

Flatteners v2.0

Addressing the poor performance of flatteners in moderate widenings

- **We still like flatteners** – On the back of our bullish view we expect investors to extend maturities and push curves flatter. Curves remain very steep, especially in iTraxx indices, and we see plenty of flattening potential if we tighten.
- **But they haven't worked in moderate widenings** – This is what happened in August. Curves should continue being fairly directional for small spread moves (flatter if we tighten, steeper if we widen); we expect large flattening mostly for large tightenings or widenings.
- **How to make flatteners that don't suffer in moderate widenings?** Overlaying an "outright" flattener with another trade should do well in that scenario: (i) a short risk synthetic index vs. long risk cash bonds or (ii) a payer 1x2.
- **Finally, we also like overlaying flatteners with our preferred index relative value trades: long risk Senior Financials vs. Main or Crossover.**

Abel Elizalde

+44-20-3569-4446
abel.elizalde@citi.com

Aritra Banerjee

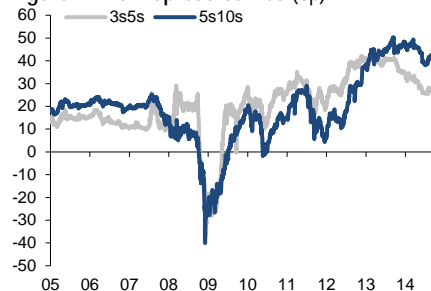
+44-20-3569-4544
aritra2.banerjee@citi.com

See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

Citi Research is a division of Citigroup Global Markets Inc. (the "Firm"), which does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the Firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. Certain products (not inconsistent with the author's published research) are available only on Citi's portals.

Latest strategy presentation: [How sticky is the money in credit?](#), H. Lorenzen

Figure 1. Main spread curves (bp)



Source: Citi Research, Markit. In bp.

Still like flatteners

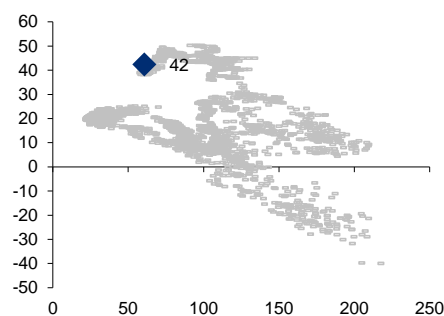
We are fundamentally bullish in the medium term and we expect investors to continue taking additional risk. In the derivatives space, that “additional” risk is likely to come via levered longs (both via indices and tranches) as well as via maturity extension. As investors extend maturities to add extra spread, we expect synthetic curves to flatten.

Not only do we like flatteners from a fundamental point of view, but also from a technical one given how steep curves are from an historical point of view – see Figure 1, Figure 2 and Figure 3. Moreover, the actual entry point for index flatteners looks very attractive as index curves have steepened vs. their theoretical (i.e. single name CDS implied) curves – see Figure 4.

In a report earlier this year we argued that [5s10s flatteners were more attractive than 3s5s](#). We still hold that view as we believe that the maturity extension trend we expect to see will benefit more 7-10y tenors. Moreover, the upside of 5s10s flatteners, from a historical point of view, is still much higher than that of 3s5s. But in any case, we expect curves to either flatten or steepen together. 3s5s flatteners have attracted more attention than 5s10s because their time value (carry + roll down) is positive (vs. slightly negative for 5s10s flatteners).

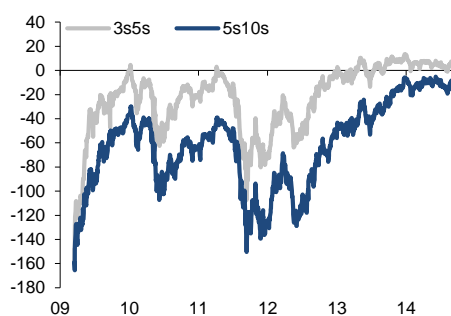
We like both duration-weighted flatteners as well as equal notional flatteners (i.e. selling forward protection); depending on how much directional risk one wants to take.

Figure 2. Main 5s10s vs. 5y spread (bp)



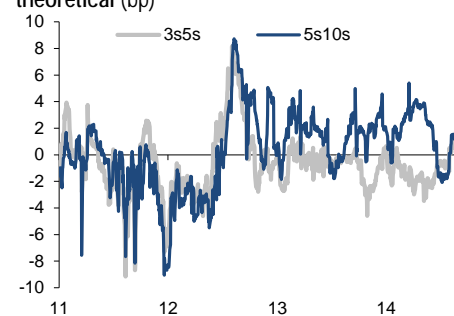
Source: Citi Research, Markit.

Figure 3. Carry in Main flatteners



Source: Citi Research, Markit. Annual carry, in cents of the long dated leg notional, of a duration-weighted flattener.

Figure 4. Main spread curves – traded minus theoretical (bp)

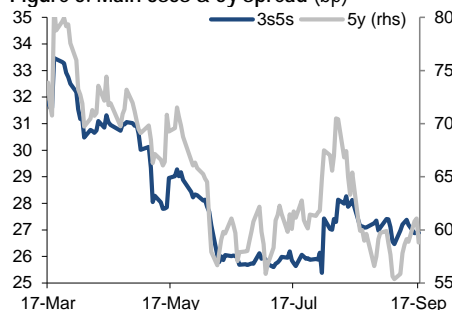


Source: Citi Research, Markit. In bp. Positive: traded steeper than theoretical. Negative: traded flatter than theoretical.

However, they don't work well in moderate widenings

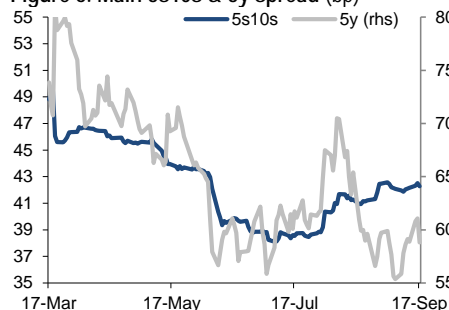
The main pushback we get when we recommend flatteners is their poor expected performance in moderate widenings. We believe that in the near term curves will be very market directional: we have argued that in a risk-on mode investors will extend maturities and flatten curves; the opposite should be expected in a moderate widening – and this is exactly what happened during the widening of the first half of August as Figure 5, Figure 6 and Figure 7 show.

Figure 5. Main 3s5s & 5y spread (bp)



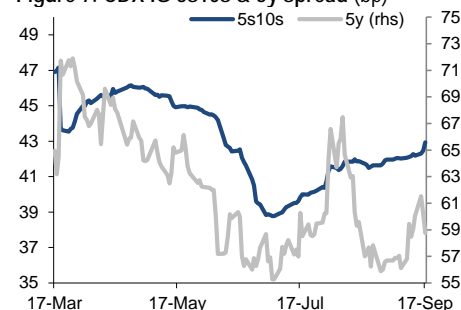
Source: Citi Research, Markit.

Figure 6. Main 5s10s & 5y spread (bp)



Source: Citi Research, Markit.

Figure 7. CDX IG 5s10s & 5y spread (bp)



Source: Citi Research, Markit. Annual carry, in cents of the long dated leg notional, of a duration-weighted flattener.

We are not worried about the performance of flatteners in extreme widenings as we think curves will at that point invert on the back of investors hedging default risk with short dated tenors.

What's the best way to address investors' concerns about the likely underperformance of flatteners in moderate widenings?

In the next section we suggest a few ways of constructing duration-weighted flatteners such that they perform better than "outright" flatteners in moderate widenings:

- The first way of doing this is by overlaying an "outright" flattener with another trade which should do well in a moderate widening: **a short risk synthetic index vs. long risk cash bonds trade**.
- The second way is to overlay a flattener with a **payer 1x2**: this should provide protection in a moderate widening (at the expense of reducing the trade P&L in a large widening).
- Finally, we overlay flatteners with our preferred **index relative value trades**: long risk Senior Financials vs. Main or Crossover.

Our recommendations below are outlined on duration-weighted 5s10s curves, which generally generate a small negative carry + roll down. Investors can mitigate that by reducing the notional on the short dated short risk leg (as [we've argued before](#)) or by using 3s5s duration-weighted flatteners.

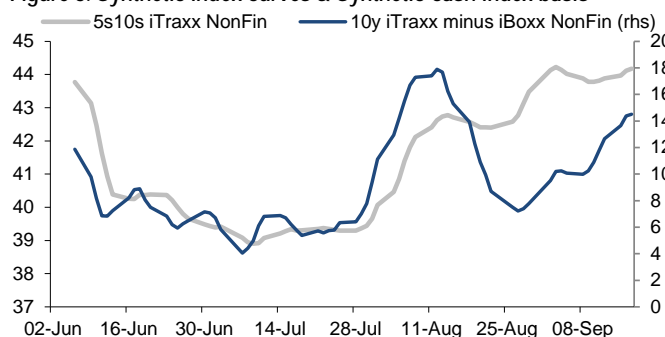
Trade 1: Short risk short dated synthetic vs. long risk long dated cash bonds

Moderate widenings, the weak spot of curve flatteners, tend to be accompanied by CDS indices underperforming single name CDS (i.e. index skew becoming more positive / less negative) and by single name CDS underperforming cash bonds (i.e. bond-CDS basis becoming more positive / less negative). Investors rush for quick hedges, favoring liquid instruments (i.e. indices over CDS and CDS over bonds). Figure 8 shows how, in the early August widening, synthetic indices underperformed cash bonds as curves were steepening. In this particular case we use iTraxx Non Financials 5s10s for the curve and the difference between 10y iTraxx Non Financials and 7-10y iBoxx Non Financials spreads for the synthetic-cash index basis.

Trade example: Short risk 5y iTraxx Main vs. long risk a portfolio of 7-10y bonds

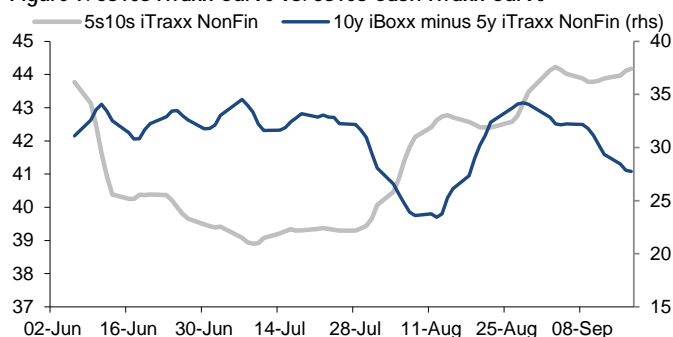
One way to mitigate the underperformance of flatteners in moderate widenings is to overlay a short risk CDS index vs. long risk cash position. This can be done, for example, by buying 5y protection on a CDS index and buying 7-10y bonds. In order to illustrate the effectiveness of this during the August widening, Figure 9 compares the behavior of 5s10s curve in iTraxx Main Non Financials vs. that of the spread difference between 7-10y iBoxx Non Financials and 5y iTraxx Main Non Financials. While the index curve has been steepening since the widening began, the “hybrid” cash-CDS curve actually flattened.

Figure 8. Synthetic index curves & Synthetic-cash index basis



Source: Citi Research, Markit. Spreads in bp. 5d moving average. iBoxx € NonFin 7-10y spreads used. 5d moving average.

Figure 9. 5s10s iTraxx Curve vs. 5s10s Cash-iTraxx Curve



Source: Citi Research, Markit. Spreads in bp. 5d moving average. iBoxx € NonFin 7-10y spreads used. 5d moving average.

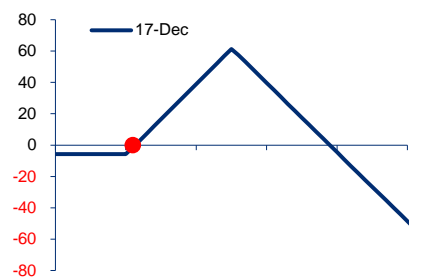
How to trade it? Ideally, one would like to be short risk a 5y CDS index and long risk a portfolio of longer dated bonds with similar composition (duration-weighted); the execution of this trade would be easier and the trade would benefit from a widening of both the index skew and the bond-CDS basis during a widening.

A second option is to buy 5y single name CDS protection and buy longer dated maturity bonds (duration-weighted): either for one particular company or for a group of them to diversify the trade exposure from idiosyncratic risks. In this case, we would favor bonds with 8-12y maturity trading with a positive basis (i.e. tighter than the maturity matching CDS): this will increase the potential underperformance of the CDS in a widening and, as a consequence, reduce the potential steepening of the “hybrid” cash-CDS curve. Figure 23 shows bonds in the iBoxx € IG index with maturities between 8-12y (fixed coupon, non-callable, senior unsecured) issued by credits in iTraxx Main, sorted by their bond-CDS basis (the ones with most positive basis on top).

Trade 2: iTraxx 5s10s flatteners + Payer 1x2s

Figure 10. 60-75bp Dec Main Payer 1x2 P&L at expiry

X-axis: index spreads in bp. Y-axis: Trade P&L in cents of the low strike option notional.



Source: Citi Research, Markit. Indicative.

Another way to mitigate the potential steepening of curves in moderate widenings is to enter payer 1x2s (i.e. buy an ATM payer and sell two OTM payers – see Figure 10 for an example). The combined trade (Figure 11 and Figure 12) should perform better than an outright flattener in a small widening at the cost of neutralizing the potential performance of an outright flattener in a very large sell-off. Thus, the trade should be attractive for investors who are not worried about tail events.

Back in August, the ~5bp steepening in Main 5s10s steepened would have generated a loss of around 22.5c on a duration-weighted flattener (looking at the 5y notional of the trade).¹ The 60-75bp Dec payer 1x2 used as an example in Figure 10 and Figure 12 would generate a gain of around 40c if spreads reach 70bp at expiry (the level they reached in early August when the curve steepened).

The 3m carry + slide on a 5s10s duration-weighted flattener is around -7c (of the 5y notional – Figure 11). A 60-75bp Dec payer 1x2 would cost an additional ~6c. We can compare the P&L of a 5s10s flattener with the P&L at expiry of a 3m payer 1x2 bought, assuming the option notional is 1x the notional on the 5y leg of the flattener respectively – see Figure 14.

Figure 11. Main 5s10s DV01-neutral flattener

Tenor	Maturity	Spread (bp)	Notional (€)	3m Carry (€)	3m Slide (€)	3m Time (€)
5y	20-Jun-19	59	-10,000	-15	-9	-24
10y	20-Jun-24	101	5,316	13	5	19
16-Sep-14		43	-4,678	-1	-4	-5

Source: Citi Research, Markit. Indicative mid-levels shown COB yesterday.

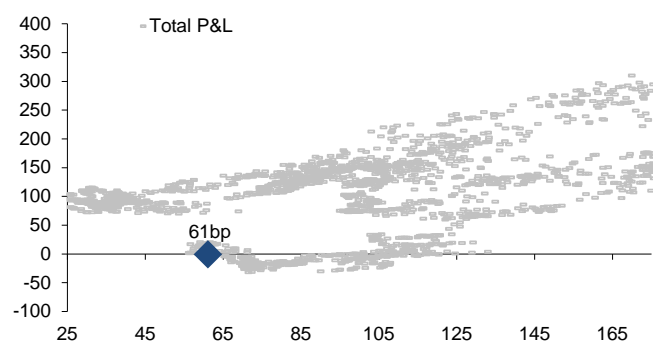
Figure 12. Main payer 1x2

	Strike	Price	Position	Notional	Upfront
Payer Dec	60	35.2	Buy	10000	-35.2
Payer Dec	75	14.5	Sell	20000	29.17
Total					-5.7

Source: Citi Research, Markit. Indicative mid-levels shown COB yesterday.

Figure 13. 5s10s Flattener 3m P&L vs. 5y spread

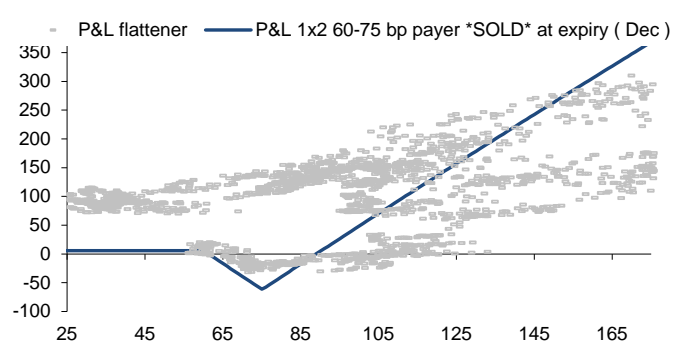
In cents (100c = 1%) of the 5y notional. Using a 3m horizon, for all the spread & curve historical daily combinations since 2005.



Source: Citi Research, Markit.

Figure 14. P&L vs. 5y spread – 3m 60-75bp payer 1x2 vs. 5s10s flattener

P&L, in 3m time, in cents of the 5y notional on the flattener. For the flattener we use all the spread and curve historical daily combinations.



Source: Citi Research, Markit.

¹ 5bp of steepening times duration of the 5y leg (~4.5).

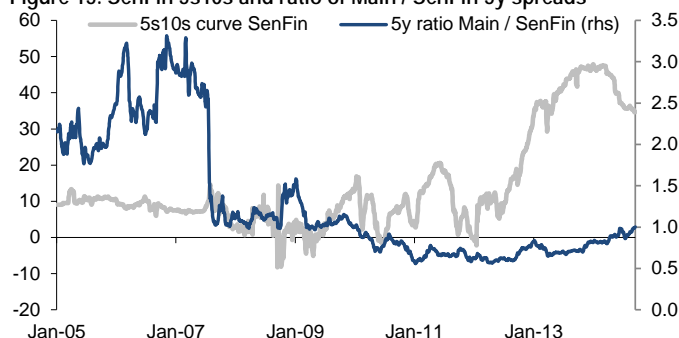
Trade 3: Cross-index relative value 5s10s flattener

Our key view on synthetic index relative value has been, and still is, long risk Financials vs. short risk Corporates (especially Crossover). Thus, **combining a 5s10s flattener with a long risk Senior Financials vs. short risk Main or Crossover is doubly appealing to us.** True this combination doesn't exactly address the potential underperformance of flatteners in a moderate widening (since the index relative value trade may not perform in those scenarios) but we like it anyway. We think the index relative value trades above will play out well if we tighten and not lose much if we widen.

Long risk 10y SenFin vs. short risk 5y Main

This trade combines a 5s10s flattener with a long risk Senior Fins vs. Main index relative value trade. We have been, and still are ([How sticky is the money in credit?](#)), more bullish in Financials than in Corporates. Figure 15 shows Main 5s10s (very steep and flattening) and the ratio of Main to Senior Financials 5y spreads (low and increasing) – we think the recent trends in both will continue. Figure 16 shows the details of the trade.

Figure 15. SenFin 5s10s and ratio of Main / SenFin 5y spreads



Source: Citi Research, Markit.

Figure 16. Long risk 10y SenFin vs. short risk 5y Main

Index	Tenor	Prot.	Spread (bp)	Notional	1y carry (cents)
Main	5y	Buy	60	18,914	-113
SenFin	10y	Sell	94	10,000	94
Total					-19

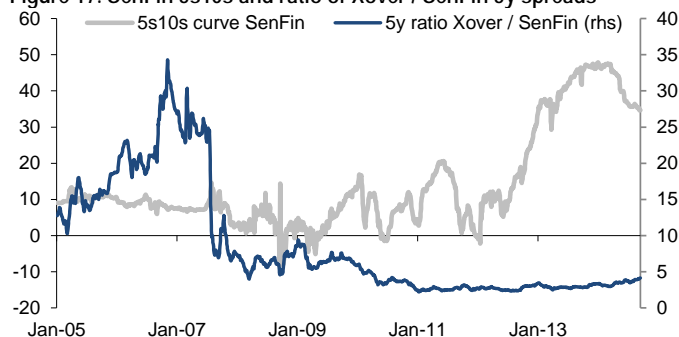
Duration-weighted and ratio adjusted. We compute the notional on the short dated leg as = Notional on the 10y leg x (ratio of the long risk index 10 and 5y durations) / 5y spread ratio of the short risk to long risk index.

Source: Citi Research, Markit. Indicative mid-levels shown COB Sep 17th

Long risk 10y SenFin vs. short risk 5y Xover

Those investors who are particularly bearish in high yield could replace the Main short above with a Crossover short – see Figure 17 and Figure 18.

Figure 17. SenFin 5s10s and ratio of Xover / SenFin 5y spreads



Source: Citi Research, Markit.

Figure 18. Long risk 10y SenFin vs. short risk 5y Xover

Index	Tenor	Prot.	Spread (bp)	Notional	1y carry (cents)
Xover	5y	Buy	246	4,593	-113
SenFin	10y	Sell	94	10,000	94
Total					-19

Duration-weighted and ratio adjusted. We compute the notional on the short dated leg as = Notional on the 10y leg x (ratio of the long risk index 10 and 5y durations) / 5y spread ratio of the short risk to long risk index.

Source: Citi Research, Markit. Indicative mid-levels shown COB Sep 17th

Analytics, Past Trade Ideas & Publications

Analytics – Available at Citi Velocity

Options	iTraxx Volatility Report CDX Volatility Report European Cross-Asset Volatility Report Volatility P&L Report – Credit Indices	Tranches	iTraxx Series 9 Tranche Report iTraxx Series 21 Tranche Report
Curves	iTraxx Curve P&L Report	Indices	Main Report // Crossover Report What's moved? Report CDS Indices Positioning Report CDS Indices Trading Volumes Report
Returns	European Credit Derivatives Returns		

Recent Trade Ideas

Options -	Sell Xover vol vs. buy SenFin vol	15-Aug-14
Options -	Sell Xover receivers	1-Aug-14
Tranches -	Long risk super senior tranches	21-Jul-14
Options -	Main receiver 1x2s	13-Jun-14
Options -	Main bearish risk reversal	13-Jun-14
Curves -	5s10s Senior Fin flattener (J. Faith)	30-May-14
Options -	European vs. US credit vol	28-May-14
Tranches -	Sell 0-3% Jun-15 S9 protection: outright, vs. CDX IG 5y or vs. SX5E	21-May-15
Indices -	Sub/Senior Financials compression (J. Faith)	20-May-15
Curves -	5s10s Main Flatteners	25-Apr-14
Options -	Main 70-75 May Receiver 1x2	2 Apr 2014
Options -	Buy SenFin vs. Sell CDX IG straddles	18 Mar 2014
Single names vs. Index	Releveraging Trade (H. Lorenzen)	24 Feb 2014
Tranches vs. Options -	Sell protection and monetize the positive convexity by selling straddles	20 Feb 2014
Tranches -	Buy 9-100% S9 Jun-18 protection, delta-hedged	20 Feb 2014
Tranches -	Sell 3-6% S9 Jun-18 protection, delta-hedged	20 Feb 2014
Options vs. Curves -	Flatteners vs. OTM payers	13 Feb 2014
Options -	Sell Main vol, buy SenFin vol	21 Jan 2014
Tranches -	More mezz, less seniors - 3-6% vs. super senior	15 Jan 2014
Options -	SenFin vs. Xover Recs	9 Jan 2014
Options -	Payer spread vs. index long	9 Jan 2014
Options -	Sell 1m Main straddles	9 Jan 2014
Options -	Sell Crossover Receiver	9 Jan 2014

[“European Credit Derivatives Views & Trades”](#) Investor Presentation

Teach-in presentations: [Indices](#) / [Options](#) / [Tranches](#)

Latest [European Credit Derivatives Brief](#)

Other publications

Where to Find the Best Index Longs: A method for finding value in credit indices (A. Basu)	4-Sep-14
We love the roll	29-Aug-14
An Algorithm-driven Relative Value Signal: A simple method to monetize credit versus equity relative value (A. Basu)	14-Aug-14
Time For Action On The CDS Legal Front: All You Wanted To Know But Were Afraid To Ask About The Switch To The New CDS Contracts	13-Aug-14
Trading volumes in European credit	5-Aug-14
iTraxx Roll - Potential Changes: Crossover to be expanded to 75 names	1-Aug-14
Smart Ways to Sell Credit Volatility (A. Basu)	24 Jul 2014
2014 CDS Definitions getting closer II: Update on protocol and CoCo supplement	11-Jul-14
Hedging the tail – Why real money should consider all options (H. Lorenzen)	1 Jul 2014
Lazy longs for July	23 Jun 2014
Where do we expect iTraxx rolls to trade?	19 Mar 2014
Our preferred carry trades in indices, options and tranches	11 Mar 2014
New 2014 CDS Definitions - What's new? What's changing? Why? When? How?	26 Feb 2014
iTraxx Roll - Potential Changes: Crossover number of constituents will increase to 60 names	10 Feb 2014
2014 European Credit Outlook: Strategy // Positioning and Trades	13 Jan 2014

Source: Citi Research. Please click the links to see the complete trade ideas and rationales and pricing at time of recommendation.

Trade Recommendations Summary

We are opening two of the trades suggested in this report: long risk 10y Senior Financials vs. short risk 5y Crossover and long risk 7-10y iBoxx Non-Financials vs. short risk 5y iTraxx Non-Financials (duration-weighted). We are not closing any trades.

Figure 19. Open trades – Summary and P&L

Trade Description	Leg	Format	Direct.	Notnl.	Upfront	Spread	Coupon	Upf.	Spread	Total
Sell 1m Main straddles *** 09-Jan-14	Sell 1m Main straddles	Price	Buy	1.00	0.00%			1.47%		1.47%
									Total	1.47%
Payer spread vs. index long *** 09-Jan-14	Buy 3m 25-60% pay spread	Price	Buy	1.00	0.00%			-0.66%		-0.66%
	Sell index prot.	Price	Buy	1.00	0.00%			1.61%		1.61%
									Total	0.95%
SenFin vs. Xover Recs *** 09-Jan-14	Buy 3m SenFin Recs	Price	Buy	1.00	0.00%			0.96%		0.96%
	Sell 3m Xover Recs	Price	Buy	0.29	0.00%			-2.70%		-0.79%
									Total	0.16%
Releveraging trade 24-Feb-14	Basket of low spread/leverage CI	Prot.	Buy	1.00	-3.14%	35	100	-3.38%	31	-0.56%
	Main NonFins	Prot.	Sell	0.50	-1.54%	67	100	-1.93%	59	0.36%
									Total	-0.20%
iTraxx Main 5s10s flattener 25-Apr-14	Main S21 5y	Prot.	Buy	1.36	-1.42%	71	100	-1.93%	59	-1.24%
	Main S21 10y	Prot.	Sell	1.00	1.48%	117	100	0.09%	101	1.79%
									Total	0.54%
Series 9 Jun-15 0-3% 21-May-14	Series 9 Jun-15 0-3%	Prot.	Sell	1.00	-0.75%	430	500	-0.57%	425	1.47%
									Total	1.47%
3-6% vs. Crossover 12-Jun-14	Sell 3-6% S21 Main prot.	Prot.	Sell	1.00	6.50%	236	100	6.08%	234	0.69%
	Buy S21 Xover prot.	Prot.	Buy	1.00	-12.13%	234	500	-11.27%	242	-0.49%
									Total	0.20%
Long risk super senior 21-Jul-14	S9 22-100% Jun-18	Prot.	Sell	1.00	-0.35%	16	25	-0.26%	18	-0.05%
	S9 Index Jun-18	Prot.	Buy	0.20	-4.46%	58	175	-4.45%	56	-0.05%
									Total	-0.10%
10y SenFin vs. 5y Xover 18-Sep-14	10y SenFin S21	Prot.	Sell	1.00	-0.60%	93	100			
	5y Xover S21	Prot.	Buy	0.45	-11.27%	242	500			
									Total	
10y iBoxx vs. 5y Main NonFin 18-Sep-14	7-10y iBoxx € NonFin	Prot.	Sell	1.00	-0.93%	87	100			
	5y Main NonFin	Prot.	Buy	0.65	-1.93%	59	100			
									Total	

Source: Citi Research. Spreads and coupons in bp. * P&L expressed as % of the leg with notional equal to 1. ** Over the last month. Prices as of COB yesterday. *** We track the trade P&L by using an initial 0% upfront and a current upfront equal to the trade P&L in %. DH = delta hedged.

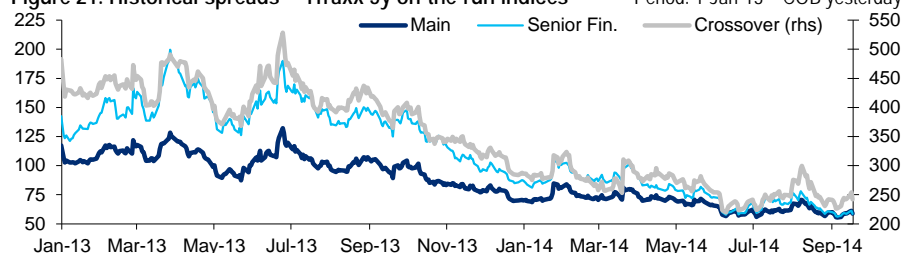
Figure 20. Open and closed trades summary statistics

Number	Open	Closed*	Percentage	Open	Closed*
In profit	6	20	In profit	75%	71%
In loss	2	9	In loss	25%	29%
	8	29			

Source: Citi Research. * Since 1-Jun-13. Excluding the trade ideas opened in the current publication.

Representative Market Conditions

Figure 21. Historical spreads – iTraxx 5y on-the-run indices



Source: Citi Research, Markit. In bp.

Figure 22. Closed trades since Oct-13 – Summary and P&L

Trade Description	Leg	Format	Direct.	Notnl.	Upfront	Spread	Coupon	Upfront	Spread	Total
S19 Jun-16 0-3% vs. 3-6%	Main S19 0-3% Jun-16	Prot.	Sell	1.00	8.00%	839	500	3.88%	725	5.11%
Open: 26-Sep-13	Main S19 3-6% Jun-16	Prot.	Buy	2.00	-7.00%	234	500	-9.75%	132	-7.47%
Close: 9-Dec-13									Total	-2.36%
SenFin vs. Main	Senior Fin. 5y S20	Prot.	Sell	1.00	0.60%	112	100	0.07%	102	0.61%
Open: 26-Sep-13	Main 5y S20	Prot.	Buy	1.35	-0.79%	84	100	-0.94%	81	-0.32%
Close: 9-Dec-13									Total	0.29%
S9 super senior vs. light delta	Main S9 22-100% Jun-18	Prot.	Sell	1.00	0.18%	30	25	0.03%	26	0.19%
Open: 15-Nov-13	Main S9 index Jun-18	Prot.	Buy	0.33	-3.65%	93	175	-4.24%	77	-0.29%
Close: 14-Jan-14									Total	-0.10%
75-85 Main January strangle	75bp Jan Main receiver	Price	Sell	1.00	0.08%			0.19%		-0.11%
Open: 9-Dec-13	85bp Jan Main Payer	Price	Sell	1.00	0.13%			0.00%		0.13%
Close: 14-Jan-14									Total	0.02%
Sell Crossover Receiver	275bp Feb. Receiver	Price	Sell	1.00	0.32%			0.17%		0.15%
Open: 9-Jan-14									Total	0.15%
Close: 13-Feb-14										
iTraxx Main Eq. Notional Flatter	Main S19 3y	Prot.	Buy	1.00	-0.97%	65	100	-1.57%	33	-1.04%
Open: 5-Sep-13	Main S19 5y	Prot.	Sell	1.00	0.24%	105	100	-1.47%	65	2.15%
Close: 13-Feb-14									Total	1.11%
S9 6-9% vs. S20 Crossover	Main S9 6-9% Jun-18	Prot.	Sell	1.17	-0.25%	294	300	-3.19%	223	4.37%
Open: 15-Nov-13	Crossover S20 Dec-18	Prot.	Buy	1.00	-7.07%	344	500	-9.80%	274	-4.06%
Close: 19-Feb-14									Total	0.31%
3-6% vs. super senior	Main S9 3-6% Jun-18	Prot.	Sell	1.00	-5.50%	366	500	-5.34%	367	0.34%
Open: 14-Jan-14	Main S9 22-100% Jun-18	Prot.	Buy	9.00	0.03%	26.625	25	0.12%	28	0.60%
Close: 19-Feb-14									Total	0.94%
Main vs. SenFin vol ***	Sell Feb 70 Main straddles, DH	Price	Buy	1.00	0.00%			-0.02%		-0.02%
Open: 21-Jan-14	Buy Feb 80 SenFin straddles, DH	Price	Buy	0.50	0.00%			0.02%		0.01%
Close: Expired									Total	-0.01%
Senior tranche short ***	Buy Jun-18 S9 9-12% prot., DH	Price	Buy	0.03	0.00%			0.26%		0.01%
	Buy Jun-18 S9 12-22% prot., DH	Price	Buy	0.10	0.00%			0.24%		0.02%
Open: 20-Feb-14	Buy Jun-18 S9 22-100% prot., DH	Price	Buy	0.78	0.00%			-0.05%		-0.04%
Close: 20-May-14									Total	-0.01%
Mezz tranche long ***	Sell Jun-18 S9 3-6% prot., DH	Price	Buy	1.00	0.00%			-0.55%		-0.55%
Open: 20-Feb-14									Total	-0.55%
Close: 20-May-14										
Main May Rec 1x2s	Main May 75bp Rec	Price	Buy	1.00	0.24%			0.16%		-0.08%
Open: 2-Apr-14	Main May 70bp Rec	Price	Sell	2.00	0.10%			0.02%		0.16%
Close: 20-May-14									Total	0.09%
Flattener vs. OTM payer ***	3s5s flattener Main	Price	Buy	1.00	0.00%			0.36%		0.36%
Open: 13-Feb-14	Sell 3m 120bp Main payer	Price	Buy	0.75	0.00%			0.12%		0.09%
Close: 27-May-14									Total	0.44%
Senior Fin vs. CDX IG straddle	SenFin Jun-14 90bp straddle	Price	Buy	1.00	0.97%			0.79%		-0.18%
Open: 18-Mar-14	CDX IG Jun-14 65bp straddle	Price	Sell	1.90	0.51%			0.19%		0.61%
Close: 27-May-14									Total	0.43%
Equity tranche vs. straddle ***	Sell Jun-18 S9 equity prot., DH	Price	Buy	1.00	0.00%			-1.48%		-1.48%
Open: 20-Feb-14	Sell 1m Main straddles, DH	Price	Buy	0.50	0.00%			0.33%		0.16%
Close: 21-Jul-14									Total	-1.31%
Main vs. CDX IG ***	Sell 3m Main DH straddles	Price	Buy	1.00	0.00%			-0.05%		-0.05%
Open: 28-May-14	Buy 3m CDX IG DH straddles	Price	Sell	1.00	0.00%			-0.07%		0.07%
Close: 21-Jul-14									Total	0.02%
Main July Rec 1x2s	Main July 60bp Rec	Price	Buy	1.00	0.13%			0.00%		-0.13%
Open: 13-Jun-14	Main July 55bp Rec	Price	Sell	2.00	0.04%			0.00%		0.09%
Close: 16-Jul-14									Total	-0.04%
Sell Xover Receiver	Xover Aug 250bp Rec	Price	Sell	1.00	0.14%			0.00%		0.14%
Open: 1-Aug-14									Total	0.14%
Close: Expired										
Xover vs. SenFin vol ***	Sell 6m Xover DH straddles	Price	Buy	1.00	0.00%			0.50%		0.50%
Open: 15-Aug-14	Buy 6m SenFin DH straddles	Price	Sell	4.00	0.00%			-0.04%		0.15%
Close: 28-Aug-14									Total	0.65%

Source: Citi Research. Spreads and coupons in bp. * P&L expressed as % of the leg with notional equal to 1. *** We track the trade P&L by using an initial 0% upfront and a final upfront equal to the trade P&L in %.

Notes: The list of open trades reflects our current views; we have no plans to provide regular coverage or updates to these trades. P&L on trade ideas includes carry and roll costs but not trading commissions/costs. Results should not, and cannot, be viewed as an indicator of future performance.

The portion of this research report regarding non-OCC issued options is not intended for US clients other than Qualified Institutional Buyers. Investing in options is not suitable for all investors. Please see the disclosures concerning the risks of investing in options below and discuss with your Financial Advisor whether this particular options strategy is suitable for you. Interested investors should contact our trading desk for updated price and liquidity information. Also, complex option strategies may entail higher commissions costs. Please contact us for more details on the trades discussed.

Risks

When buying calls and puts (or receivers and payers) the maximum loss is the premium paid. When selling calls (or receivers), the maximum potential loss would occur as the index spread decreases but is limited by the index spread being floored at zero. For puts (or payers), the maximum potential loss (amount below the strike) would eventuate should the index price fall to zero. Sector index options are cash settled. Credit index options are physically settled. The above calculations do not include any additional fees or transaction costs. Note that ratio writing would leave the writer uncovered in one leg of the trade.

Figure 23. Screening for 8-12y bonds to pair against a 5y synthetic short: either iTraxx Main or single name CDS

We look for bonds in the iBoxx € IG index with maturities between 8-12y (fixed coupon, non-callable, senior unsecured) issued by credits in iTraxx Main. We sort them by their bond-CDS basis (the ones with most positive basis on top). Indicative mid-spreads shown.

ISIN	Label	Description	Maturity rounded (y)	Bond spread	CDS spread	Basis	5y CDS spread
XS0764637194	AAL-3.500-03/28/22	ANGLO AMERICAN	8	115	179	64	128
XS0802756683	SOCGEN-4.250-07/13/22	SOCIETE GENERALE	8	35	91	56	68
XS1052677892	AALLN-3.250-04/03/23	ANGLO AMERICAN	9	135	189	54	128
XS0855167523	LXSGR-2.625-11/21/22	LANXESS FINANCE	8	87	130	43	88
XS1019821732	HOLC-3.000-01/22/24	HOLCIM FINANCE L	9	87	126	39	75
XS0847580353	DT-2.750-10/24/24	DEUTSCHE TEL FIN	10	57	93	35	57
XS0760364116	SGOF-3.625-03/28/22	ST GOBAIN	8	68	102	34	72
XS0827999318	FRTL-2.500-03/01/23	FRTEL 03/01/2023	9	68	101	32	65
XS1069430368	TEFO-2.242-05/27/22	TELEFONICA EMIS	8	97	125	28	90
XS0982019126	RWEF-3.000-01/17/24	RWE FINANCE BV	9	70	98	27	62
DE000DB5DCS4	DB-2.375-01/11/23	DEUTSCHE BANK AG	8	59	86	26	63
XS0525787874	DTIF-4.250-07/13/22	DEUTSCHE TEL FIN	8	58	83	26	57
XS1038708522	UNBP-2.500-02/26/24	UNIBAIL-RODAMCO	10	70	95	26	57
XS0541453147	FRTL-3.375-09/16/22	FRANCE TELECOM	8	73	98	25	65
XS0942388462	UNBP-2.500-06/12/23	UNIBAIL-RODAMCO	9	68	92	24	57
XS0794245018	FRTL-3.000-06/15/22	FRANCE TELECOM	8	73	97	24	65
XS1086835979	CAFP-1.750-07/15/22	CARREFOUR SA	8	70	94	24	61
XS0606704558	BNP-4.500-03/21/23	BNP PARIBAS	9	62	85	22	58
XS1082971588	TESC-2.500-07/01/24	TESCO CORP TREASURY SERV	10	117	139	21	91
XS0874864860	TELEFO-3.987-01/23/23	TELEFONICA EMIS	8	108	130	21	90
FR0011560077	FFIN-3.125-01/09/24	ORANGE	9	83	104	21	65
FR0010474239	VEOL-5.125-05/24/22	VEOLIA ENVRNMT	8	78	98	20	65
DE000A1R0XG3	BASF-2.000-12/05/22	BASF SE	8	39	59	20	36
XS1048529041	SINF-2.500-03/24/26	SHELL INTL FIN	12	43	63	20	36
XS1028421383	CRAL-3.125-02/05/26	CREDIT AGRICOLE	12	72	90	18	60
XS0895249620	BNP-2.875-09/26/23	BNP PARIBAS	9	69	87	18	58
FR0010800540	ELDF-4.625-09/11/24	ELEC DE FRANCE	10	69	86	17	51
FR0011289230	GSZFP-2.625-07/20/22	GDF SUEZ	8	56	73	17	48
XS0541787783	TOTAL-3.125-09/16/22	TOTAL CAPITAL	8	37	54	17	34
FR0010952770	GAZF-3.500-10/18/22	GDF SUEZ	8	57	74	17	48
XS1057055060	IBBV-2.500-10/24/22	IBERDROLA INTL	8	85	102	17	69
XS1074055770	ULFP-2.500-06/04/26	UNIBAIL-RODAMCO SE	12	83	100	16	57
XS0617251995	CAGR-5.125-04/18/23	CREDIT AGRICOLE	9	69	85	16	60
FR0011261924	GAZF-3.000-02/01/23	GDF SUEZ	8	59	76	16	48
FR0010913178	RTE-3.875-06/28/22	RTE EDF TRANSPOR	8	59	75	16	51
XS1041772986	DSM-2.375-04/03/24	DSM NV	10	67	82	16	52
XS0877622034	BMW-2.375-01/24/23	BMW FINANCE NV	8	48	62	14	38
FR0011911247	GAZF-2.375-05/19/26	GDF SUEZ	12	69	84	14	48
FR0011318658	EDF-2.750-03/10/23	ELEC DE FRANCE	9	65	79	14	51
FR0011527241	BNFP-2.600-06/28/23	DANONE	9	55	69	14	41
XS0809847667	AKZANA-2.625-07/27/22	AKZO NOBEL SWEDE	8	79	93	14	65
XS0847433561	BNP-2.875-10/24/22	BNP PARIBAS	8	69	83	14	58
FR0011372622	AUCHAN-2.375-12/12/22	AUCHAN SA	8	64	77	13	49
FR0011565555	RTE-2.875-09/12/23	RTE EDF TRANSPOR	9	69	82	13	51
XS1068871448	BNPP-2.375-05/20/24	BNP PARIBAS	10	76	89	13	58
XS0914400246	GASSM-3.875-04/11/22	GAS NAT FENOSA F	8	84	97	13	67
XS0875343757	GSNS-3.875-01/17/23	GAS NAT FENOSA F	8	89	101	13	67
XS1015217703	BMW-2.625-01/17/24	BMW FINANCE NV	9	53	66	13	38
XS0953564191	CRAL-3.125-07/17/23	CREDIT AGRICOLE	9	73	86	12	60
XS0951565091	ENIS-3.250-07/10/23	ENI SPA	9	70	82	12	50
XS0994991411	TOTL-2.875-11/19/25	TOTAL CAP INTL	11	51	63	12	34
DE000A1R0691	DAIGR-2.375-03/08/23	DAIMLER AG	9	49	61	12	37
XS1041934800	GASSM-2.875-03/11/24	GAS NAT FENOSA F	10	95	107	12	67
XS0207320242	ENBW-4.875-01/16/25	ENBW INTL FIN	10	81	93	11	56
XS0830194501	TOTAL-2.125-03/15/23	TOTAL CAP INTL	9	45	56	11	34
XS0503603267	DEUT-4.875-04/22/25	DEUTSCHE TEL FIN	11	82	93	11	57
DE000A1PGWA5	DAIGR-2.375-09/12/22	DAIMLER AG	8	48	59	11	37
XS0304458051	VODA-5.375-06/06/22	VODAFONE GROUP	8	83	94	11	69
XS0418669429	TOTL-5.125-03/26/24	TOTAL CAPITAL	10	49	60	11	34
FR0011400571	COFP-3.311-01/25/23	CASINO GUICHARD	8	111	121	10	80

FR0010961540	EDF-4.000-11/12/25	ELEC DE FRANCE	11	78	88	10	51
FR0011462571	AUCHAN-2.250-04/06/23	AUCHAN SA	9	68	78	10	49
XS1048519679	TOTL-2.500-03/25/26	TOTAL CAP INTL	12	53	63	10	34
XS1040506898	BPCA-2.972-02/27/26	BP CAPITAL MARKETS PLC	12	82	91	9	60
DE000A1R07P5	LINGR-2.000-04/18/23	LINDE AG	9	43	52	9	30
XS1069521083	CRAL-2.375-05/20/24	CREDIT AGRICOLE	10	80	88	9	60
DE000A11QSB8	DAIGR-1.875-07/08/24	DAIMLER AG	10	56	65	8	37
XS1017833242	BASF-2.500-01/22/24	BASF SE	9	54	63	8	36
XS0862442331	TNOR-2.625-12/06/24	TELENOR	10	58	67	8	37
XS0907301260	WLSN-2.875-03/21/23	WOLTERS KLUWER-C	9	82	88	6	54
XS0970852348	ENIS-3.750-09/12/25	ENI SPA	11	83	89	6	50
BE6243179650	ABIB-2.875-09/25/24	ANHEUSER-BUSCH	10	72	79	6	50
XS1050917373	VW-2.125-04/04/22	VOLKSWAGEN LEAS	8	60	65	6	45
XS1075218799	BACR-2.250-06/10/24	BARCLAYS BANK PLC	10	81	87	6	58
XS0191154961	VATR-5.375-04/29/24	VATTENFALL AB	10	73	78	5	50
XS0752092311	KPN-4.250-03/01/22	KPN NV	8	122	126	5	92
XS1014610254	VW-2.625-01/15/24	VOLKSWAGEN LEAS	9	68	73	4	45
XS0933241456	TELNO-2.500-05/22/25	TELENOR	11	63	67	4	37
DE000A1G0RU9	ALLV-3.500-02/14/22	ALLIANZ FINANCE	8	52	55	3	37
XS0823975585	VW-2.375-09/06/22	VOLKSWAGEN LEAS	8	66	67	2	45
XS0454773713	KPN-5.625-09/30/24	KPN NV	10	140	142	2	92
XS0798790027	TNOR-2.750-06/27/22	TELENOR ASA	8	61	59	-2	37
XS0811690550	BERTEL-2.625-08/02/22	BERTELSMANN AG	8	71	65	-7	43
XS0856014583	BATS-2.375-01/19/23	BAT HOLDINGS BV	8	71	64	-7	44
XS0986194883	INSA-4.000-10/30/23	INTESA SANPAOLO	9	113	104	-9	72
XS0909359332	BATSLN-2.750-03/25/25	BAT INTL FINANCE	11	79	70	-10	44
XS0798504030	WPZI-3.375-06/27/22	WILLOW NO.2 (ZUR	8	78	65	-13	43
XS1040508241	IMTLN-3.375-02/26/26	IMP TOBACCO FIN	12	129	112	-18	71
XS1079320203	CPGLN-1.875-01/27/23	COMPASS GROUP PLC	8	71	48	-22	31
DE0001342244	DBFA-0.000-10/15/26	DEUTSCHE BANK FINANCE	12	121	94	-26	63
XS0452314536	ASSG-5.125-09/16/24	ASSICURAZIONI	10	142	105	-37	69

Source: Citi Research, Markit.

Options Risk Disclosure - Please Read Carefully

This section discusses possible options strategies that you may choose to employ in conjunction with the company securities discussed herein. If you choose to engage in the options transactions discussed within this document, you must have an approved options account and will be subject to certain criteria which may ultimately prevent you from engaging in certain option strategies. It is important for you as an investor to know and understand that Options do involve risk and sometimes, significant risk, therefore may not be appropriate for all investors. If you buy options, the maximum loss is the premium. If you sell put options, the risk is the entire notional below the strike. If you sell call options, the risk is unlimited. The actual profit or loss from any trade will depend on the price at which the trades are executed. The prices used herein are historical and may not be available when you order is entered. Commissions and other transaction costs are not considered in these examples.

Please speak to your Financial Advisor to ensure you have a full understanding of the risk and reward of the strategy you are considering. Strategies that are opened or closed differently than what is discussed in this document could have a significantly different outcome from what is described. It should be noted that certain Index options might have special settlement dates or settlement requirements that are different from traditional equity options. Commissions, taxes, and margin costs have not been included but will affect the outcome of any option transaction and should be considered. However, they can have a significant impact on the profitability of options transactions and should be considered carefully before entering into any option strategy. Because of the importance of tax considerations to all option transactions, the investor considering options should consult with his/her tax advisor as to how their tax situation is affected by the outcome of contemplated options transactions. Certain options trades/strategies must be executed in a margin account. Transactions executed in a margin account can require the investor to periodically deposit additional collateral into the account in order to maintain the positions. The preceding language is not a full description of all possible risks associated with options trading.

For a more complete description on the uses and risks of options, please see the document titled Characteristics and Risks of Standardized Options. If you would like an additional copy of this document please contact Citigroup Global Markets Inc., Options Department, 390 Greenwich Street, New York, NY 10013. Options are not suitable for all investors. Before entering into any transaction using listed options, investors should read and understand the current Options Clearing Corp. Disclosure Document (Characteristics and Risks of Standardized Options) at <http://www.theocc.com/about/publications/character-risks.jsp>, http://www.theocc.com/components/docs/May_2010_ODD_Definitive_Supplement.pdf and http://www.theocc.com/components/docs/January_2011_ODD_Definitive_Supplement.pdf. Investing in options other than Standardized Options may entail additional risks.

Appendix A-1

Analyst Certification

The research analyst(s) primarily responsible for the preparation and content of this research report are named in bold text in the author block at the front of the product except for those sections where an analyst's name appears in bold alongside content which is attributable to that analyst. Each of these analyst(s) certify, with respect to the section(s) of the report for which they are responsible, that the views expressed therein accurately reflect their personal views about each issuer and security referenced and were prepared in an independent manner, including with respect to Citigroup Global Markets Inc and its affiliates. No part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendation(s) or view(s) expressed by that research analyst in this report.

IMPORTANT DISCLOSURES

Analysts' compensation is determined based upon activities and services intended to benefit the investor clients of Citigroup Global Markets Inc. and its affiliates ("the Firm"). Like all Firm employees, analysts receive compensation that is impacted by overall firm profitability which includes investment banking revenues.

For important disclosures (including copies of historical disclosures) regarding the companies that are the subject of this Citi Research product ("the Product"), please contact Citi Research, 388 Greenwich Street, 28th Floor, New York, NY, 10013, Attention: Legal/Compliance [E6WYB6412478]. In addition, the same important disclosures, with the exception of the Valuation and Risk assessments and historical disclosures, are contained on the Firm's disclosure website at https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures. Valuation and Risk assessments can be found in the text of the most recent research note/report regarding the subject company. Historical disclosures (for up to the past three years) will be provided upon request.

NON-US RESEARCH ANALYST DISCLOSURES

Non-US research analysts who have prepared this report (i.e., all research analysts listed below other than those identified as employed by Citigroup Global Markets Inc.) are not registered/qualified as research analysts with FINRA. Such research analysts may not be associated persons of the member organization and therefore may not be subject to the NYSE Rule 472 and NASD Rule 2711 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account. The legal entities employing the authors of this report are listed below:

Citigroup Global Markets Ltd

Abel Elizalde; Aritra Banerjee; Hans Lorenzen

OTHER DISCLOSURES

For securities recommended in the Product in which the Firm is not a market maker, the Firm is a liquidity provider in the issuers' financial instruments and may act as principal in connection with such transactions. The Firm is a regular issuer of traded financial instruments linked to securities that may have been recommended in the Product. The Firm regularly trades in the securities of the issuer(s) discussed in the Product. The Firm may engage in securities transactions in a manner inconsistent with the Product and, with respect to securities covered by the Product, will buy or sell from customers on a principal basis.

Securities recommended, offered, or sold by the Firm: (i) are not insured by the Federal Deposit Insurance Corporation; (ii) are not deposits or other obligations of any insured depository institution (including Citibank); and (iii) are subject to investment risks, including the possible loss of the principal amount invested. Although information has been obtained from and is based upon sources that the Firm believes to be reliable, we do not guarantee its accuracy and it may be incomplete and condensed. Note, however, that the Firm has taken all reasonable steps to determine the accuracy and completeness of the disclosures made in the Important Disclosures section of the Product. The Firm's research department has received assistance from the subject company(ies) referred to in this Product including, but not limited to, discussions with management of the subject company(ies). Firm policy prohibits research analysts from sending draft research to subject companies. However, it should be presumed that the author of the Product has had discussions with the subject company to ensure factual accuracy prior to publication. All opinions, projections and estimates constitute the judgment of the author as of the date of the Product and these, plus any other information contained in the Product, are subject to change without notice. Prices and availability of financial instruments also are subject to change without notice. Notwithstanding other departments within the Firm advising the companies discussed in this Product, information obtained in such role is not used in the preparation of the Product. Although Citi Research does not set a predetermined frequency for publication, if the Product is a fundamental research report, it is the intention of Citi Research to provide research coverage of the/those issuer(s) mentioned therein, including in response to news affecting this issuer, subject to applicable quiet periods and capacity constraints. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security. Any decision to purchase securities mentioned in the Product must take into account existing public information on such security or any registered prospectus.

Investing in non-U.S. securities, including ADRs, may entail certain risks. The securities of non-U.S. issuers may not be registered with, nor be subject to the reporting requirements of the U.S. Securities and Exchange Commission. There may be limited information available on foreign securities. Foreign companies are generally not subject to uniform audit and reporting standards, practices and requirements comparable to those in the U.S. Securities of some foreign companies may be less liquid and their prices more volatile than securities of comparable U.S. companies. In addition, exchange rate movements may have an adverse effect on the value of an investment in a foreign stock and its corresponding dividend payment for U.S. investors. Net dividends to ADR investors are estimated, using withholding tax rates conventions, deemed accurate, but investors are urged to consult their tax advisor for exact dividend computations. Investors who have received the Product from the Firm may be prohibited in certain states or other jurisdictions from purchasing securities mentioned in the Product from the Firm. Please ask your Financial Consultant for additional details. Citigroup Global Markets Inc. takes responsibility for the Product in the United States. Any orders by US investors resulting from the information contained in the Product may be placed only through Citigroup Global Markets Inc.

Important Disclosures for Bell Potter Customers: Bell Potter is making this Product available to its clients pursuant to an agreement with Citigroup Global Markets Australia Pty Limited. Neither Citigroup Global Markets Australia Pty Limited nor any of its affiliates has made any determination as to the suitability of the information provided herein and clients should consult with their Bell Potter financial advisor before making any investment decision.

The Citigroup legal entity that takes responsibility for the production of the Product is the legal entity which the first named author is employed by. The Product is made available in **Australia** through Citigroup Global Markets Australia Pty Limited. (ABN 64 003 114 832 and AFSL No. 240992), participant of the ASX Group and regulated by the Australian Securities & Investments Commission. Citigroup Centre, 2 Park Street, Sydney, NSW 2000. The Product is made available in Australia to Private Banking wholesale clients through Citigroup Pty Limited (ABN 88 004 325 080 and AFSL 238098). Citigroup Pty Limited provides all financial product advice to Australian Private Banking wholesale clients through bankers and relationship managers. If there is any doubt about the suitability of investments held in Citigroup Private Bank accounts, investors should contact the Citigroup Private Bank in Australia. Citigroup companies may compensate affiliates and their representatives for providing products and services to clients. The Product is made available in **Brazil** by Citigroup Global Markets Brasil - CCTVM SA, which is regulated by CVM - Comissão de Valores Mobiliários, BACEN - Brazilian Central Bank, APIMEC - Associação dos Analistas e Profissionais de Investimento do Mercado de Capitais and ANBID - Associação Nacional dos Bancos de Investimento. Av. Paulista, 1111 - 11º andar - CEP. 01311920 - São Paulo - SP. If the Product is being made available in certain provinces of **Canada** by Citigroup Global Markets (Canada) Inc. ("CGM Canada"), CGM Canada has approved the Product. Citigroup Place, 123 Front Street West, Suite 1100, Toronto, Ontario M5J 2M3. This product is available in **Chile** through Banchile Corredores de Bolsa S.A., an indirect subsidiary of Citigroup Inc., which is regulated by the Superintendencia de Valores y Seguros. Agustinas 975, piso 2, Santiago, Chile. The Product is distributed in **Germany** by Citigroup Global Markets Deutschland AG ("CGMD"), which is regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin). CGMD, Reuterweg 16, 60323 Frankfurt am Main. Research which relates to "securities" (as defined in the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong)) is issued in **Hong Kong** by, or on behalf of, Citigroup Global Markets Asia Limited which takes full responsibility for its content. Citigroup Global Markets Asia Ltd. is regulated by Hong Kong Securities and Futures Commission. If the Research is made available through Citibank, N.A., Hong Kong Branch, for its clients in Citi Private Bank, it is made available by Citibank N.A., Citibank Tower, Citibank Plaza, 3 Garden Road, Hong Kong. Citibank N.A. is regulated by the Hong Kong Monetary Authority. Please contact your Private Banker in Citibank N.A., Hong Kong, Branch if you have any queries on or any matters arising from or in connection with this document. The Product is made available in **India** by Citigroup Global Markets India Private Limited, which is regulated by Securities and Exchange Board of India. 1202, 12th Floor, FIFC, G Block, Bandra Kurla Complex, Bandra East, Mumbai - 400051 Corporate Identity Number: U99999MH2000PTC126657 Tel:+9102261759999 Fax:+9102261759961. The Product is made available in **Indonesia** through PT Citigroup Securities Indonesia. 5/F, Citibank Tower, Bapindo Plaza, Jl. Jend. Sudirman Kav. 54-55, Jakarta 12190. Neither this Product nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable capital market laws and regulations. This Product is not an offer of securities in Indonesia. The securities referred to in this Product have not been registered with the Capital Market and Financial Institutions Supervisory Agency (BAPEPAM-LK) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market laws and regulations. The Product is made available in **Israel** through Citibank NA, regulated by the Bank of Israel and the Israeli Securities Authority. Citibank, N.A. Platinum Building, 21 Ha'arba'ah St, Tel Aviv, Israel. The Product is made available in **Italy** by Citigroup Global Markets Limited, which is authorised by the PRA and regulated by the FCA and the PRA. Via dei Mercanti, 12, Milan, 20121, Italy. The Product is made available in **Japan** by Citigroup Global Markets Japan Inc. ("CGMJ"), which is regulated by Financial Services Agency, Securities and Exchange Surveillance Commission, Japan Securities Dealers Association, Tokyo Stock Exchange and Osaka Securities Exchange. Shin-Marunouchi Building, 1-5-1 Marunouchi, Chiyoda-ku, Tokyo 100-6520 Japan. If the Product was distributed by SMBC Nikko Securities Inc. it is being so distributed under license. In the event that an error is found in an CGMJ research report, a revised version will be posted on the Firm's Citi Velocity website. If you have questions regarding Citi Velocity, please call (81 3) 6270-3019 for help. The Product is made available in **Korea** by Citigroup Global Markets Korea Securities Ltd., which is regulated by the Financial Services Commission, the Financial Supervisory Service and the Korea Financial Investment Association (KOFIA). Citibank Building, 39 Da-dong, Jung-gu, Seoul 100-180, Korea. KOFIA makes available registration information of research analysts on its website. Please visit the following website if you wish to find KOFIA registration information on research analysts of Citigroup Global Markets Korea Securities Ltd. <http://dis.kofia.or.kr/fs/dis2/fundMgr/DISFundMgrAnalystPop.jsp?companyCd2=A03030&pageDiv=02>. The Product is made available in Korea by Citibank Korea Inc., which is regulated by the Financial Services Commission and the Financial Supervisory Service. Address is Citibank Building, 39 Da-dong, Jung-gu, Seoul 100-180, Korea. The Product is made available in **Malaysia** by Citigroup Global Markets Malaysia Sdn Bhd (Company No. 460819-D) ("CGMM") to its clients and CGMM takes responsibility for its contents. CGMM is regulated by the Securities Commission of Malaysia. Please contact CGMM at Level 43 Menara Citibank, 165 Jalan Ampang, 50450 Kuala Lumpur, Malaysia in respect of any matters arising from, or in connection with, the Product. The Product is made available in **Mexico** by Acciones y Valores Banamex, S.A. De C. V., Casa de Bolsa, Integrante del Grupo Financiero Banamex ("Accival") which is a wholly owned subsidiary of Citigroup Inc. and is regulated by Comision Nacional Bancaria y de Valores. Reforma 398, Col. Juarez, 06600 Mexico, D.F. In **New Zealand** the Product is made available to 'wholesale clients' only as defined by s5C(1) of the Financial Advisers Act 2008 ('FAA') through Citigroup Global Markets Australia Pty Ltd (ABN 64 003 114 832 and AFSL No. 240992), an overseas financial adviser as defined by the FAA, participant of the ASX Group and regulated by the Australian Securities & Investments Commission. Citigroup Centre, 2 Park Street, Sydney, NSW 2000. The Product is made available in **Pakistan** by Citibank N.A. Pakistan branch, which is regulated by the State Bank of Pakistan and Securities Exchange Commission, Pakistan. AWT Plaza, 1.1. Chundrigar Road, P.O. Box 4889, Karachi-74200. The Product is made available in the **Philippines** through Citicorp Financial Services and Insurance Brokerage Philippines, Inc., which is regulated by the Philippines Securities and Exchange Commission. 20th Floor Citibank Square Bldg. The Product is made available in the Philippines through Citibank NA Philippines branch, Citibank Tower, 8741 Paseo De Roxas, Makati City, Manila. Citibank NA Philippines NA is regulated by The Bangko Sentral ng Pilipinas. The Product is made available in **Poland** by Dom Maklerski Banku Handlowego SA an indirect subsidiary of Citigroup Inc., which is regulated by Komisja Nadzoru Finansowego. Dom Maklerski Banku Handlowego S.A. ul.Senatorska 16, 00-923 Warszawa. The Product is made available in the **Russian Federation** through ZAO Citibank, which is licensed to carry out banking activities in the Russian Federation in accordance with the general banking license issued by the Central Bank of the Russian Federation and brokerage activities in accordance with the license issued by the Federal Service for Financial Markets. Neither the Product nor any information contained in the Product shall be considered as advertising the securities mentioned in this report within the territory of the Russian Federation or outside the Russian Federation. The Product does not constitute an appraisal within the meaning of the Federal Law of the Russian Federation of 29 July 1998 No. 135-FZ (as amended) On Appraisal Activities in the Russian Federation. 8-10 Gasheka Street, 125047 Moscow. The Product is made available in **Singapore** through Citigroup Global Markets Singapore Pte. Ltd. ("CGMSPL"), a capital markets services license holder, and regulated by Monetary Authority of Singapore. Please contact CGMSPL at 8 Marina View, 21st Floor Asia Square Tower 1, Singapore 018960, in respect of any matters arising from, or in connection with, the analysis of this document. This report is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act (Cap. 289). The Product is made available by The Citigroup Private Bank in Singapore through Citibank, N.A.,

Singapore Branch, a licensed bank in Singapore that is regulated by Monetary Authority of Singapore. Please contact your Private Banker in Citibank N.A., Singapore Branch if you have any queries on or any matters arising from or in connection with this document. This report is intended for recipients who are accredited, expert and institutional investors as defined under the Securities and Futures Act (Cap. 289). This report is distributed in Singapore by Citibank Singapore Ltd ("CSL") to selected Citigold/Citigold Private Clients. CSL provides no independent research or analysis of the substance or in preparation of this report. Please contact your Citigold/Citigold Private Client Relationship Manager in CSL if you have any queries on or any matters arising from or in connection with this report. This report is intended for recipients who are accredited investors as defined under the Securities and Futures Act (Cap. 289). Citigroup Global Markets (Pty) Ltd. is incorporated in the **Republic of South Africa** (company registration number 2000/025866/07) and its registered office is at 145 West Street, Sandton, 2196, Saxonwold. Citigroup Global Markets (Pty) Ltd. is regulated by JSE Securities Exchange South Africa, South African Reserve Bank and the Financial Services Board. The investments and services contained herein are not available to private customers in South Africa. The Product is made available in the **Republic of China** through Citigroup Global Markets Taiwan Securities Company Ltd. ("CGMTS"), 14 and 15F, No. 1, Songzhi Road, Taipei 110, Taiwan and/or through Citibank Securities (Taiwan) Company Limited ("CSTL"), 14 and 15F, No. 1, Songzhi Road, Taipei 110, Taiwan, subject to the respective license scope of each entity and the applicable laws and regulations in the Republic of China. CGMTS and CSTL are both regulated by the Securities and Futures Bureau of the Financial Supervisory Commission of Taiwan, the Republic of China. No portion of the Product may be reproduced or quoted in the Republic of China by the press or any third parties [without the written authorization of CGMTS and CSTL]. If the Product covers securities which are not allowed to be offered or traded in the Republic of China, neither the Product nor any information contained in the Product shall be considered as advertising the securities or making recommendation of the securities in the Republic of China. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security or financial products. Any decision to purchase securities or financial products mentioned in the Product must take into account existing public information on such security or the financial products or any registered prospectus. The Product is made available in **Thailand** through Citicorp Securities (Thailand) Ltd., which is regulated by the Securities and Exchange Commission of Thailand. 399 Interchange 21 Building, 18th Floor, Sukhumvit Road, Klongtoey Nua, Wattana, Bangkok 10110, Thailand. The Product is made available in **Turkey** through Citibank AS which is regulated by Capital Markets Board. Tekfen Tower, Eski Büyükdere Caddesi # 209 Kat 2B, 23294 Levent, Istanbul, Turkey. In the **U.A.E.**, these materials (the "Materials") are communicated by Citigroup Global Markets Limited, DIFC branch ("CGML"), an entity registered in the Dubai International Financial Center ("DIFC") and licensed and regulated by the Dubai Financial Services Authority ("DFSA") to Professional Clients and Market Counterparties only and should not be relied upon or distributed to Retail Clients. A distribution of the different Citi Research ratings distribution, in percentage terms for Investments in each sector covered is made available on request. Financial products and/or services to which the Materials relate will only be made available to Professional Clients and Market Counterparties. The Product is made available in **United Kingdom** by Citigroup Global Markets Limited, which is authorised by the Prudential Regulation Authority ("PRA") and regulated by the Financial Conduct Authority ("FCA") and the PRA. This material may relate to investments or services of a person outside of the UK or to other matters which are not authorised by the PRA nor regulated by the FCA and the PRA and further details as to where this may be the case are available upon request in respect of this material. Citigroup Centre, Canada Square, Canary Wharf, London, E14 5LB. The Product is made available in **United States** by Citigroup Global Markets Inc, which is a member of FINRA and registered with the US Securities and Exchange Commission. 388 Greenwich Street, New York, NY 10013. Unless specified to the contrary, within EU Member States, the Product is made available by Citigroup Global Markets Limited, which is authorised by the PRA and regulated by the FCA and the PRA.

Pursuant to Comissão de Valores Mobiliários Rule 483, Citi is required to disclose whether a Citi related company or business has a commercial relationship with the subject company. Considering that Citi operates multiple businesses in more than 100 countries around the world, it is likely that Citi has a commercial relationship with the subject company.

Many European regulators require that a firm must establish, implement and make available a policy for managing conflicts of interest arising as a result of publication or distribution of investment research. The policy applicable to Citi Research's Products can be found at https://www.citivelocity.com/cvr/eppublic/citi_research_disclosures.

Compensation of equity research analysts is determined by equity research management and Citigroup's senior management and is not linked to specific transactions or recommendations.

The Product is not to be construed as providing investment services in any jurisdiction where the provision of such services would not be permitted.

Subject to the nature and contents of the Product, the investments described therein are subject to fluctuations in price and/or value and investors may get back less than originally invested. Certain high-volatility investments can be subject to sudden and large falls in value that could equal or exceed the amount invested. Certain investments contained in the Product may have tax implications for private customers whereby levels and basis of taxation may be subject to change. If in doubt, investors should seek advice from a tax adviser. The Product does not purport to identify the nature of the specific market or other risks associated with a particular transaction. Advice in the Product is general and should not be construed as personal advice given it has been prepared without taking account of the objectives, financial situation or needs of any particular investor. Accordingly, investors should, before acting on the advice, consider the appropriateness of the advice, having regard to their objectives, financial situation and needs. Prior to acquiring any financial product, it is the client's responsibility to obtain the relevant offer document for the product and consider it before making a decision as to whether to purchase the product. Citi Research generally disseminates its research to the Firm's global institutional and retail clients via both proprietary (e.g., Citi Velocity and Citi Personal Wealth Management) and non-proprietary electronic distribution platforms. Certain research may be disseminated only via Citi's proprietary distribution platforms; however such research will not contain changes to earnings forecasts, target price, investment or risk rating or investment thesis or be otherwise inconsistent with the author's previously published research. Certain research is made available only to institutional investors to satisfy regulatory requirements. Individual Citi Research analysts may also opt to circulate published research to one or more clients by email; such email distribution is discretionary and is done only after the research has been disseminated.

The level and types of services provided by Citi Research analysts to clients may vary depending on various factors such as the client's individual preferences as to the frequency and manner of receiving communications from analysts, the client's risk profile and investment focus and perspective (e.g. market-wide, sector specific, long term, short-term etc.), the size and scope of the overall client relationship with Citi and legal and regulatory constraints.

Citi Research product may source data from dataCentral. dataCentral is a Citi Research proprietary database, which includes Citi estimates, data from company reports and feeds from Thomson Reuters. The printed and printable version of the research report may not include all the information (e.g., certain financial summary information and comparable company data) that is linked to the online version available on Citi's proprietary electronic distribution platforms.

© 2014 Citigroup Global Markets Inc. Citi Research is a division of Citigroup Global Markets Inc. Citi and Citi with Arc Design are trademarks and service marks of Citigroup Inc. and its affiliates and are used and registered throughout the world. All rights reserved. Any unauthorized use, duplication, redistribution or disclosure of this report (the "Product"), including, but not limited to, redistribution of the Product by electronic mail, posting of the Product on a website or page, and/or providing to a third party a link to the Product, is prohibited by law and will result in prosecution. The information contained in the Product is intended solely for the recipient and may not be further distributed by the recipient to any third party. Where included in this report, MSCI sourced information is the exclusive property of Morgan Stanley Capital International Inc. (MSCI). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be reproduced, disseminated or used to create any financial products, including any indices. This information is provided on an "as is" basis. The user assumes the entire risk of any use made of this information. MSCI, its affiliates and any third party involved in, or related to, computing or compiling the information hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of this information. Without limiting any of the foregoing, in no event shall MSCI, any of its affiliates or any third party involved in, or related to, computing or compiling the information have any liability for any damages of any kind. MSCI, Morgan Stanley Capital International and the MSCI indexes are services marks of MSCI and its affiliates. The Firm accepts no liability whatsoever for the actions of third parties. The Product may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the Product refers to website material of the Firm, the Firm has not reviewed the linked site. Equally, except to the extent to which the Product refers to website material of the Firm, the Firm takes no responsibility for, and makes no representations or warranties whatsoever as to, the data and information contained therein. Such address or hyperlink (including addresses or hyperlinks to website material of the Firm) is provided solely for your convenience and information and the content of the linked site does not in anyway form part of this document. Accessing such website or following such link through the Product or the website of the Firm shall be at your own risk and the Firm shall have no liability arising out of, or in connection with, any such referenced website.

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST
