures are very positively correlated due to the steep and inverse skew of VIX options (put implieds are lower than call implieds). We highlight this year's moves in green and show the current level in red, which is actually in the middle of the vertical slice of points. This means although the VIX implieds have fallen dramatically, when compared to the VIX futures levels the VIX implieds are still at median levels compared to 2013 and for the past six years.



RISK MEASURES

Min / Median / Max (last 2 Years)

(Source: Macro Risk Advisors, Bloomberg) — 1m ago — current level — Median

US Equities	Close	5d chg	1m chg	6m chg	Min	Max	%-tile
VIX Index	12.66	-1.8	-0.2	-5.8	11.3	48.0	3%
SPX 3m IV	12.3	-0.9	0.2	-3.6	11.7	36.7	4%
SPX 12m IV	15.2	-0.4	-0.5	-3.6	14.8	32.7	2%
SPX 3m skew (25d p-c)	3.9	-0.8	-0.5	-1.4	3.9	13.0	0%
CSFB Index (3m skew)	27.4	-4.6	-6.4	-1.5	17.5	35.2	60%
VIX 3rd - 1st fut spread	2.0	0.4	-0.4	-0.2	-8.3	7.7	33%
VIX - 20d SPX realized	-2.5	-1.8	-6.3	-8.8	-19.8	14.8	6%
VIX 25d Call 3m IV	88.0	-3.0	-3.2	-2.1	81.9	100.7	28%
Sector Volatility							
NDX 3m IV (Nasdaq)	13.9	-0.7	0.0	-3.9	13.3	38.5	3%
IWM 3m IV (Russell)	17.2	-1.3	0.3	-2.6	14.9	48.8	11%
XLF 3m IV (Financials)	14.8	-1.4	-0.7	-5.7	14.8	56.1	0%
XLE 3m IV (Energy)	17.0	-0.6	0.7	-4.0	15.3	49.8	9%
XLY 3m IV (Cons Disc)	14.0	-0.4	0.3	-3.2	12.9	41.1	7%
SX7E 3m IV (Eur. Financ.)	27.2	-1.9	-7.4	-5.8	24.2	76.9	7%
International Equities							
V2X Index (Europe)	17.4	-2.9	-4.1	-3.9	14.9	53.5	8%
EFA 3m IV (World)	13.3	-0.7	-1.7	-6.6	13.0	46.8	0%
EEM 3m IV (EM)	15.9	-0.8	0.4	-5.5	14.3	52.9	5%
FXI 3m IV (China)	19.8	-0.7	-0.5	-2.5	19.0	52.7	6%
EWZ 3m IV (Brazil)	17.5	-0.5	0.4	-6.0	16.6	53.7	4%
EWJ 3m IV (Japan)	18.7	0.4	0.1	1.7	14.5	31.1	58%
Equity Correlation							
SPX top 50 3m R-Corr	35.2	-1.5	7.3	1.2	26.1	92.7	11%
SPX top 50 3m I-Corr	42.9	-6.9	3.4	-10.6	38.5	90.0	2%
XLF 3m R-Corr	53.8	2.8	11.3	8.1	38.0	83.0	47%
XLE 3m R-Corr	54.8	8.3	14.1	5.1	36.4	121.4	43%
Commodities	**Close**	**5d chg**	**1m chg**	**6m chg**	**Min**	**Max**	**%-tile**
GLD 3m IV	17.4	-1.2	4.6	1.9	12.0	34.1	45%
GLD 3m skew (25d p-c)	3.2	0.2	2.3	3.3	-3.9	3.7	99%
WTI Brent 1st Fut (Price)	96.6	5.6	2.4	11.0	75.7	109.8	64%
USO 3m IV (WTI Crude)	21.1	-2.5	1.7	-10.7	17.6	52.6	6%
FX Volatility	**Close**	**5d chg**	**1m chg**	**6m chg**	**Min**	**Max**	**%-tile**
EUR 1m IV	7.5	-0.5	-0.5	-0.1	6.7	17.7	7%
EURJPY 1m IV	13.5	-0.6	-1.6	3.3	9.4	20.3	58%
GBP 1m IV	6.7	0.1	-0.4	1.0	4.5	13.3	23%
JPY 1m IV	11.7	0.0	-1.7	5.0	6.3	14.3	85%
EUR 1m 25d RR	-0.9	-0.0	-0.2	-0.4	0.1	-4.2	37%
EURJPY 1m 25d RR	-0.7	-0.1	-0.3	0.1	0.4	-6.2	26%
GBP 1m 25d RR	-0.7	-0.0	0.1	-0.3	-0.1	-2.5	43%
JPY 1m 25d RR	0.6	0.3	0.1	0.2	1.0	-2.2	19%
CDS Spreads	**Close**	**5d chg**	**1m chg**	**6m chg**	**Min**	**Max**	**%-tile**
CDX IG 5Y	69	-9	-16	-37	69	151	0%
CDX HY 5Y	337	-37	-76	-215	337	881	0%
ITRX EUR 5Y	91	-9	-23	-40	90	208	0%
SOVX West Europe 5Y	89	-6	-15	-19	89	386	0%
SOVX EM 5Y	231	-3	-5	-7	192	389	28%
ITRX Snr Financials 5Y	133	-14	-36	-49	123	355	3%
Rates	**Close**	**5d chg**	**1m chg**	**6m chg**	**Min**	**Max**	**%-tile**
US 2-10y	1.55	0.1	0.0	0.2	1.2	2.7	37%
Germany 2-10y	1.26	0.1	0.0	-0.1	1.2	1.9	6%
Japan 2-10y	0.48	0.0	0.1	-0.2	0.4	1.0	5%
UK 2-10y	1.49	0.0	-0.0	0.0	1.3	2.6	18%
MOVE Index (30d IV)	49.3	0.3	-3.4	-23.0	49	118	1%
Funding Spreads (bps)							
LIBOR - OIS spread	15.3	-0.7	0.4	-1.2	11	50	21%
EURIBOR-EONIA spread	12.4	-1.1	-0.2	0.0	8	105	13%
EURUSD 3m basis swap	-15.3	2.8	1.1	12.7	-12	-158	2%
Breakeven Inflation							
US 5Y Inflation BE	2.06	0.1	-0.1	0.1	2.4	1.4	34%
Japan 5Y Inflation BE	1.62	0.0	0.2	1.0	1.6	-0.7	0%
UK 5Y Inflation BE	2.92	0.0	-0.3	0.8	3.3	2.0	11%
10yr Bond Spreads (%)							
France - Germany 10yr	0.55	0.0	0.0	-0.2	0.3	1.9	8%
Italy - Germany 10yr	2.56	-0.1	-0.5	-1.1	1.6	5.5	6%
Spain - Germany 10yr	2.82	-0.1	-0.6	-1.7	2.2	6.3	7%

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