

Senior tranches – The best long out there?

BES may be the straw that breaks the camel's back

- **Super senior tranches have been a very attractive long risk trade, from a fundamental and pricing point of view, for a long time.**
 - **But they have been underperforming the index:** the demand for tranche risk has been almost exclusively on the equity part and single name dispersion has collapsed as wide names have outperformed tight ones.
- **This could be about to change.** The fundamental / pricing reasons to go long risk super senior haven't changed; and the reasons which have prevented super senior tranches from outperforming the index to date are unlikely to do so going forward.
- **"Deep" pocket hedge funds and sophisticated real money investors have started to sell super senior protection, and the unshakable faith of equity tranche holders may have taken a substantial hit with the (still unfolding) BES story.**
 - BES should reverse two trends, namely the downward trajectory of spread dispersion and the fear of idiosyncratic events.
- **The BES story flips the balance of probabilities as far as we are concerned and makes us bullish on long dated super senior risk.** During 2013 and the first half of 2014 we argued that it wasn't the right time to go long risk super senior; our views became more balanced in [May](#) after seeing the first investors pulling the trigger.
 - **We like super senior longs outright.**
 - For those investors who don't want all the directional risk, we would recommend **selling super senior protection vs. a light delta** to make the trade flat or slightly positive carry (we review this trade in our last section).
- **Equity tranches? We wouldn't be long equity tranches except in very short dated maturities.** We still like short dated equity longs, i.e. S9 Jun-15 equity. It has recently suffered on the back of BES, but we still think it's a good hold-to-maturity trade. We think BES has more relevance regarding the message it sends to the tranche market on how it is underpricing idiosyncratic risk rather than regarding the risk of actual losses on BES senior CDS.

Abel Elizalde

+44-20-3569-4446

abel.elizalde@citi.com

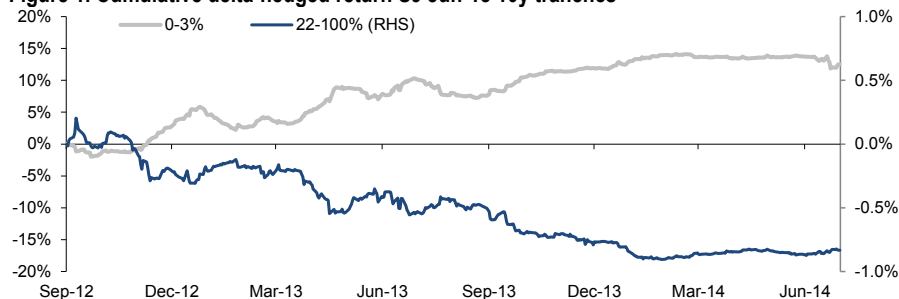
See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

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.

Besides apparently ticking all the boxes, super senior longs have consistently underperformed the index for the past couple of years (Figure 1) given (i) strong demand for equity risk from the fast money community, pushing correlations to record high levels, and (ii) the collapse in spread dispersion among credits (widest outperforming).

We think that may be changing though for fundamental, pricing and technical reasons as we review next. “Deep” pocket hedge funds and sophisticated real money investors have started to sell super senior protection, and the unshakable faith of equity tranche holders may have taken a substantial hit with the (still unfolding) BES story. Moreover, as Figure 1 shows, the P&L of selling delta-hedged equity protection hasn’t been that good recently, and the P&L of selling delta-hedged super senior protection has started to show positive numbers in the past few months. Sellers of equity tranche protection are probably starting to wonder if there’s any upside left in the trade; and potential sellers of super senior will be wondering if the time has come to pull the trigger.

Figure 1. Cumulative delta-hedged return S9 Jun-18 10y tranches



Source: Citi Research, Markit. As % of notional, long tranche risk. Daily delta rebalancing.

What hasn’t changed?

The fundamental & pricing reasons which made senior tranches a good long haven’t changed ...

1. Central bank support reducing systemic risk

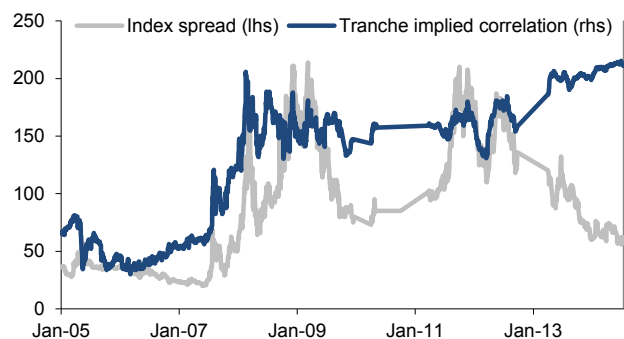
The ECB may have been behind the Fed, BoE and BoJ in supporting the economy via non-traditional measures; but they haven’t spared much when dealing with situations which created systemic risk – mainly supporting periphery countries and banks as well as being on top of banks (stress tests etc) more regularly and comprehensively than they used to. On the back of this, systemic risk metrics like financial or periphery spreads have rallied substantially over the past year or so. However, the tranche market still prices very high systemic risk.

2. Systemic risk is very expensive in the tranche market

Correlations are at all-time highs – see Figure 2 and Figure 3. Pricing in a relatively thin market, like the tranche one in the recent past, can deviate substantially and for a long time whenever a trade becomes popular and profitable. Selling equity tranche protection has been that trade; the returns have been extremely strong as investors chased high spread longs and the widest credits (banks and periphery) outperformed.

Figure 2. iTraxx Main 5y on-the-run index spread and correlation

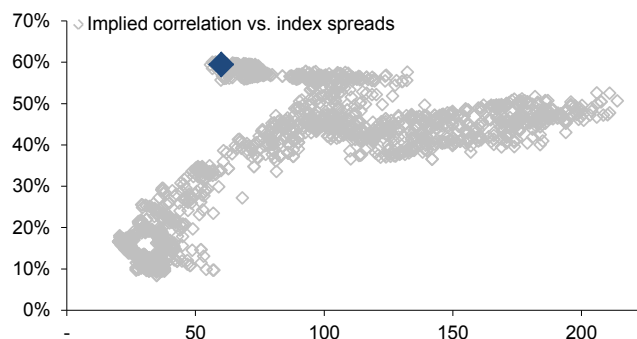
LHS: spread, bp. RHS: equity implied correlation, %.



Source: Citi Research, Markit.

Figure 3. Equity correlation vs. index spread

X-axis: spread, bp. Y-axis: equity implied correlation, %.



Source: Citi Research, Markit. Daily data points since Jan-05.

Figure 4. Main 5y on-the-run index underlying single name dispersion



Source: Citi Research, Markit. Dispersion: St. Dev. Of single name spreads divided by average spread.

We don't think that the current level of correlation is a reflection of the tranche market belief in the level of systemic risk; it looks to be more the result of a very profitable trade which has become crowded.

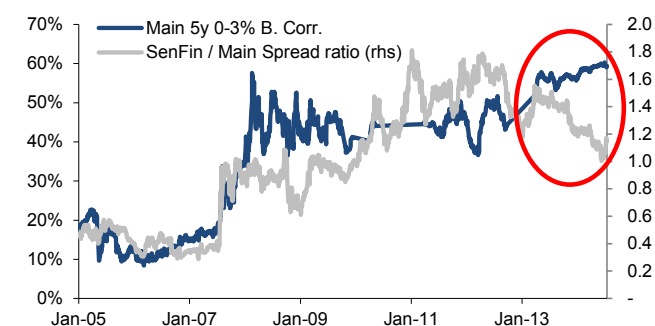
But "markets can stay irrational longer than you can remain solvent".

Not only are tranche implied correlations very high, but spread dispersion in IG is extremely low (Figure 4). The reduction in dispersion has contributed to the outperformance of equity and the underperformance of super seniors; but it doesn't seem that has much further to go.

Other metrics of systemic risk have gone in the opposite direction to tranche implied correlations for the past year and a half. Figure 5 and Figure 6 overlap tranche correlations with (i) the ratio of financial spreads to Main and (ii) the ratio of periphery spreads to Main respectively.

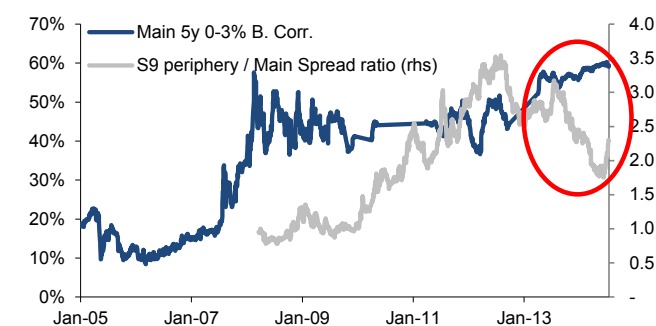
Figure 5. Tranche correlation vs. Ratio of SenFin to Main spreads

5y on-the-run indices.



Source: Citi Research, Markit.

Figure 6. Tranche correlation vs. Ratio of S9 periphery credits to Main spreads (5y spreads)¹



Source: Citi Research, Markit.

¹ 19 periphery credits in S9 index: Hellenic Telecom, Unicredit, Assicurazioni Generali, Enel, Finmeccanica, Intesa Sanpaolo, Bca Monte Dei Paschi, Telecom Italia, Edp Energias De Portugal, Bco Espirito Santo, Portugal Telecom, Gas Nat (double weight), Bco Bilbao Vizcaya Argentaria, Endesa, Iberdrola, Repsol, Bco Santander, Telefonica.

3. Tight spreads everywhere else pushing investors to start searching for leverage via synthetics

Hedge funds looking for double digit returns were keen to sell equity protection given the lack of alternatives. That has been going on for a while.

The new development is that many investors, not only hedge funds targeting high returns, are now considering leveraging up via synthetics; and these new potential sellers of synthetic protection are unlikely to go for equity tranche risk given the jump-to-default risk; they are more likely to favor selling index protection and/or mezz/senior protection.

We have been waiting for this trend to pick up for a while, and while it's not happening as quickly as we anticipated, all the indicators we see continue to point in this direction. If we are right, mezz and senior tranches, not equity, in investment grade portfolios will be what benefits the most – see our [recent trade idea on Xover vs. 3-6%](#).

What has changed?

The technical reasons which made senior tranche longs unattractive before are changing ...

A trade may make a lot of sense, with pricing away from “fundamentals” and crowded positions, but still take a long time to play out. One needs either a few investors to take the other side in enough size or an event shaking the confidence of the holders of that trade, pushing enough of them to unwind. Then the trade can unravel very quickly. We may not be quite there yet there for the long equity tranche trade, but both of the requirements above are starting to play out.

4. Hedge funds start taking positions

Like in the CLO market, the tranche market has seen very few takers of super senior risk. The investor type who used to take super senior risk back in 04-07 is no longer with us. We were expecting big real money investors to pull the trigger first and sell super senior positions, but it's actually fast money investors who have started to dip their toes in this trade first.

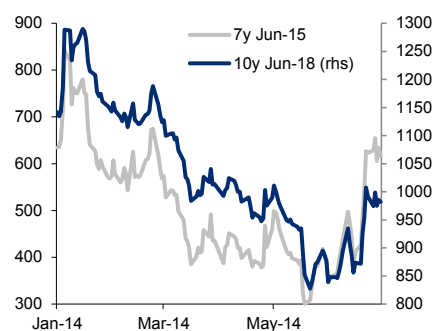
True that super senior spreads are tight, but given the low initial margins they require, the potential returns on initial margin are second to none. We think fast money accounts will continue adding super senior longs and, as the trade starts to play out, the real money investors we originally thought should be the first ones to get involved will likely follow.

5. BES: Idiosyncratic risk is probably higher than what was priced in²

Back in 2005, the GM and Ford downgrades caused a “correlation crisis” as investors woke up to the fact that IG companies could become distressed and even default. We think the BES story can do something similar. Although we don't think BES senior risk will suffer default losses, it should make people perceive that idiosyncratic risks in iTraxx Main portfolios are likely underpriced by the tranche market. We think that part of the widening in BES spreads, especially in the very front end of the senior curve (Figure 7 and Figure 8) has been caused by holders of Series 9 equity tranche risk hedging their jump-to-default.

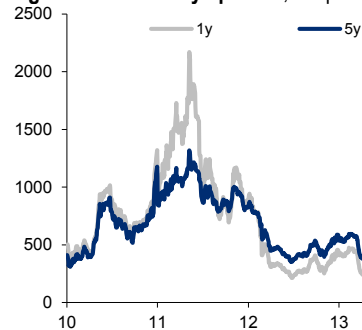
² Our US colleagues have been emphasizing this phenomenon, and it's potential reversal, in the US for a while: [The Credit Index Call: Should We Be Concerned about Defaults?](#), A. Basu, Apr-14.

Figure 9. S9 equity tranche spreads, in bp



Source: Citi Research, Markit.

Figure 7. BES 1 & 5y spreads, in bp



Source: Citi Research, in bp.

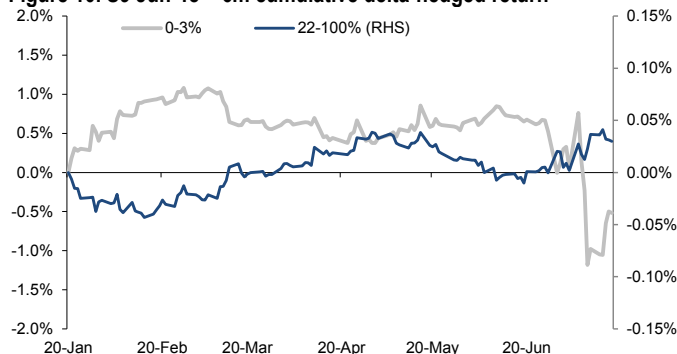
Figure 8. BES 1s5s spread curve, in bp



Source: Citi Research, in bp.

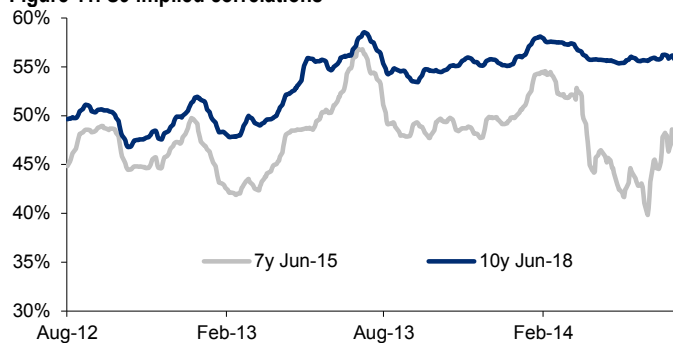
The events surrounding BES have caused Series 9 equity tranches to widen (Figure 9) and to underperform the index (Figure 10); super senior tranches have outperformed as a result, with correlations falling (Figure 11). Although equity tranches in Series 21 haven't underperformed their deltas given that neither BES nor Portel are in the portfolio, the message is the same: **isn't idiosyncratic risk underpriced?**

Figure 10. S9 Jun-18 – 6m cumulative delta-hedged return



Source: Citi Research, Markit. As % of notional, long tranche risk. Daily delta rebalancing.

Figure 11. S9 implied correlations



Source: Citi Research, Markit. Equity tranche, 5d moving av.

Where does this leave us?

Visit our [iTraxx tranche daily analytics](#) for more details on tranche pricing and performance: [Series 9](#), [Series 19](#) and [Series 21](#).

It leaves us recommending long dated super senior long risk positions. Series 9 Jun-18 is probably the best place to express that view at the moment given the higher liquidity and the fact that the BES/Portel story still has room to play out. However, the medium term view is applicable to Series 21.

Figure 12. S9 – Tranche spreads, bp

Series 9	Jun-15	Jun-18
0-3%	617	982
3-6%	22	273
6-9%	15	149
9-12%	7	90
12-22%	4	50
22-100%	2	18
Ref	21	58

Source: Citi Research, Markit. Mid, COB yesterday.

Figure 13. S21 – Tranche spreads, bp

Series 21	Jun-17	Jun-19
0-3%	626	829
3-6%	141	259
6-12%	56	142
12-100%	12	28
Ref	35	61

Source: Citi Research, Markit. Mid, COB yesterday.

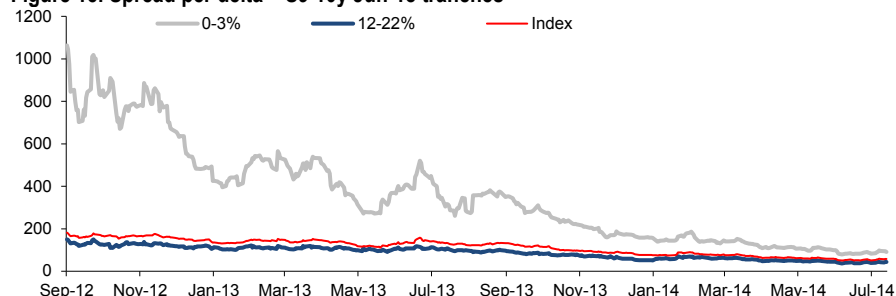
Figure 14. Jun-18 S9 Spread per delta

	Spread	Delta	Spr / Delta
0-3%	982	10.4	94
3-6%	273	5.2	52
6-9%	149	3.1	48
9-12%	90	2.0	45
12-22%	50	1.1	45
22-100%	18	0.4	49
Ref	58	1	58

Source: Citi Research, Markit. Mids as of COB yesterday.

On long dated maturities, the spread per unit of delta one gets in the different tranches has compressed massively (see Figure 14 and Figure 15). Equity longs don't look that attractive any more.

Figure 15. Spread per delta – S9 10y Jun-18 tranches



Source: Citi Research, Markit.

We still like [short dated equity longs, i.e. S9 Jun-15 equity](#). It has suffered recently because of BES, but we still think it's a good hold-to-maturity trade. We think BES has more relevance regarding the message it sends to the tranche market on how it's underpricing idiosyncratic risk than regarding the risk of actual losses on BES senior CDS.

Trade Idea

Long risk S9 22-100% Jun-18 (10y) tranche vs. light delta

- Our preferred way to go long risk super senior is with a light delta of 0.2x (vs. its current 0.36x delta) in order to make the trade positive time value and still keep the correlation exposure.

Figure 16. Trade details

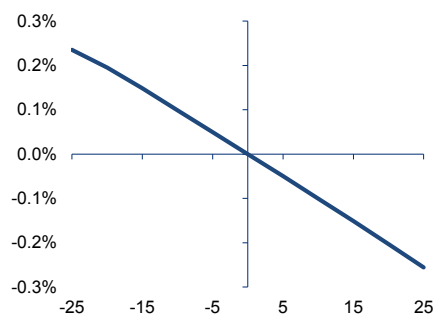
Index	Tranche	Maturity	Upfront	Coupon	Spread	Protection	Notional (€m)	Upfront (€m)	Coupon (€m)	12m time val. (€m)
ITXEUR S9	22-100%	Jun-18	-0.35%	25	16	Sell	500	-1.73	1.25	1.70
ITXEUR S9	Index	Jun-18	-4.56%	175	58	Buy	100	4.56	-1.75	-1.05
Total								2.86	-0.5	0.65

Source: Citi Research, Markit. Indicative spreads and prices shown.

The trade generates a net long risk spread exposure and a very small (positive) jump-to-default of ~0.1% of the tranche notional.

Figure 17. Spread exposure – bp shocks

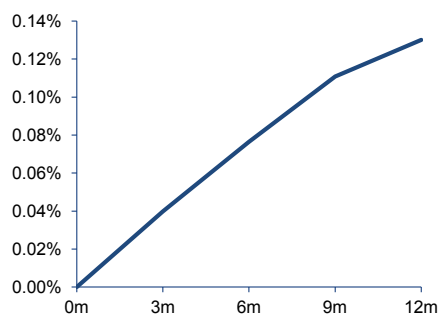
X-axis: spread shock, in bp, to all the maturities of all the credits in the index. Y-axis: trade MtM as % of 22-100% notional.



Source: Citi Research, Markit.

Figure 18. Trade time value

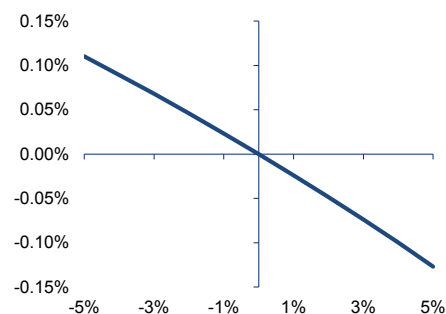
Including roll-down and carry, as % of 22-100% notional.



Source: Citi Research, Markit.

Figure 19. Correlation exposure - % shocks

X-axis: correlation shock, % additive. Y-axis: trade MtM as % of 22-100% notional.



Source: Citi Research, Markit.

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 19 Tranche Report iTraxx Series 21 Tranche Report
Curves	iTraxx Curve P&L Report	Indices	Main Report Crossover Report CDS Indices Positioning Report CDS Indices Trading Volumes Report
Returns	European Credit Derivatives Returns		

Recent Trade Ideas

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
Options -	Sell strangles and go on holidays: Position for spreads to stay in the recent range in mid-January	9 Dec 2013
Tranches -	Sell S9 Jun-18 6-9% protection vs. Xover 5y S20	15 Nov 2013
Tranches -	Sell S9 Jun-18 22-100% protection vs. light delta	15 Nov 2013
Indices -	Long risk Senior Fins. vs. short risk Main	5 Nov 2013
Options -	Crossover receiver ladders	23 Oct 2013
Options -	Long risk CDX IG vs. Main via Receivers	15 Oct 2013
Options -	Buy Senior Financials straddles vs. sell Crossover straddles	9 Oct 2013
Tranches -	Long risk equity vs. short risk 3-6% in S19 Jun-16 (3y)	26 Sep 2013

European Credit Derivatives Views & Trades Investor Presentation

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

Other publications

Scottish independence – A succession event for UK sovereign CDS? (H. Lorenzen)	16 July 2014
2014 CDS Definitions getting closer II – Update on protocol and CoCo supplement	11 July 2014
Hedging the tail – Why real money should consider all options (with 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
Global Structured Credit Outlook: A Rockier Ride (R Roy, A Basu, K Malhotra, R Brauchler)	20 Dec 2013
2013 Trading Volumes in European Credit: CDS Indices, Single Name CDS and IG Bonds	5 Dec 2013
Credit Options - What did investors do in 2013? What will they do in 2014? (2013 European Credit Conference Presentation)	4 Dec 2013
Credit Index Options 1-0-1: Launching our option pricing tool @ CitiVelocity (2013 European Credit Conference Presentation)	2 Dec 2013
Europe Returns: Assessing value across flow and structured credit assets	22 Nov 2013
iTraxx Tranches Views & Trades: Mezz may be back next year	15 Nov 2013
Financial CDS to get a re-vamp	7 Aug 2013
Hedging menu: payer spreads, 3s5s flatteners and Jun 15/18 equity tranche flatteners	28 Mar 2013
What bail-in means for CDS	11 Feb 2013

Source: Citi Research.

Trade Recommendations Summary

We are opening the trade recommended in this report, and closing three trades: equity vs. straddles, Main vs. CDX IG vol and receiver 1x2 (expired last week).

Figure 20. Open trades – Summary and P&L

Trade Description	Leg	Format	Direct.	Notnl.	Entry Upfront	Entry Spread	Coupon	Current Upf.	Current Spread	P&L*
Sell 1m Main straddles *** 09-Jan-14	Sell 1m Main straddles	Price	Buy	1.00	0.00%			0.83%		0.83%
									Total	0.83%
Payer spread vs. index long *** 09-Jan-14	Buy 3m 25-60% pay spread Sell index prot.	Price Price	Buy Buy	1.00 1.00	0.00% 0.00%			-0.57% 1.39%		-0.57% 1.39%
									Total	0.82%
SenFin vs. Xover Recs *** 09-Jan-14	Buy 3m SenFin Recs Sell 3m Xover Recs	Price Price	Buy Buy	1.00 0.29	0.00% 0.00%			0.76% -2.50%		0.76% -0.74%
									Total	0.03%
Releveraging trade 24-Feb-14	Basket of low spread/leverage CDS Main NonFins	Prot. Prot.	Buy Sell	1.00 0.50	-3.14% -1.54%	35 67	100 100	-3.31% -1.98%	32 59	-0.49% 0.38%
									Total	-0.11%
iTraxx Main 5s10s flattener 25-Apr-14	Main S21 5y Main S21 10y	Prot. Prot.	Buy Sell	1.36 1.00	-1.42% 1.48%	71 117	100 100	-1.88% -0.01%	61 100	-0.94% 1.73%
									Total	0.79%
Series 9 Jun-15 0-3% 21-May-14	Series 9 Jun-15 0-3%	Prot.	Sell	1.00	-0.75%	430	500	1.06%	617	-1.01%
									Total	-1.01%
3-6% vs. Crossover 12-Jun-14	Sell 3-6% S21 Main prot. Buy S21 Xover prot.	Prot. Prot.	Sell Buy	1.00 1.00				7.35% -11.19%	259 250	-0.75% 0.44%
									Total	-0.31%
Long risk super senior 21-Jul-14	S9 22-100% Jun-18 S9 Index Jun-18	Prot. Prot.	Sell Buy	1.00 0.20	-0.35% -4.46%	16 58.000	25 175			
									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.

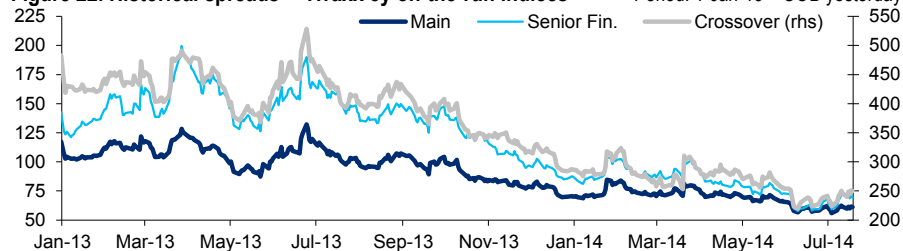
Figure 21. Open and closed trades summary statistics

Number	Open	Closed*	Percentage	Open	Closed*
In profit	4	20	In profit	57%	69%
In loss	3	9	In loss	43%	31%
	7	29			

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

Representative Market Conditions

Figure 22. Historical spreads – iTraxx 5y on-the-run indices



Source: Citi Research, Markit. In bp.

Figure 23. Closed trades since Oct-13 – Summary and P&L

Trade Description	Leg	Format	Direct.	Notnl.	Entry Upfront	Entry Spread	Coupon	Final Upfront	Final Spread	P&L* 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 Flattener	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%

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.

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. 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.

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.

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
Citigroup Global Markets Inc	Anindya Basu

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 Buyukdere 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.

© 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
