Credit Portfolio Strategy | Global
08 February 2012

A Tail of Three Hedges

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A Tail of Three Hedges

2012 has started with a bang as our US High Grade Corporate Index has tightened 39 bp year-to-date. Given this impressive start to the year, we consider ways to protect a credit portfolio from near term gradual spread widening as well as larger, tail event type shocks. We evaluate the effectiveness of CDS index, option and tranche hedges in limiting the downside risk to a corporate bond portfolio under different scenarios, based on past performance and current costs. To protect a portfolio today from moderate spread widening, we suggest buying 5y protection on CDX.IG or to enter a 120-80% risk reversal. To protect against a more extreme spread widening "tail-risk" event, we prefer buying OTM payers or buying protection in 15-30% tranches.

US and European COAS Relative Value

US HG credit spreads and COAS implied Credit Risk have tightened since the end of December, with the latter outperforming. Relative to a 6m trading range, credit continued to look 'cheap' relative to equity implied risks towards the end of January. European HG followed a similar pattern, as the difference between credit spread and COAS Risk continues to remain in positive territory, although the gap between the two has closed in a little recently. Through the end of January the European universe was trading rich relative to the US. US High Yield issuer spreads declined during January, on par with the decline in Credit Risk.

RVR Alpha Portfolios: CDX IG and iTraxx Jun-Dec Update

We provide an update of our RVRR trading strategy, which uses COAS signals to identify long/short CDS baskets that have the potential to beat a similar position in the benchmark CDS indices. From Jun 2011 through Dec 2011, our Bottom 5 Basket (short basket) generally did better in beating a short position in the index than our Top 5 Basket did in outperforming a long index position. Towards the end of last year, equity volatility was relatively muted, even as credit remained wide. COAS identified a number of names as being 'cheap' in credit due to declining implied volatility, which contributed to portfolio underperformance as credit spreads took time to catch-up.

Refer to important disclosures on page 22 to 24. Link to Definitions on page 21. COAS Certification on page 21.
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On the (h)edge of the precipice

Quantitative Portfolio Strategist, 06 October 2011

A Tail of Three Hedges

2012 has started with a bang. As of February 7th, our C0A0 US High Grade Master Index has tightened 39 bp, the S&P 500 is up 7.11%, and implied volatility, measured by the VIX index is down 6 vol points to 17.65%. Given this impressive start to the year, we consider ways to protect a US High Grade cash portfolio from near term gradual spread widening as well as larger, tail event type shock. This piece builds on our October QPS, *On the (h)edge of the precipice*, that performs similar analysis on a European cash portfolio. Our report focuses on 3 types of hedges: index, option and tranches. Within each type of hedge, we discuss several scenarios for the implementation of each strategy. Depending on one's outlook for 2012, each strategy offers compelling opportunities.

Our credit strategists began the year with a positive outlook for US corporate credit and remain bullish on the asset class. However, with the recent strong performance of the cash market, for those concerned about near term, moderate spread widening, buying protection on CDX.IG or executing a 120-80% Risk Reversal are compelling hedges. A 120-80% Risk Reversal currently costs about $500,000 (on a $100mn delta adjusted notional basis) and would make money if the index were rangebound or slowly crept wider. A Risk Reversal would limit the downside if spreads tighten marginally from current levels, and would offer protection if the market widened. Our back-test data shows that risk reversals would have been the least detrimental in an environment where CDS outperformed cash while outright payer strategies and tranche strategies would have looked attractive from a return to volatility perspective in big widening scenarios.

For those of the more bearish mindset - perhaps concerned, as our strategists are of an oil shock if the situation in Iran worsens (see hyperlinked text above), or, perhaps, a negative surprise coming out of Europe, outright payer options have cheapened significantly in the past month. For example, one can purchase a 120% payer with an upfront cost of about $980,000 on a $100mn delta adjusted notional basis- half the cost from December 27th.

Setting the Stage: Methodology and Assumptions

We begin our analysis by treating the C0A0, High Grade Corporate Master Index, as a proxy for a USD high grade cash portfolio. We sized the portfolio at $100mn and calculated the daily and cumulative results over the course of 8 discreet 3-month time periods. All our hedges were based on Index products – CDX.IG index and options & tranches on the same. The hedge ratio assumed is 1:1 i.e. a $100mn portfolio is hedged with a $100mn equivalent position in the CDX index. For tranches and options, this would mean trading a notional that is equivalent to $100mn on the underlying index based on their respective deltas. Furthermore, we do not delta adjust our notional position daily, but rather rebalanced our positions on the "trade date" and then left the hedge constant throughout the period. Depending on market performance throughout the period, this could have left our positions over/under hedged on any particular day.

The effectiveness of our hedges were assessed on the basis of their total performance, cost and PnL volatility. We also used a simplified version of the Information Ratio (IR), the ratio of portfolio return over the standard deviation of daily returns. Though a simple measure, this ratio is especially useful when evaluating leveraged products as hedges since these are inherently more volatile then the base index. The strategy that best improves this ratio (makes it more positive) is more desirable. Our performance calculations did not take into account transaction costs and was focused solely on hedging spread risk.

Hedging during Distress

Throughout the two years we back-tested, the market underwent three periods of significant stress. In May 2010 (March 22nd-June 22nd time period), as Greece's debt problems first came to light, Spanish debt was downgraded and European bank stress tests failed to restore investor confidence, the C0A0 widened from 168 bps at the beginning of the period to 205 bps at the end of the period. In the summer of 2011, Greek and Portuguese downgrades were followed by stalled US debt ceiling talks and a subsequent US downgrade. This led to investors losing confidence in risky assets. The C0A0 Index widened from 153 bps to 167 bps in the March 23rd to June 22nd period, from 169 bps to 236 bps in the June 23rd to September 20th period, and from 238 bps to 260 bps in the September 21st to December 23rd period. The latter was largely marked by exceptionally low treasury yields as Bernanke instituted "Operation Twist". Table 1 highlights the beginning and ending spreads for each period on the C0A0 Index.

Table 1: C0A0 Index spread (OAS)

Start Date	End Date	Start	End
27-Dec-11	27-Jan-12	260	228
21-Sep-11	23-Dec-11	238	260
23-Jun-11	20-Sep-11	169	236
23-Mar-11	22-Jun-11	153	167
23-Dec-10	22-Mar-11	166	153
22-Sep-10	22-Dec-10	184	168
23-Jun-10	21-Sep-10	206	183
22-Mar-10	22-Jun-10	168	205

Source: BofA Merrill Lynch Global Research

Hedge #1: Buy Protection on CDX.IG

Buying protection on CDX IG is generally the easiest hedge to implement for a cash corporate bond portfolio. In periods of distress, hedging with the index can prove to be effective against systemic widening. For example, last summer, between June 23rd and September 20th, an outright long in the C0A0 Index would have netted a loss of $3.9mn as the Index widened 67 bps. Hedging this exposure with an Index short, however, would have limited the loss to $2.1mn. Additionally, our Information Ratio improved during the period, as the unhedged portfolio would have yielded an IR of -2.65 while the hedged portfolio ratio would have increased to -1.55 (Table 2).

Table 2: Buy 5y CDX.IG, Quarterly rebalancing cost and Information Ratio

Start Date	End Date	Unhedged	Hedged	UF Cost	Carry	3m Unhedged Vol	3m Hedged Vol	Unhedged IR	Hedged IR
22-Mar-10	22-Jun-10	-1,919,000	-727,182	-488,069	255,556	1.39%	1.79%	-1.38	-0.41
23-Jun-10	21-Sep-10	1,474,000	1,160,977	726,894	250,000	0.58%	0.87%	2.54	1.34
22-Sep-10	22-Dec-10	1,619,000	507,450	563,067	252,778	0.52%	0.73%	3.10	0.70
23-Dec-10	22-Mar-11	1,161,000	1,732,509	-660,176	247,222	0.51%	0.73%	2.27	2.39
23-Mar-11	22-Jun-11	-416,000	-375,674	-161,549	252,778	0.39%	0.46%	-1.06	-0.81
23-Jun-11	20-Sep-11	-3,908,000	-2,094,356	-61,758	247,222	1.47%	1.35%	-2.65	-1.55
21-Sep-11	23-Dec-11	-713,000	-1,411,074	2,007,054	258,333	1.87%	1.67%	-0.38	-0.85
27-Dec-11	27-Jan-12	1,903,000	905,344	968,806	86,111	0.54%	0.60%	3.53	1.50

Source: BofA Merrill Lynch Global Research

The March 2010 – June 2010 period provides an interesting glimpse into the effectiveness of hedging a US cash portfolio with CDX versus hedging a European portfolio with iTraxx Main (referenced above *On the (h)edge of the precipice*). In our European back-tests we see that the index hedge would underperform tranche and options hedges during market-wide-sell-offs. Though as we will see later, options and tranche strategies work exceptionally well under widening scenarios, however, we can make the case that an Index hedge can offer very good protection as well. For example, by hedging the cash portfolio with CDX, a portfolio manager would have saved nearly $1.2mn in the March 2010 period. This is the highest savings for that period across all of our strategies while also having the lowest volatility.

Table 3: Spread Widening/Tightening C0A0/CDX

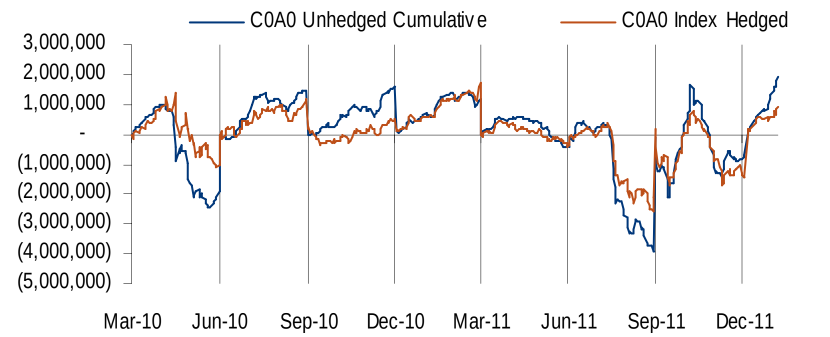
Start Date	End Date	C0A0	CDX
21-Sep-11	23-Dec-11	22	-20
22-Sep-10	22-Dec-10	-23	-27

Source: BofA Merrill Lynch Global Research

In the September 2011 period, both hedged and unhedged portfolios would have lost money as the cash portfolio widened 22 bps while CDS tightened 20 bps. Similarly, in the September 2010 period the CDX index tightened more then the C0A0 (Table 3), denting the overall PnL (portfolio + hedge) quite significantly.

Chart 1 shows the C0A0 performance versus the hedged performance using CDX.IG. The Index hedge tends to be the "moderate" choice out of all our three strategies. We recommend an index hedge as a solid choice to limit moderate spread widening, while utilizing the inherent leverage in options and tranches to help a portfolio in a tail scenario.

Chart 1: C0A0 Unhedged vs. C0A0 Index Hedged

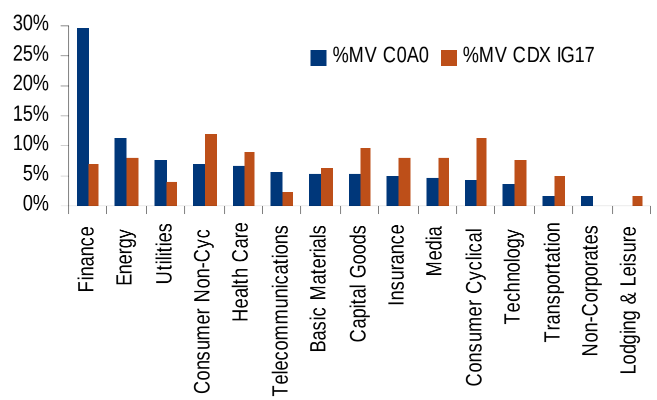


Source: BofA Merrill Lynch Global Research

An important note with index hedging: the CDX index has no bank exposure and just 7% of its total weight in financial exposure whereas the C0A0 Index has 29% of its weight in Financials. Any significant out or underperformance in this sector, then, could effect the performance of our hedge. Chart 2 highlights the difference in sector weights between C0A0 and CDX.IG.

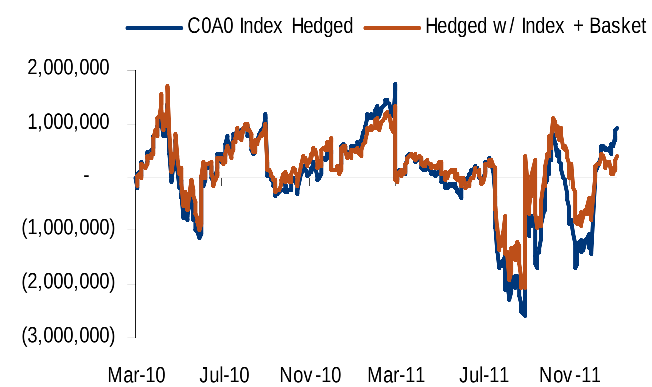
In order to adjust for the sector mismatch between our portfolio and the Index, we added to our hedge a short basket on the six largest banks within the C0A0. Mechanically, we bought protection of $4mn of each name ($24mn total basket size) and then bought protection on $76mn of CDX.IG. Chart 3 shows the results of the portfolio hedged with the Index versus the performance of the portfolio hedged with the Index + Bank basket.

Chart 2: Sector Breakdown, C0A0 vs CDX IG 17



Source: BofA Merrill Lynch Global Research

Chart 3: C0A0 Hedged with Index vs. Hedge with Index + Basket



Source: BofA Merrill Lynch Global Research

Interestingly, buying protect on the 6 largest banks would not have improved the results significantly. In fact, the additional hedge is costlier, increases volatility (thereby reducing the Information Ratio), and still would have underperformed in spread tightening scenarios (Table 4).

Table 4: Buy 5y CDX.IG + Bank Basket, Quarterly rebalancing cost and Information Ratio

Start Date	End Date	Unhedged	Hedged	UF Cost	Carry	3m Unhedged Vol	3m Hedged Vol	Unhedged IR	Hedged IR
22-Mar-10	22-Jun-10	-1,919,000	-496,059	-225,752	255,556	1.39%	1.83%	-1.38	-0.27
23-Jun-10	21-Sep-10	1,474,000	996,595	1,264,690	250,000	0.58%	0.92%	2.54	1.09
22-Sep-10	22-Dec-10	1,619,000	735,246	899,443	252,778	0.52%	0.80%	3.10	0.92
23-Dec-10	22-Mar-11	1,161,000	1,339,987	-118,603	247,222	0.51%	0.74%	2.27	1.81
23-Mar-11	22-Jun-11	-416,000	-21,547	-13,386	252,778	0.39%	0.51%	-1.06	-0.04
23-Jun-11	20-Sep-11	-3,908,000	-1,582,424	429,730	247,222	1.47%	1.62%	-2.65	-0.98
21-Sep-11	23-Dec-11	-713,000	-730,061	3,241,896	258,333	1.87%	1.89%	-0.38	-0.39
27-Dec-11	27-Jan-12	1,903,000	381,916	2,694,063	86,111	0.54%	0.77%	3.53	0.49

Source: BofA Merrill Lynch Global Research

In fact, in spread tightening scenarios, the Index plus Bank basket would have performed worse, as banks tightened more than the index in each of those periods (Table 5).

Table 5: C0A0 ASW and Bank ASW in each period

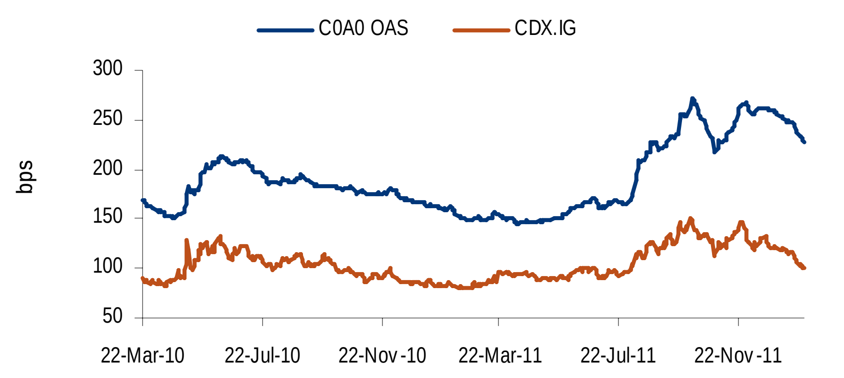
Start	End	C0A0 Start	C0A0 End	Change	Bank Start	Bank End	Change
27-Dec-11	27-Jan-12	260	228	-32	331	281	-49.3
21-Sep-11	23-Dec-11	238	260	22	296	331	34.12
23-Jun-11	20-Sep-11	169	236	67	189	288	99.65
23-Mar-11	22-Jun-11	153	167	14	169	186	16.42
23-Dec-10	22-Mar-11	166	153	-13	194	168	-25.11
22-Sep-10	22-Dec-10	184	168	-16	219	195	-23.29
23-Jun-10	21-Sep-10	206	183	-23	244	218	-25.7
22-Mar-10	22-Jun-10	168	205	37	200	245	44.58

Source: BofA Merrill Lynch Global Research

Putting on an Index Hedge Today

Although our credit strategists remain bullish on US corporate credit, for investors looking to protect against potential moderate spread widening, with CDX.IG currently trading at 95 bps (February 7th), it has become a cheap hedge relative to just 2 months ago when the index was as wide as 140 bps (November 29th, Chart 4). The upfront cost of the index has decreased from $2mn in September 2011, to roughly $1mn in December 2011, to now paying out $250K.

Chart 4: C0A0 vs. CDX.IG



Source: BofA Merrill Lynch Global Research

Hedge #2: Options Strategies

Cross Reference

Credit Derivatives Strategy, 12 August 2011

We tested four hedging strategies involving options – buying a 110% out of the money Payer, buying a 120% out of the money Payer, and two bearish Risk Reversals (120%-80% and 110%-90%). For those unfamiliar with credit options, Risk Reversals are constructed by buying an OTM payer and selling an OTM receiver to finance the first option. The options have a 6m expiry and are rolled every three months. For more detailed discussion on options, their pay-offs and sensitivities please see our Primer which is referenced in the margin.

Buying Out of the Money (OTM) Payers

A Payer option gives the buyer the right (but not the obligation) to buy protection on the underlying index at a pre-defined strike at the expiry of the option. A Payer option, where the strike is much wider than the current implied forward spread of the index i.e. the spread at option expiry as implied by the current curve, is referred to as an Out-of-the-Money (OTM) Payer.

We examined the performance of a 120% OTM Payer (Strike = 120% of Forward Spread) against a less OTM contract struck at 110% of the Forward Spread. A more OTM option (strike further away from current index forward) would perform better in the event of a severe spread widening. Buying an OTM Payer is viewed as a very bearish proposition and should be reserved for preparing the portfolio for a large tail event. It is not typically the type of trade one would put on to protect against a small amount of spread widening, but rather one that would be put on to protect against massive widening due to a shock in the markets. In our back-test, we found the information ratio would have improved using both options strategies in the March 22nd, 2010 and June 23rd, 2011 periods, under high market stress. Had we used options to hedge our portfolio in the September 2010 or September 2011 periods in particular, the hedged portfolio would have massively underperformed the unhedged portfolio (Table 6 and Table 7), as a consequence of the CDS index tightening more than the cash portfolio (Table 3)

Table 6: 110% OTM Payer, rolled quarterly to the 6m maturity contract

Start Date	End Date	Unhedged	Hedged	UF Cost	Carry	3m Unhedged Vol	3m Hedged Vol	Unhedged IR	Hedged IR
22-Mar-10	22-Jun-10	-1,919,000	-837,689	1,546,240	0	1.39%	3.45%	-1.38	-0.24
23-Jun-10	21-Sep-10	1,474,000	369,384	1,665,090	0	0.59%	0.89%	2.50	0.42
22-Sep-10	22-Dec-10	1,619,000	-230,485	1,560,897	0	0.53%	0.80%	3.06	-0.29
23-Dec-10	22-Mar-11	1,161,000	1,092,197	1,080,000	0	0.51%	0.58%	2.26	1.88
23-Mar-11	22-Jun-11	-416,000	-1,005,941	1,162,516	0	0.39%	0.73%	-1.05	-1.37
23-Jun-11	20-Sep-11	-3,908,000	-1,945,012	1,172,334	0	1.49%	1.62%	-2.62	-1.20
21-Sep-11	23-Dec-11	-713,000	-1,293,068	1,660,531	0	1.90%	1.80%	-0.38	-0.72
27-Dec-11	27-Jan-12	1,903,000	649,722	1,705,554	0	0.52%	0.57%	3.68	1.14

Source: BofA Merrill Lynch Global Research

Table 7: 120% OTM Payer, rolled quarterly to the 6m maturity contract

Start Date	End Date	Unhedged	Hedged	UF Cost	Carry	3m Unhedged Vol	3m Hedged Vol	Unhedged IR	Hedged IR
22-Mar-10	22-Jun-10	-1,919,000	-948,470	1,634,181	0	1.39%	3.93%	-1.38	-0.24
23-Jun-10	21-Sep-10	1,474,000	356,695	1,592,900	0	0.59%	0.86%	2.50	0.41
22-Sep-10	22-Dec-10	1,619,000	487,319	1,501,480	0	0.53%	0.65%	3.06	0.75
23-Dec-10	22-Mar-11	1,161,000	1,040,815	1,090,000	0	0.51%	0.61%	2.26	1.72
23-Mar-11	22-Jun-11	-416,000	-1,060,143	1,114,025	0	0.39%	0.69%	-1.05	-1.54
23-Jun-11	20-Sep-11	-3,908,000	-1,907,032	1,212,419	0	1.49%	1.66%	-2.62	-1.15
21-Sep-11	23-Dec-11	-713,000	-1,307,244	1,588,797	0	1.90%	1.94%	-0.38	-0.67
27-Dec-11	27-Jan-12	1,903,000	619,765	1,710,303	0	0.52%	0.63%	3.68	0.99

Source: BofA Merrill Lynch Global Research

Risk Reversals (Buying OTM payer & Selling OTM receiver)

Risk-Reversals (RR) are credit index option structures that perform well in a moderate widening scenario, where the underlying index either remains range bound or grinds wider. A bearish RR is constructed by buying an OTM Payer and financing this by selling an OTM Receiver. We tested two scenarios with different strike combinations – buying a 120% Payer & selling an 80% Receiver and buying the 110% Payer & selling the 90% Receiver.

The IR of our portfolio under both the 120-80% and 110-90% risk reversal combinations would have improved in three scenarios; 1 more then in either outright payer trade (though 1 less than our outright Index hedge). Although risk reversals are cheaper and have lower PnL volatility relative to payers, in tail scenarios, the PnL on a hedged portfolio using a risk reversal trade will be muted relative to a payer strategy. Table 8 shows the results by hedging the portfolio in the March 2010 and June 2011 period for all four option combinations. Notice that the 110% payer in the March 2010 period would have been the best choice as the CDX widened 25 bps (90 bps to 115 bps, strike was 110), while the 120% payer in the June 2011 period, when CDX widened 36 bps (99 bps to 135 bps, strike was 130), would have offered the most protection.

Table 8: PnL Across options strategies and periods

Start Date	End Date	Unhedged	120-80%	110-90%	110%	120%
22-Mar-10	22-Jun-10	--	681,505	883,275	1,081,311	970,530
23-Jun-11	20-Sep-11	--	1,539,043	1,500,044	1,962,988	2,000,968

Source: BofA Merrill Lynch Global Research

Between the two risk reversal structures, the 120-80% is more expensive then the 110-90% while both trades would have yielded similar information ratios. This can be attributed to the higher implied volatility premium an investor would have to pay – usually, a further OTM Payer (120%) is more expensive than one struck closer to the money (110%) and similarly, selling a further OTM Receiver (80%) attracts less premium than one closer to the money (90%).

Table 9: 120-80% Risk Reversal rolled quarterly to the 6m maturity contract

Start Date	End Date	Unhedged	Hedged	UF Cost	Carry	3m Unhedged Vol	3m Hedged Vol	Unhedged IR	Hedged IR
22-Mar-10	22-Jun-10	-1,919,000	-1,237,495	386,429	0	1.39%	2.02%	-1.38	-0.61
23-Jun-10	21-Sep-10	1,474,000	831,509	565,851	0	0.59%	0.85%	2.50	0.98
22-Sep-10	22-Dec-10	1,619,000	388,165	428,686	0	0.53%	0.71%	3.06	0.54
23-Dec-10	22-Mar-11	1,161,000	1,457,984	210,000	0	0.51%	0.58%	2.26	2.51
23-Mar-11	22-Jun-11	-416,000	-1,033,071	277,084	0	0.39%	0.93%	-1.05	-1.11
23-Jun-11	20-Sep-11	-3,908,000	-2,368,957	375,038	0	1.49%	1.36%	-2.62	-1.74
21-Sep-11	23-Dec-11	-713,000	-1,265,827	456,761	0	1.90%	1.49%	-0.38	-0.85
27-Dec-11	27-Jan-12	1,903,000	556,901	76,769	0	0.52%	0.58%	3.68	0.95

Source: BofA Merrill Lynch Global Research

Table 10: 110-90% Risk Reversal rolled quarterly to the 6m maturity contract

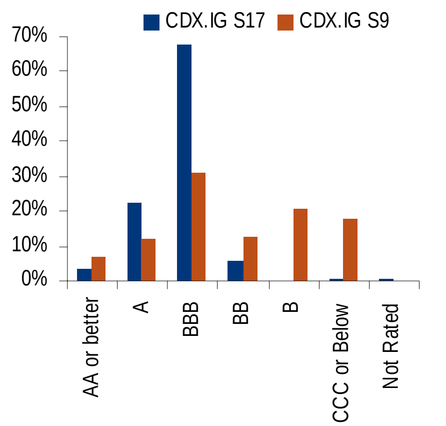
Start Date	End Date	Unhedged	Hedged	UF Cost	Carry	3m Unhedged Vol	3m Hedged Vol	Unhedged IR	Hedged IR
22-Mar-10	22-Jun-10	-1,919,000	-1,035,725	165,402	0	1.39%	1.82%	-1.38	-0.57
23-Jun-10	21-Sep-10	1,474,000	806,645	109,171	0	0.59%	0.85%	2.50	0.95
22-Sep-10	22-Dec-10	1,619,000	-78,916	266,665	0	0.53%	0.75%	3.06	-0.11
23-Dec-10	22-Mar-11	1,161,000	1,493,318	50,000	0	0.51%	0.56%	2.26	2.65
23-Mar-11	22-Jun-11	-416,000	-636,818	59,128	0	0.39%	0.87%	-1.05	-0.73
23-Jun-11	20-Sep-11	-3,908,000	-2,407,956	149,963	0	1.49%	1.36%	-2.62	-1.77
21-Sep-11	23-Dec-11	-713,000	-1,226,064	355,458	0	1.90%	1.47%	-0.38	-0.83
27-Dec-11	27-Jan-12	1,903,000	583,013	-1,931	0	0.52%	0.55%	3.68	1.05

Source: BofA Merrill Lynch Global Research

Hedge #3 Tranche Strategies

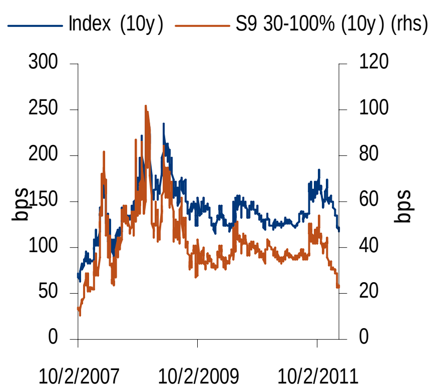
In this section, we discuss hedging the cash portfolio by buying protection on senior 10 year tranches of CDX IG S9. We decided to use a 10 year maturity because with 5 years remaining, these tranches closely mimic the index maturity and duration. Additionally, we chose Series 9 because this was the most liquid among all the index tranches. We must note, however, that by using S9 we are hedging our cash portfolio with lower quality portfolio compared to hedging with S17, for example (Chart 5). Despite the lower quality portfolio, we believe for

Chart 5: CDX.IG S17 vs. S9 Rating Buckets



Source: BofA Merrill Lynch Global Research

Chart 6: CDX IG9 Super Senior (30-100%) running spread from late '07 through 06-Feb-2011



Source: BofA Merrill Lynch Global Research

analysis purposes, using the more liquid S9 was reasonable. Recently, however, S17 tranches have become more liquid, thereby making S17 a more viable hedging option going forward.

While the credit index options discussed above are 'volatility' products, index tranches are 'correlation' products i.e. their value is driven by the expected default correlation among names in a portfolio. As a large number of defaults would need to materialize before a senior tranche is hit with losses, they tend to become riskier (or widen) when default correlations are high. In an environment of high systemic risk, correlation between issuers goes up, which makes senior tranches a good hedge against a market-wide spread widening.

The hedging strategy was tested using the top three senior tranches on CDX.IG 10y – 10-15%, 15-30%, and 30-100%. The top-most, or Super Senior (30-100%) tranche can be viewed as a deep out-of-the-money option on the portfolio loss since we would need a very high default rate for the 30% subordination to be breached. For example, over the course of the US credit crisis, the Super Senior tranche of the CDX Investment Grade index, widened from 8bp in Oct 2007 to over 100bp in late 2008 (Chart 6), as correlations reached record highs.

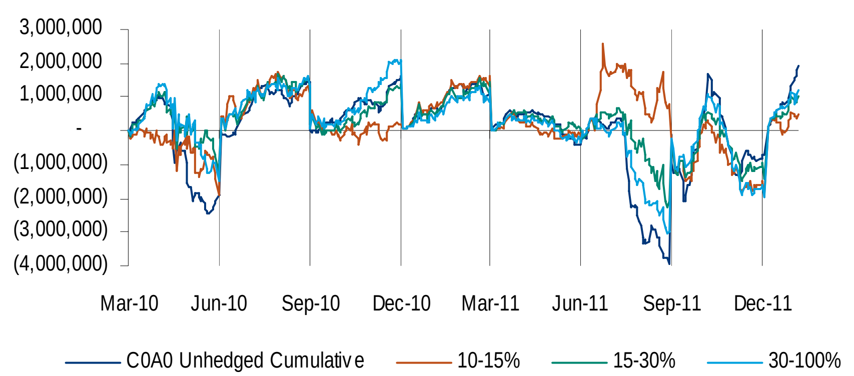
Tranche strategies in general have outperformed options strategies in terms of improving the PnL in more periods, though the volatility of returns tends to be higher. For example, the 10-15% and 15-30% tranches would have each improved the PnL in 4 periods while the 30-100% tranche would have improved the PnL in 5 periods. Table 11 shows the PnL improvement (reduction) given each hedge while Chart 7 shows the PnL of each tranche across every period.

Table 11: PnL improvement (reduction) over each time period

Start Date	End Date	Unhedged	10-15%	15-30%	30-100%
22-Mar-10	22-Jun-10	--	462,963	1,045,455	692,308
23-Jun-10	21-Sep-10	--	(384,615)	(181,818)	(166,667)
22-Sep-10	22-Dec-10	--	(1,450,000)	(263,636)	465,517
23-Dec-10	22-Mar-11	--	454,545	295,556	80,645
23-Mar-11	22-Jun-11	--	260,417	440,000	94,340
23-Jun-11	20-Sep-11	--	4,600,000	1,818,182	900,000
21-Sep-11	23-Dec-11	--	(1,205,357)	(692,308)	(1,276,596)
27-Dec-11	27-Jan-12	--	(1,435,185)	(892,857)	(714,286)

Source: BofA Merrill Lynch Global Research

Chart 7: PnL of C0A0 Unhedged and Hedged with Senior Tranches on CDX S9 10y



Source: BofA Merrill Lynch Global Research

If we look at the Information ratio (Table 12, Table 13, Table 14) of each tranche as an indicator of optimality, we see that each tranche would have improved the information ratio for 3 periods (March 2010, March 2011 and June 2011).

Table 12: CDX IG 10-15%

Start Date	End Date	Unhedged	Hedged	UF Cost	Carry	3m Unhedged Vol	3m Hedged Vol	Unhedged IR	Hedged IR
22-Mar-10	22-Jun-10	-1,919,000	-1,456,037	3,425,926	94,650	1.39%	2.28%	-1.38	-0.64
23-Jun-10	21-Sep-10	1,474,000	1,089,385	4,326,923	96,154	0.58%	1.41%	2.54	0.77
22-Sep-10	22-Dec-10	1,619,000	169,000	4,000,000	101,111	0.52%	1.10%	3.10	0.15
23-Dec-10	22-Mar-11	1,161,000	1,615,545	2,840,909	112,374	0.51%	0.84%	2.27	1.91
23-Mar-11	22-Jun-11	-416,000	-155,583	3,020,833	105,324	0.39%	0.60%	-1.06	-0.26
23-Jun-11	20-Sep-11	-3,908,000	692,000	3,400,000	98,889	1.47%	1.97%	-2.65	0.35
21-Sep-11	23-Dec-11	-713,000	-1,918,357	4,821,429	92,262	1.87%	1.54%	-0.38	-1.24
27-Dec-11	27-Jan-12	1,903,000	467,815	3,937,037	31,893	0.54%	0.87%	3.53	0.54

Source: BofA Merrill Lynch Global Research

Table 13: CDX 15-30%

Start Date	End Date	Unhedged	Hedged	UF Cost	Carry	3m Unhedged Vol	3m Hedged Vol	Unhedged IR	Hedged IR
22-Mar-10	22-Jun-10	-1,919,000	-873,545	-1,681,818	232,323	1.39%	2.31%	-1.38	-0.38
23-Jun-10	21-Sep-10	1,474,000	1,292,182	-409,091	227,273	0.58%	1.25%	2.54	1.03
22-Sep-10	22-Dec-10	1,619,000	1,355,364	-636,364	229,798	0.52%	0.96%	3.10	1.42
23-Dec-10	22-Mar-11	1,161,000	1,456,556	-1,611,111	274,691	0.51%	0.98%	2.27	1.48
23-Mar-11	22-Jun-11	-416,000	24,000	-1,072,727	229,798	0.39%	0.62%	-1.06	0.04
23-Jun-11	20-Sep-11	-3,908,000	-2,089,818	-545,455	224,747	1.47%	1.81%	-2.65	-1.16
21-Sep-11	23-Dec-11	-713,000	-1,405,308	1,156,923	198,718	1.87%	1.60%	-0.38	-0.88
27-Dec-11	27-Jan-12	1,903,000	1,010,143	-642,857	61,508	0.54%	0.65%	3.53	1.55

Source: BofA Merrill Lynch Global Research

Table 14: CDX 30-100%

Start Date	End Date	Unhedged	Hedged	UF Cost	Carry	3m Unhedged Vol	3m Hedged Vol	Unhedged IR	Hedged IR
22-Mar-10	22-Jun-10	-1,919,000	-1,226,692	-8,423,077	491,453	1.39%	2.59%	-1.38	-0.47
23-Jun-10	21-Sep-10	1,474,000	1,307,333	-6,450,000	416,667	0.58%	1.22%	2.54	1.07
22-Sep-10	22-Dec-10	1,619,000	2,084,517	-7,017,241	435,824	0.52%	1.00%	3.10	2.08
23-Dec-10	22-Mar-11	1,161,000	1,241,645	-6,209,677	398,746	0.51%	0.88%	2.27	1.41
23-Mar-11	22-Jun-11	-416,000	-321,660	-7,169,811	476,939	0.39%	0.75%	-1.06	-0.43
23-Jun-11	20-Sep-11	-3,908,000	-3,008,000	-7,400,000	494,444	1.47%	1.37%	-2.65	-2.20
21-Sep-11	23-Dec-11	-713,000	-1,989,596	-7,276,596	549,645	1.87%	1.65%	-0.38	-1.20
27-Dec-11	27-Jan-12	1,903,000	1,188,714	-7,959,184	175,737	0.54%	0.81%	3.53	1.47

Source: BofA Merrill Lynch Global Research

COAS Relative Value

US High Grade

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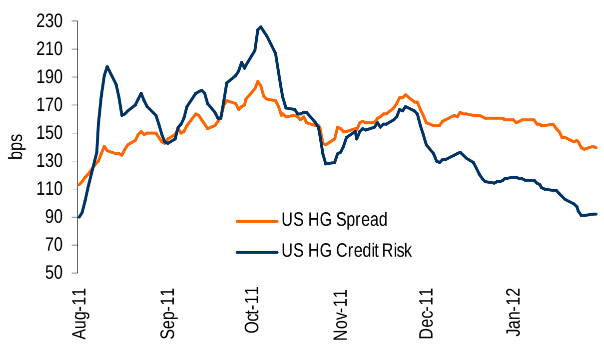
US HG Universe spreads and COAS Credit Risk have tightened since the end of December, though the latter moreso. Credit spreads compressed 20bps (160bps to 140bps), credit risk 26bps (118bps to 92bps). Over the same period equity prices on our COAS universe increased by 5.6%, while implied volatility decreased by 11.3 vol points.

Cross Reference

Introduction to Lighthouse, 30 July 2010

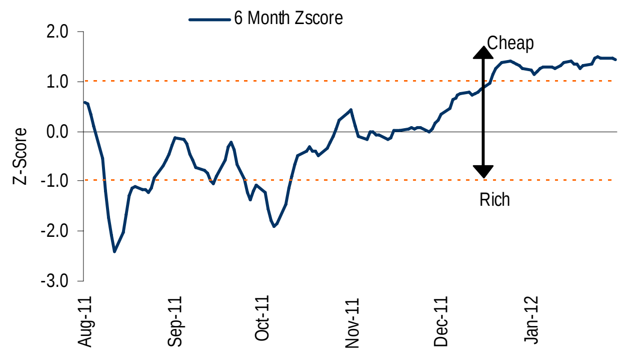
We define our COAS measure of value in the credit market as the difference between credit spread and credit risk – in other words the excess compensation for credit risk (Chart 8). Results presented here are based on averages across High Grade issuers. Because models may suffer from misspecification we prefer to look at the z-score of the COAS - the number of standard deviations the current value is relative to the 6 month average. We consider a value greater than one or less than negative one to be a significant signal. Standing at 1.4, the z-score of the US universe is significant, highlighting a valuation imbalance between the debt and equity markets relative to the 6-month trading range. Chart 9 shows the six-month COAS z-score for the predominately bond-based universe corresponding to Chart 8.

Chart 8: Credit Spreads and Risk compression



Source: BofA Merrill Lynch Global Research
Note: Based on averages across 370 high grade issuers. Credit spreads are from bonds or CDS depending on which is deemed liquid.

Chart 9: Credit remains cheap



Source: BofA Merrill Lynch Global Research
Note: Based on averages across 370 high grade issuers. Credit spreads are from bonds or CDS depending on which is deemed liquid.

European High Grade

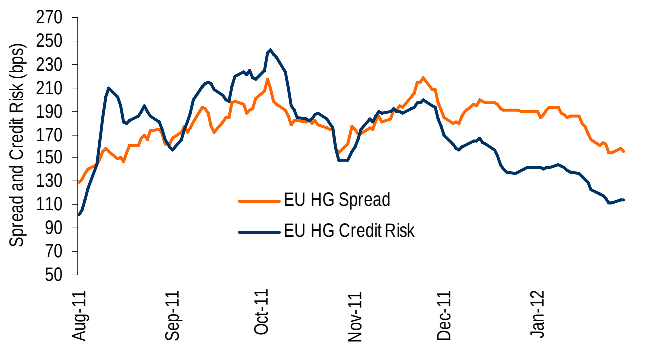
Cross Reference

Capital Structure RV, 06 February 2012

Looking at the European HG COAS universe we see that debt is trading cheap relative to equity as the difference between spread and risk (COAS) remains in positive territory, as measured by our six-month z-score of (1.2 as of January 31st, Chart 11).

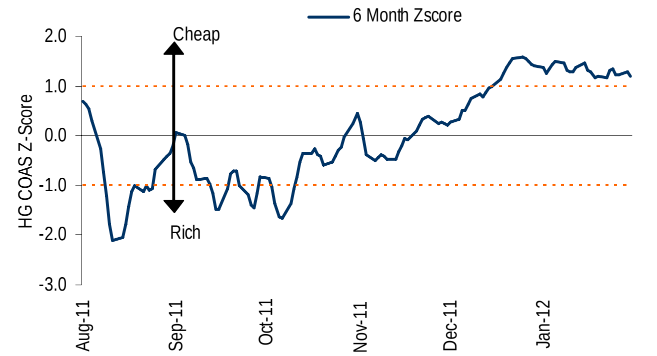
Both credit spreads (189bps vs.156bps) and risk (141bps vs. 114bps) compressed into month end, while equity prices increased 7% over the same period. Higher beta sectors like energy (1.3), finance (1.3), and technology (1.6) lead to relative cheap credit valuations during January.

Chart 10: EU Credit Spread and Risk, like their US counterparts, compressed



Source: BofA Merrill Lynch Global Research
Note: Based on averages across 206 high grade issuers. Credit spreads are from bonds or CDS depending on which is deemed liquid.

Chart 11: European Credit remained cheap relative to equity

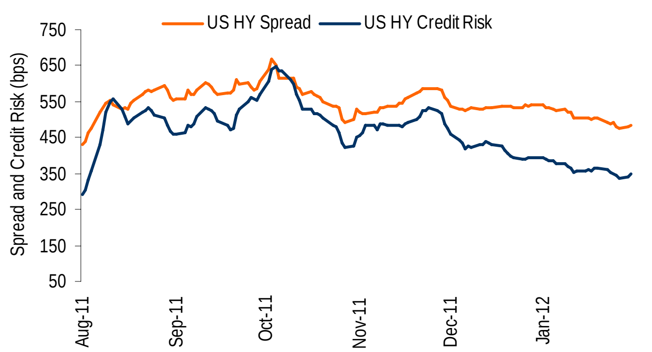


Source: BofA Merrill Lynch Global Research
Note: Based on averages across 206 high grade issuers. Credit spreads are from bonds or CDS depending on which is deemed liquid.

US High Yield

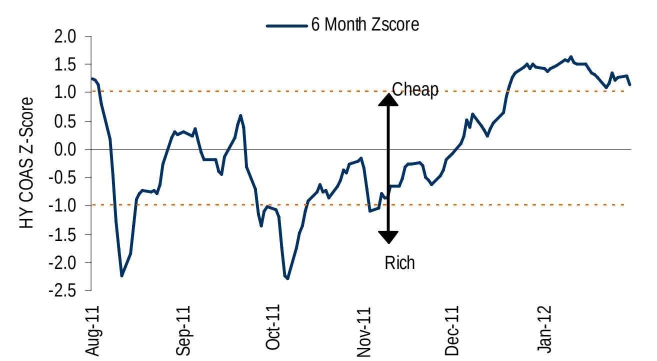
US high-yield issuer spreads declined 11% during January (540 bps vs. 482 bps), on par with the 11% decline in credit risk (394bps vs. 349bps). Equity prices increased 8%, while equity option implied volatility decreased 7%. US High Yield valuation is cheap with a six-month 1.2 z-score at month end.

Chart 12: HY Credit Spread and Credit Risk decline



Source: BofA Merrill Lynch Global Research
Note: Based on averages across 76 high yield issuers. Credit spreads are from bonds or CDS depending on which is deemed liquid.

Chart 13: HY remains cheap

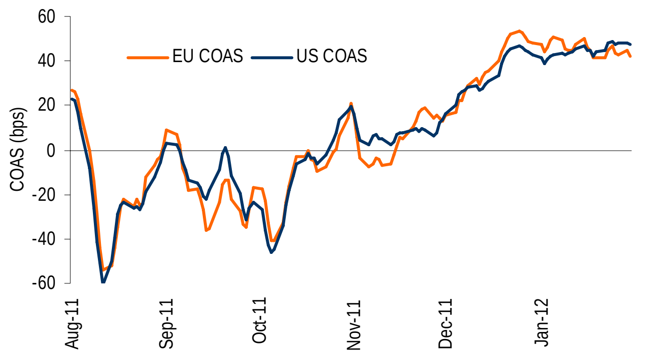


Source: BofA Merrill Lynch Global Research
Note: Based on averages across 76 high yield issuers. Credit spreads are from bonds or CDS depending on which is deemed liquid.

Europe versus US Relative Value

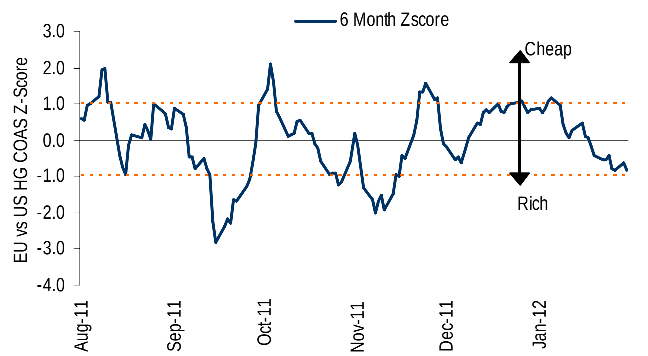
As of January 31st, the European universe was trading 5 bps rich to the US. Our US High Grade COAS value is 47 bps, while our European High Grade C0AS value is 42bps (Chart 14). Calculating the z-score on the difference in COAS, we see that the European universe of COAS names is currently trading near rich relative to its US counterpart, as the six-month z-score stands at -0.8 on January 31st (Chart 15).

Chart 14: European versus US COAS



Source: BofA Merrill Lynch Global Research

Chart 15: Z-score on Difference between European and US COAS



Source: BofA Merrill Lynch Global Research

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Cross Reference

Quantitative Portfolio Strategist, 14 December 2011

Quantitative Portfolio Strategist, 03 June 2011

RVR Alpha Portfolios

We discuss our COAS RVR strategy for CDX IG and iTraxx since our June 2011 inception date (please see sidebar for our methodology and backtest results from our inaugural QPS) The latest Relative Value Rank Report for CDX IG S17 and iTraxx Main S17 can be found in Appendix 1.

CDX IG Jun-Dec 2011 Performance

When we introduced our model RVR Alpha Portfolios in June 2011, our premise was simple. COAS would identify the Top-5 names with equity within the on-the-run CDX index which were expected to outperform based upon our COAS model. Likewise COAS signaled the Bottom-5 name basket which we would buy protection on. As measured by our Relative Value Ranking report, we would rebalance the basket portfolios on a monthly cycle. Our total monthly returns were calculated by looking at mark-to-market and carry. In our calculation of returns, we excluded any transaction costs. Table 15 displays the relative monthly performance for the Top5Basket vs. a basket we call "All Names": all CDX.IG names with traded equity.

Table 15: Monthly Total Returns "Top5 Basket" vs All names (long position)

Month	Top5 Basket	All Names *	Relative
Jun	0.24%	0.05%	Outperform
Jul	-3.26%	-1.26%	Underperform
Aug	-1.25%	-0.22%	Underperform
Sep	-4.25%	-0.83%	Underperform
Oct	3.07%	1.06%	Outperform
Nov	0.43%	0.11%	Outperform
Dec	-0.25%	0.01%	Underperform

Source: BofA Merrill Lynch Global Research, *CDXIG On-The Run with Traded Equity

For the seven months since inception in June the Top5 basket outpaced the All Names passive index 43% of the time, returning a cumulative -5.27% return over the course of the year (no transaction costs). This contrasts to a -1.09% cumulative return on the All Names basket. The 4.18% of underperformance occurred primarily during the July-September period where perpetual underperformers, Berkshire Hathaway, R.R. Donnelly & Sons, AIG and CenturyLink were in the Top 5 basket. As spreads widened in each of these names throughout August and September in particular, the COAS model viewed them as excessively cheap and getting cheaper (equity volatility did not keep pace with the widening). Unfortunately, because our holding period is so short, we realized losses in each period. Tellingly, in October, COAS continued to like Berkshire Hathaway, AIG and CenturyLink (R.R. Donnelly & Sons fell out of our universe) and these names were among the top performers in that month (4.53%, 5.00% and 4.66% monthly returns respectively). This strong outperformance by the very names that underperformed in the previous two periods helped to recoup some performance relative to the All Names basket.

In contrast, the Bottom-5 basket performed better than the Top5 basket, over the last 7 months of the year,as shorting the Bottom 5 each month led to a cumulative return of 2.59% (versus a 1.09% return by shorting All Names). Additionally, the Bottom 5 basket outperformed All Names four of the seven months in our period.

Table 16: Monthy Total Returns "Bottom 5 Basket" vs All names (short position)

Month	Bottom5 Basket	All Names *	Relative
Jun	-0.02%	-0.05%	Outperform
Jul	0.86%	1.26%	Underperform
Aug	0.46%	0.22%	Outperform
Sep	0.54%	0.83%	Underperform
Oct	-1.79%	-1.06%	Underperform
Nov	1.36%	-0.11%	Outperform
Dec	1.17%	-0.01%	Outperform

Source: BofA Merrill Lynch Global Research, *CDXIG On-The Run with Traded Equity

iTraxx EUR 2H2011 Performance

Through the second half of last year, as the latest chapter of the sovereign crisis unfolded in Europe, COAS signalled a number of peripheral issuers as 'looking cheap' in credit, which were then included in the Top5 basket. In fact, between May and November, typically at least 3 out of the 5 names in the basket were peripheral issuers (either corporates or banks) as they continued to look too wide in CDS relative to equity-implied risks as indicated by COAS. While this lead to some outperformance of the Top5 relative to the passive All Names portfolio initially, the former began accumulating heavy losses as the market sold off in Jul-August (Table 17). On a cumulative basis, the Top5 basket underperformed the All Names portfolio by a little over 3% from May to Dec 2011. The average monthly turnover for the basket was 77.5% i.e. on average 3-4 names in the basket had to be sold to enter an equal number of new positions.

Table 17: Monthly Total Returns Top5 vs. AllNames (Long Position)

Month	Top5 Basket	All Names *	Relative
May	-0.40%	-0.19%	Underperform
Jun	-1.33%	-0.52%	Underperform
Jul	-2.21%	-1.33%	Underperform
Aug	-3.05%	-1.38%	Underperform
Sep	-1.57%	-0.71%	Underperform
Oct	1.91%	1.05%	Outperform
Nov	0.74%	0.12%	Outperform
Dec	-0.77%	-0.68%	Underperform

Source: BofA Merrill Lynch Global Research, * ITraxx On-The Run with Traded Equity

Between May and Dec 2011, a short position in the Bottom5 beat a short in the AllNames in three out of the eight months – Aug, Oct and Nov, all periods of a systemic sell-off in the market (Table 18). In the initial months, the basket comprised of more low-beta or non-cyclical names that looked 'rich' in credit. Towards the end of the year though (Sep-Nov), financials began dominating the basket as COAS indicated that CDS spreads hadn't kept pace with the sector's equity underperformance.

The cumulative performance of the two portfolios over the period was quite similar, at 3.64% (AllNames) vs. 3.4% (Bottom5). The Bottom5 basket had an average monthly turnover of 85% over the period i.e 4-5 positions in the basket had to be changed each month.

Table 18: Monthy Total Returns Bottom5 vs. AllNames (Short Position)

Month	Bottom5 Basket	All Names *	Relative
May	0.12%	0.19%	Underperform
Jun	-0.14%	0.52%	Underperform
Jul	0.59%	1.33%	Underperform
Aug	2.12%	1.38%	Outperform
Sep	0.03%	0.71%	Underperform
Oct	-0.55%	-1.05%	Outperform
Nov	0.95%	-0.12%	Outperform
Dec	0.28%	0.68%	Underperform

Source: BofA Merrill Lynch Global Research, * ITraxx On-The Run with Traded Equity

Appendix 1: COAS Relative Value Ranking

The Relative Value Ranking report ranks issuers within a given universe based on their absolute level of COAS and its 3m trend.

Ranking Method

COAS Rank

Issuers are first ranked on the basis of their COAS level, with a rank of 1 corresponding to the highest COAS i.e. the issuer whose credit spread trades at the widest difference to its model credit risk.

Z Rank

Next we rank the trend, which is the statistical z-score of the COAS. A z-score of +2 (-2) implies that the COAS is +2 (-2) standard deviations above (below) its 3m average.

Score

We then calculate a weighted score, which is 51% of the COAS Rank and 49% of the Z Rank.

RV Rank

The RV Rank ranks the Score in ascending order, with 1 representing the best long within the universe

Table 19 shows the ranking for CDX IG S17 names, as of 07-Dec-2011 (the date on which our December universe is chosen).

Table 20 shows the ranking for iTraxx EUR S 17 names, as of 07-Dec-2011 (the date on which our December universe is selected).

Table 19: CDX IG S17 RVR Rank

Ticker	Name	COAS	3M ZScore	COAS Rank	Z Rank	Score	RV Rank
KMP	Kinder Morgan Energy Partners	154	1.74	4	11	7.4	1
GPS	Gap Inc	97	1.95	8	8	8.0	2
SLM	SLM Corp	245	1.68	2	17	9.4	3
MDC	MDC Holdings Inc	59	2.29	15	4	9.6	4
DTV	DIRECTV Grp Inc	94	1.72	9	14	11.5	5
VNO	Vornado Realty Trust	48	2.11	21	6	13.7	6
TSN	Tyson Foods Inc	58	1.74	17	13	15.0	7
EQR	Equity Residential	48	1.84	22	10	16.1	8
KR	Kroger Co	27	2.66	38	1	19.9	9
LMT	Lockheed Martin Corp	49	1.65	20	23	21.5	10
KSS	Kohl's Corp	26	1.86	39	9	24.3	11
PFE	Pfizer Inc	21	2.18	48	5	26.9	12
SRE	Sempra Energy	29	1.67	35	21	28.1	13
PBI	Pitney Bowes Inc	122	1.35	6	52	28.5	14
CA	Computer Associates Intl	76	1.36	11	48	29.1	15
FCX	Freeport-McMoRan Copper & Gold Inc	48	1.48	23	37	29.9	16
DUK	Duke Energy Corp	37	1.56	30	31	30.5	17
EXPE	Expedia Inc	74	1.33	12	55	33.1	18
CPB	Campbell Soup Co	21	1.67	49	18	33.8	19
COP	ConocoPhillips	16	1.71	56	15	35.9	20
AEP	American Electric Power Co Inc	45	1.38	26	47	36.3	21
RAI	Reynolds American Inc	126	1.21	5	69	36.4	22
CAT	Caterpillar Inc	22	1.58	45	28	36.7	23
RTN	Raytheon Co	16	1.65	55	22	38.8	24

Table 19: CDX IG S17 RVR Rank

Ticker	Name	COAS	3M ZScore	COAS Rank	Z Rank	Score	RV Rank
DOW	Dow Chemical Co	17	1.60	52	26	39.3	25
TWC	Time Warner Cable Inc	68	1.24	14	66	39.5	26
RIG	Transocean Inc	51	1.25	18	64	40.5	27
DELL	Dell Inc	9	1.74	69	12	41.1	28
MET	Metlife Inc	47	1.27	24	61	42.1	29
KFT	Kraft Foods Inc	29	1.36	37	49	42.9	30
CB	Chubb Corp	14	1.56	60	30	45.3	31
AMGN	Amgen Inc	22	1.39	47	44	45.5	32
SHW	Sherwin-Williams Co/The	17	1.44	53	38	45.7	33
CSCO	Cisco Systems Inc	23	1.35	43	51	46.9	34
D	Dominion Resources Inc	37	1.22	28	67	47.1	35
MO	Altria Group Inc	70	1.09	13	83	47.3	36
WMT	Wal-Mart Stores Inc	17	1.39	51	45	48.1	37
T	AT&T Inc	38	1.20	27	70	48.1	38
JWN	Nordstrom Inc	(8)	1.96	89	7	48.8	39
SWY	Safeway Inc	25	1.30	41	58	49.3	40
LOW	Lowe's Cos Inc	(2)	1.67	81	19	50.6	41
BEAM US	Beam Inc	15	1.39	58	43	50.7	42
BA	Boeing Co	10	1.48	65	36	50.8	43
NWS AU	News Corp Inc	59	1.01	16	87	50.8	44
WHR	Whirlpool Corp	47	1.11	25	78	51.0	45
HIG	Hartford Finl Svcs Grp	23	1.30	44	59	51.4	46
YUM	Yum! Brands Inc	12	1.42	63	40	51.7	47
HPQ	Hewlett-Packard Co	(18)	2.55	99	3	52.0	48
DE	Deere & Co	2	1.59	77	27	52.5	49
AIG	American International Group	273	0.25	1	111	54.9	50
MSI	Motorola Solutions Inc	29	1.13	36	75	55.1	51
XRX	Xerox Corp	49	0.92	19	93	55.3	52
FE	FirstEnergy Corp	85	0.64	10	103	55.6	53
TGT	Target Corp	(4)	1.61	85	25	55.6	54
GMT	GATX Corp	31	1.10	32	81	56.0	55
VZ	Verizon Comm Inc	22	1.21	46	68	56.8	56
MAR	Marriott International Inc	(2)	1.48	80	35	58.0	57
BRK/A	Berkshire Hathaway Inc	161	-1.07	3	116	58.4	58
APC	Anadarko Petroleum Corp	(5)	1.56	87	29	58.6	59
VLO	Valero Energy Corp	(41)	2.58	113	2	58.6	60
MMC	Marsh & McLennan Companies Inc	3	1.39	75	42	58.8	61
SPG	Simon Property Grp LP	31	1.02	33	86	59.0	62
M	Macy's Inc	(10)	1.67	97	20	59.3	63
ALL	Allstate Corp	14	1.27	62	60	61.0	64
CMCSA	Comcast Corp	(6)	1.50	88	34	61.5	65
CTL	CenturyLink Inc	118	-2.23	7	119	61.9	66
DIS	Walt Disney Co	(26)	1.68	107	16	62.4	67
OMC	Omnicom Group	(9)	1.52	92	32	62.6	68
L	Loews Corp	1	1.39	79	46	62.8	69
HNZ	HJ Heinz Co	18	1.12	50	77	63.2	70
TWX	Time Warner Inc	(10)	1.52	95	33	64.6	71
R	Ryder System Inc	(8)	1.43	91	39	65.5	72
UPS	United Parcel Service Inc	11	1.19	64	72	67.9	73
CAG	Conagra Foods Inc	30	0.62	34	104	68.3	74
HD	Home Depot Inc	(3)	1.34	83	54	68.8	75
LUV	Southwest Airlines Co	23	0.80	42	99	69.9	76
XL	XL Group Plc	1	1.26	78	62	70.2	77
AA	Alcoa Inc	37	0.15	29	114	70.7	78
CBS	CBS Corp	(61)	1.63	116	24	70.9	79
ACE	ACE Ltd	6	1.18	71	73	72.0	80
AVT	Avnet Inc	26	0.57	40	106	72.3	81
CNQ CN	Canadian Natural Resources Ltd	10	1.11	66	80	72.9	82
CEG	Constellation Energy Grp Inc	33	-1.27	31	118	73.6	83
BMY	Bristol-Myers Squibb Co	15	0.98	59	89	73.7	84
CI	Cigna Corp	(10)	1.34	94	53	73.9	85
UNH	UnitedHealth Group Inc	9	1.09	68	82	74.9	86

Table 19: CDX IG S17 RVR Rank

Ticker	Name	COAS	3M ZScore	COAS Rank	Z Rank	Score	RV Rank
DRI	Darden Restaurants Inc	15	0.82	57	97	76.6	87
EMN	Eastman Chemical Co	(34)	1.41	111	41	76.7	88
NSC	Norfolk Southern Corp	(18)	1.32	100	56	78.4	89
SLE	Sara Lee Corp	10	0.94	67	92	79.3	90
AET	Aetna Inc	(19)	1.31	101	57	79.4	91
GIS	General Mills Inc	7	0.96	70	90	79.8	92
IP	Intl Paper Co	2	1.06	76	84	79.9	93
CSX	CSX Corp	(34)	1.35	110	50	80.6	94
IBM	IBM	4	0.98	74	88	80.9	95
DGX	Quest Diagnostics Inc	17	0.41	54	110	81.4	96
NWL	Newell Rubbermaid Inc	(23)	1.25	106	63	84.9	97
GR	Goodrich Corp	14	0.19	61	113	86.5	98
UNP	Union Pacific Corp	(19)	1.20	102	71	86.8	99
MCK	McKesson Corp	(16)	1.12	98	76	87.2	100
MCD	McDonald's Corp	6	0.61	72	105	88.2	101
CVS	CVS/Caremark Corp	(2)	0.85	82	96	88.9	102
NOC	Northrop Grumman Corp	(3)	0.90	84	94	88.9	103
AZO	Autozone Inc	5	0.54	73	108	90.2	104
AXP	American Express Co	(8)	0.94	90	91	90.5	105
DD	Du Pont (E.I.) de Nemours & Co	(19)	1.11	104	79	91.8	106
HON	Honeywell Intl Inc	(31)	1.16	109	74	91.9	107
IR	Ingersoll-Rand Co	(92)	1.25	118	65	92.0	108
JCI	Johnson Controls Inc	(9)	0.74	93	101	96.9	109
CAH	Cardinal Health Inc	(4)	0.48	86	109	97.3	110
BAX	Baxter International Inc	(10)	0.67	96	102	98.9	111
HAL	Halliburton Co	(56)	1.03	115	85	100.3	112
CCL	Carnival Corp	(19)	0.76	103	100	101.5	113
DVN	Devon Energy Corp	(48)	0.81	114	98	106.2	114
BSX	Boston Scientific Corp	(75)	0.87	117	95	106.2	115
ARW	Arrow Electronics Inc	(38)	0.56	112	107	109.6	116
ABX	Barrick Gold Corp	(21)	-0.56	105	115	109.9	117
VIA	Viacom	(28)	0.20	108	112	110.0	118
CSC	Computer Sciences Corp	(154)	-1.15	119	117	118.0	119

Table 20: iTraxx EUR S 17 RV Rank

Issuer		COAS & Trend		Ranking			
Ticker	Name	COAS	3M ZScore	COAS Rank	Z Rank	Score	RV Rank
FNC IM	Finmeccanica SpA	184	1.95	5	6	5.5	1
BA/ LN	BAE Systems PLC	96	1.79	13	11	12.0	2
SOLB BB	Solvay SA	45	1.94	27	7	17.2	3
ADEN VX	Adecco SA-Reg	43	1.96	29	5	17.2	4
GLEN LN	Glencore International PLC	196	1.16	3	49	25.5	5
AAL LN	Anglo American plc	27	1.94	44	8	26.4	6
CPG LN	Compass Grp PLC	33	1.54	36	18	27.2	7
BBVA SM	Banco Bilbao Vizcaya	70	1.29	19	36	27.3	8
SAN FP	Sanofi-Aventis	23	2.01	51	3	27.5	9
PP FP	PPR SA	64	1.24	21	43	31.8	10
VOW GR	Volkswagen AG	38	1.34	34	32	33.0	11
SAN SM	Banco Santander SA	63	1.20	22	46	33.8	12
SW FP	Sodexho Alliance SA	32	1.35	37	31	34.1	13
G IM	Generali SpA	136	1.05	7	65	35.4	14
BP IM	Banco Popolare Scarl	202	0.85	1	73	36.3	15
DAI GR	Daimler AG	23	1.45	50	23	36.8	16
TSCO LN	Tesco PLC	50	1.16	26	48	36.8	17
KGF LN	Kingfisher Plc	71	1.09	18	57	37.1	18
ERICB SS	Telefonaktiebolaget LM Ericsson	20	1.51	56	20	38.4	19
HOLN VX	Holcim Ltd	110	0.90	8	70	38.4	20
BATS LN	British American Tobacco PLC	29	1.25	39	41	40.0	21
TEF SM	Telefonica SA	191	0.67	4	79	40.8	22
DGE LN	Diageo Plc	39	1.15	31	51	40.8	23

Table 20: iTraxx EUR S 17 RV Rank

Issuer		COAS & Trend		Ranking			
Ticker	Name	COAS	3M ZScore	COAS Rank	Z Rank	Score	RV Rank
STL NO	Statoil ASA	6	1.73	69	13	41.6	24
UBSN VX	UBS AG	7	1.56	67	17	42.5	25
IBE SM	Iberdrola SA	76	0.89	16	71	43.0	26
EAD FP	European Aeronautic Defence and Space Co NV	24	1.28	49	37	43.1	27
MT NA	ArcelorMittal	151	0.62	6	83	43.7	28
ISP IM	Intesa Sanpaolo	(2)	1.78	75	12	44.1	29
ENI IM	ENI SpA	62	0.92	23	67	44.6	30
ATL IM	Atlantia SPA	101	0.65	10	81	44.8	31
AV/ LN	Aviva PLC	(15)	1.87	81	9	45.7	32
ML FP	Cie Generale des Etablissements Michelin	(8)	1.62	77	16	47.1	33
MEO GR	Metro AG	29	1.10	40	56	47.8	34
NXT LN	Next PLC	98	0.50	11	87	48.2	35
MKS LN	Marks & Spencer Grp plc	97	0.50	12	86	48.3	36
RDSA LN	Royal Dutch Shell PLC	28	1.12	43	55	48.9	37
TIT IM	Telecom Italia Spa	197	0.06	2	98	49.0	38
BAS GR	BASF SE	(15)	1.71	82	15	49.2	39
SAB LN	SABMiller	38	0.92	32	68	49.6	40
FP FP	Total SA	17	1.27	61	38	49.7	41
EDF FP	Electricite de France	1	1.39	74	27	51.0	42
ENEL IM	Enel SpA	105	0.12	9	96	51.6	43
BMPS IM	Banca Monte dei Paschi di Siena SpA	78	0.38	15	90	51.8	44
GAS SM	GAS NATURAL SDG SA	75	0.46	17	88	51.8	45
XTA LN	Xstrata PLC	3	1.34	71	33	52.4	46
VOD LN	Vodafone Grp PLC	44	0.69	28	78	52.5	47
HEN3 GR	Henkel KGaA	3	1.30	72	35	53.9	48
BMW GR	BMW AG	54	0.61	25	84	53.9	49
BSY LN	BSkyB	38	0.72	33	76	54.1	50
UCG IM	Unicredit SpA	(44)	1.98	103	4	54.5	51
ELUXB SS	Electrolux AB	(49)	2.06	105	2	54.5	52
RBS LN	Royal Bank of Scotland Grp PLC	(79)	2.31	107	1	55.1	53
PUB FP	Publicis Groupe	41	0.64	30	82	55.5	54
CNA LN	Centrica Plc	28	0.86	41	72	56.2	55
VOLVB SS	Volvo AB	12	1.15	63	50	56.6	56
ZURN VX	Zurich Finl Svcs AG	24	0.95	48	66	56.8	57
BT/A LN	BT Grp Plc	28	0.84	42	74	57.7	58
ALO FP	Alstom	(19)	1.43	91	24	58.2	59
CS FP	AXA	(22)	1.46	94	22	58.7	60
LXS GR	Lanxess	(37)	1.72	102	14	58.9	61
WKL NA	Wolters Kluwer NV	1	1.21	73	45	59.3	62
CO FP	Casino Guichard Perrachon SA	81	-0.33	14	107	59.6	63
BAYN GR	Bayer AG	(18)	1.36	88	30	59.6	64
FR FP	Valeo SA	(18)	1.37	90	28	59.6	65
REP SM	Repsol YPF SA	10	1.08	64	58	61.1	66
RUKN VX	Swiss RE	(33)	1.47	101	21	61.8	67
HNR1 GR	Hannover Rueckversicherung AG	(18)	1.34	89	34	62.1	68
NESN VX	Nestle SA	34	0.29	35	92	62.9	69
TLSN SS	TeliaSonera AB	10	1.06	66	62	64.0	70
IMT LN	Imperial Tobacco Grp PLC	59	-0.28	24	106	64.2	71
BP/ LN	BP Plc	22	0.83	54	75	64.3	72
GLE FP	Societe Generale	(250)	1.85	118	10	65.1	73
SIE GR	Siemens AG	(10)	1.12	78	53	65.8	74
DBK GR	Deutsche Bank AG	(121)	1.52	113	19	66.9	75
AH NA	Koninklijke Ahold NV	69	-1.61	20	116	67.0	76
VIE FP	Veolia Environnement	(91)	1.39	108	26	67.8	77
SCAB SS	Svenska Cellulosa AB	17	0.70	60	77	68.3	78
EOAN GR	E.ON AG	(28)	1.26	97	40	69.1	79
MC FP	LVMH Moet Hennessy	20	0.65	59	80	69.3	80
VIV FP	Vivendi SA	25	0.18	47	93	69.5	81
PHIA NA	Koninklijke Philips Electronic	(22)	1.23	95	44	70.0	82
BNP FP	BNP Paribas	(223)	1.40	116	25	71.4	83
LIN GR	Linde AG	(11)	1.05	79	64	71.7	84

Table 20: iTraxx EUR S 17 RV Rank

Issuer		COAS & Trend		Ranking			
Ticker	Name	COAS	3M ZScore	COAS Rank	Z Rank	Score	RV Rank
DG FP	Vinci SA	(16)	1.06	83	61	72.2	85
LLOY LN	Lloyds Banking Grp plc	(133)	1.36	114	29	72.4	86
FTE FP	France Telecom	22	0.37	55	91	72.6	87
GSZ FP	Gdf Suez	(17)	1.07	86	59	72.8	88
CSGN VX	Credit Suisse Grp	(29)	1.17	98	47	73.0	89
UNA NA	Unilever NV	22	0.13	53	95	73.6	90
DSM NA	Koninklijke DSM NV	(18)	1.07	87	60	73.8	91
ALV GR	Allianz SE	(65)	1.25	106	42	74.6	92
NG/ LN	National Grid PLC	26	-0.20	46	105	74.9	93
MUV2 GR	Munich Re AG	(29)	1.13	99	52	76.0	94
KPN NA	Royal KPN NV	27	-0.59	45	109	76.4	95
UU/ LN	United Utilities Group PLC	30	-2.07	38	117	76.7	96
RTO LN	Rentokil Initial Plc	10	0.42	65	89	76.8	97
WPP LN	WPP Grp PLC	23	-0.08	52	104	77.5	98
BARC LN	Barclays Plc	(136)	1.26	115	39	77.8	99
BN FP	Danone	14	0.02	62	101	81.1	100
REL LN	Reed Elsevier PLC	6	0.11	68	97	82.2	101
TATE LN	Tate & Lyle	20	-0.73	58	111	84.0	102
AKZA NA	Akzo Nobel NV	(17)	0.55	84	85	84.5	103
ACA FP	Credit Agricole SA	(247)	1.12	117	54	86.1	104
SGO FP	Saint-Gobain	(48)	0.91	104	69	86.9	105
MRW LN	Morrison Supermarkets Plc	20	-2.14	57	118	86.9	106
AGN NA	Aegon NV	(102)	1.06	111	63	87.5	107
TEL NO	Telenor ASA	3	-0.44	70	108	88.6	108
PSON LN	Pearson PLC	(2)	-0.04	76	103	89.2	109
FUM1V FH	Fortum Oyj	(17)	0.06	85	99	91.9	110
CA FP	Carrefour SA	(21)	0.04	93	100	96.4	111
DTE GR	Deutsche Telekom AG	(20)	0.01	92	102	96.9	112
TKA AV	Telekom Austria AG	(14)	-1.51	80	115	97.2	113
STM FP	STMicroelectronics NV	(92)	0.14	109	94	101.7	114
EBK GR	Energie Baden-Wuerttemberg AG	(31)	-0.79	100	112	105.9	115
SZU GR	Suedzucker AG	(27)	-2.25	96	119	107.3	116
RWE GR	RWE AG	(100)	-0.70	110	110	110.0	117
PNL NA	POSTNL	(105)	-1.31	112	114	113.0	118
CBK GR	Commerzbank AG	(398)	-1.24	119	113	116.1	119

Source: Lighthouse

Link to Definitions

Credit

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Overweight-70%	Up to 70% Overweight of investor's guidelines	Carry, plus some spread tightening expected
Overweight-30%	Up to 30% Overweight of investor's guidelines	Good carry, but little spread tightening expected
Underweight-30%	Down to 30% Underweight of investor's guidelines	Unattractive carry, but spreads unlikely to widen
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Underweight-100%	Down to 100% Underweight of investor's guidelines	Material spread widening expected

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