

Greed and Fear

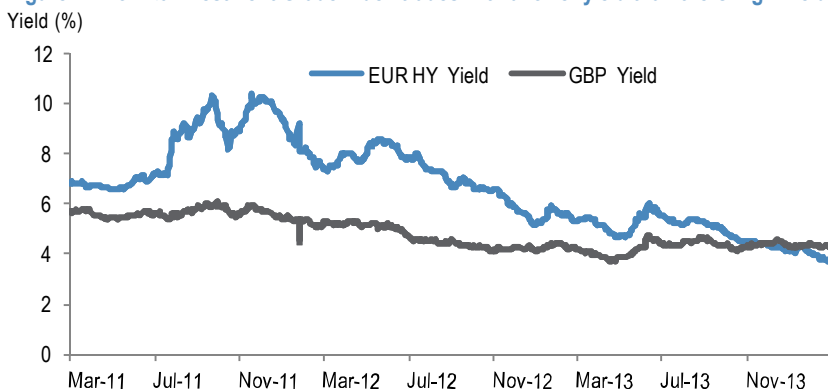
Where's the Value in Today's Markets

- **Market positioning is being driven, in our view, by Greed and Fear** – greed has seen short-dated high-yield spreads reach multi-year lows, while fear has kept long-dated spreads and yields elevated and curves steep. This has been driven by a world with plentiful liquidity where default rates are expected to be low for long, but the fear of a significant pick-up in inflation remains.
- **We believe these risks are largely priced in and that there are significant profits to be had from taking an opposing position.** Credit Markets are currently pricing in extreme levels – a continuation of the very low default rate environment and a significant rise in yields and defaults in the future.
- **We recommend three ways to position for this:**
 1. Buy £ and € long-dated credit assets.
 2. Long risk iBoxx £ TRS; short risk iBoxx €HY TRS.
 3. Long risk iTraxx Main 10y; short risk iTraxx Crossover 3y.

Risky markets have rallied across asset classes and credit has been no exception. iTraxx Main spreads are now 6bp off their tights, and implied volatility has returned to multi-year lows. In such an environment, investors are struggling to find attractive opportunities where the risks are commensurate with the rewards on offer.

We believe that positioning has been driven by greed and fear and current market pricing reflects this. Market participants have been greedily searching for short-dated and high-yielding risk. Both short-dated and high-yield spreads and yields are at multi-year lows. At the same time, investors are fearful of a rise in yields from their all time lows. Longer-dated spreads and yields remain elevated, despite investors' comfort.

Figure 1: iBoxx £ Investment Grade index trades with a lower yield than the € High Yield Liquid index



Source: J.P. Morgan

See page 8 for analyst certification and important disclosures.

J.P. Morgan 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.

European Credit Derivatives Strategy

Saul Doctor^{AC}

(44-20) 7134-1539

saul.doctor@jpmorgan.com

Danny White

(44-20) 7134-1812

danny.c.white@jpmorgan.com

Aida Mehonic

(44-20) 7134-2416

aida.mehonic@jpmorgan.com

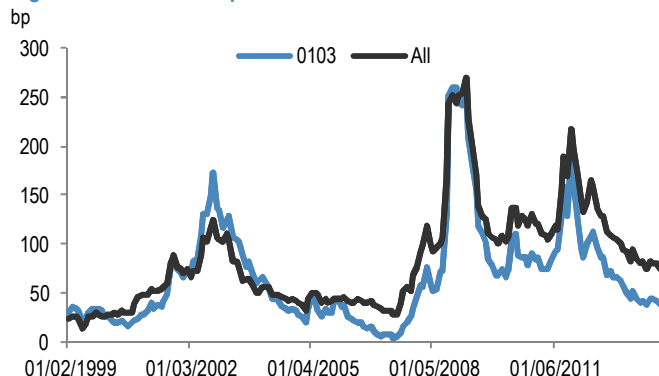
J.P. Morgan Securities plc

Greed

The main driver on the greed side has been a world with plentiful liquidity where the return on holding cash has been extremely low and companies and investors have been able to raise financing at very low levels. This has led to two main themes that investors, including ourselves, have used as guidance over the past few years, namely the attractiveness of short-dated risk and high-yielding investments. Both of these have outperformed over the past few years and are now trading at multi-year lows.

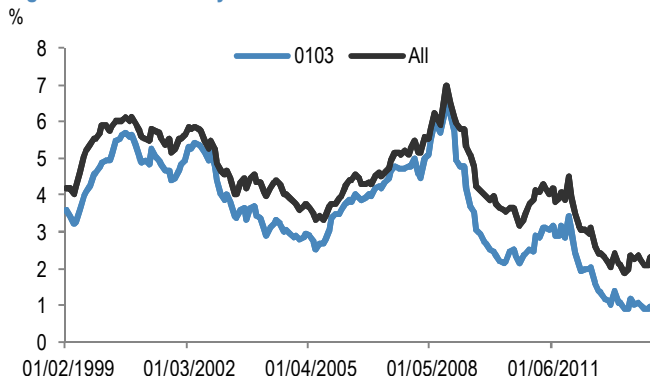
The spread of our Maggie € Credit Index for the 1-3 year bucket has significantly outperformed the broader market (Figure 2). Spreads in the short dated bucket are 12% off their multi-year lows. When we look at yields, an even starker picture is drawn; the yield of short dated credit has significantly outperformed the broader market driven both by lower credit spreads and by the steepening of the swap yield curve (Figure 3).

Figure 2: Credit index spreads



Source: J.P. Morgan.

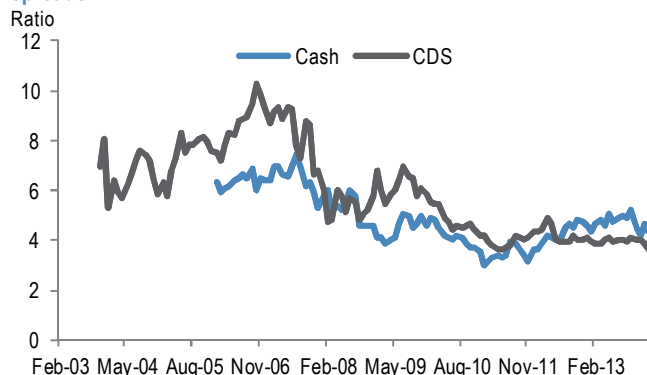
Figure 3: Credit index yields



Source: J.P. Morgan.

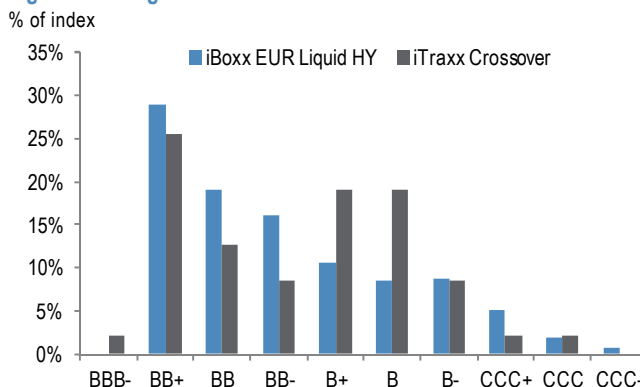
In both CDS and Cash bonds, high yield has outperformed investment grade with low defaults encouraging investors to search for higher yielding assets. Figure 4 shows the spread ratio between the J.P. Morgan high-yield and high-grade indices along with the spread ratio of the iTraxx Crossover to iTraxx Main indices. The ratio in cash bonds is just over 4 times, while for CDS it has compressed to 3.7 times, the lowest level observed since the iTraxx indices were introduced in 2003.

Figure 4: Compression: Ratio of high yield to investment grade spreads



Source: J.P. Morgan.

Figure 5: Rating distribution



Source: J.P. Morgan.

With iTraxx Crossover currently trading at 280bp, investors are compensated for an annual default rate of only 3.5% or just 1.75 names from the 50-name portfolio (assuming 20% recovery). Similarly, the iBoxx €HY index is trading with a spread of 330bp implying a 4% annual default rate over the coming years. Average high-yield default rates have averaged 3.7% over the past 30 years in Europe meaning that High Yield only just compensates for default risk, with little headroom for a pick-up after a period of low defaults. The current CDS and Cash bond indices have 4.5% and 8% of their composition rated CCC or lower.

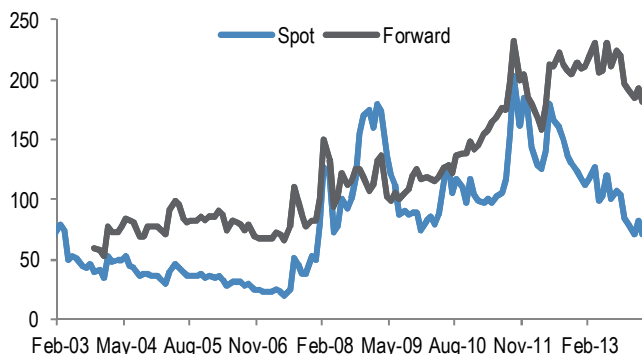
With the benefit of high liquidity and low defaults largely priced in, we believe investors are no longer compensated for taking on short-dated and high-yield risk.

Fear

On the fear side, investors remain concerned about an increase in yields and spreads from their current low levels. The fear of increased future inflation and a pick-up in default rates has kept forward spreads and yields at very elevated levels. iTraxx Main 5y5y forward spreads are currently at 190bp – around 20bp below the all-time high that 5y spreads reached in 2011 and above the wides reached during the credit crisis in 2009. Forward yields are also at extreme levels, particularly for sterling credit where current forward yields are around 5.5% for long-dated credit compared to current yields of 3.1% for 5-year credit.

Figure 6: iTraxx Main Spreads and Forwards

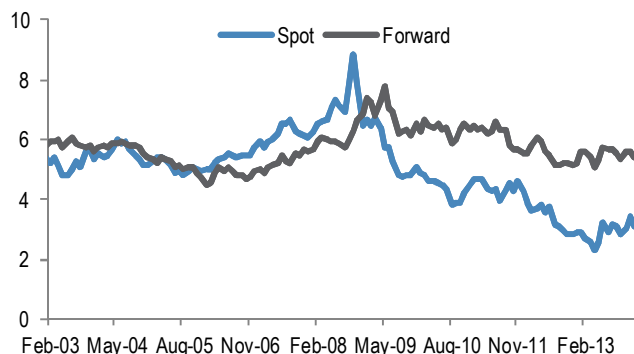
Spreads (bp)



Source: J.P. Morgan.

Figure 7: Sterling IG Yields and Forwards

Yields (%)



Source: J.P. Morgan.

What's not priced in?

It seems to us that the risks of higher yields and a rise in defaults in the future are largely priced in, as is evident from high forwards in both spreads and yields. Moreover, the benefit of ample liquidity and low near-term defaults is also largely priced in.

In our view, not only are these risks priced in, but they are pricing in almost the extremes of what we have seen over the past ten years. High-yield spreads only just compensate for average default rates without any compensation for market risk or a pick-up in defaults. Conversely, long-dated yields compensate for significantly higher yields in the future again almost at the extreme of what we have seen over the past ten years.

We believe investors should focus their risk taking on areas where upside risk is not priced in and conversely should focus their hedges in areas where downside risk is

not priced in. Default rates may pick up in the near term as the global stimulus provided by central banks is removed. Additionally, deflation and low yields may be here to stay as they have been in Japan over the past 20 years.

We believe the following three trades are attractive ways to position for this:

- 1) Buy £ and € long-dated credit assets.
- 2) Long risk iBoxx £ TRS; short risk iBoxx €HY TRS
- 3) Long risk iTraxx Main 10y; short risk iTraxx Crossover 3y

Buy £ and € long-dated credit assets

The recent issuance and performance of the long-dated £ EDF bond issued with a 6% coupon and now trading at a yield of 5.15% is indicative of the value we see in long-dated bonds, particularly in the Sterling space. The already steep yield and spread curves in this area of the maturity curve offer significant value. As we highlighted earlier, forward yields are very high and investors should take advantage of this by switching out of short-dated into longer-dated assets.

We expect this to be compounded under Solvency 2, which encourages insurers to invest in long-dated credit to gain the benefit of the matching adjustment ([Solvency II: Judgement Day](#), A. Mehonic, 24 Oct 2013).

We highlight some of the highest-yielding assets in the £ space in Table 1 focusing on names where our Credit Analysts are not Underweight.

Table 1: Sterling long-dated credit

ISIN	Name	Ticker	Coupon	Maturity	Yield
FR0011710284	Electricite De France	EDF	6	23/01/2114	5.147
XS0248395245	Tesco Plc	TSCOLN	4.875	24/03/2042	5.115
XS0289810318	Tesco Plc	TSCOLN	5.2	05/03/2057	5.106
XS0104440986	3i Group Plc	IIILN	5.75	03/12/2032	5.091
XS0798491113	Time Warner Cable Inc	TWC	5.25	15/07/2042	5.031
XS0994920238	Directv Holdings/Fing	DTV	5.2	18/11/2033	5.027
XS0107203381	Mercantile Investment Tr	MRCCLN	6.125	25/02/2030	4.955
XS0159013142	Tesco Plc	TSCOLN	5.5	13/01/2033	4.905
XS0562107762	Orange Sa	ORAFP	5.375	22/11/2050	4.885
XS0630584166	Time Warner Cable Inc	TWC	5.75	02/06/2031	4.861
XS0545440900	Telefonica Emisiones Sau	TELEFO	5.445	08/10/2029	4.834
XS0785710046	At&T Inc	T	4.875	01/06/2044	4.829
XS0830326269	Directv Holdings/Fing	DTV	4.375	14/09/2029	4.819
XS0932036154	At&T Inc	T	4.25	01/06/2043	4.819
XS0437306904	Rwe Finance Bv	RWE	6.125	06/07/2039	4.809
XS0426513387	At&T Inc	T	7	30/04/2040	4.786
XS0098255176	Abbey Natl Treasury Serv	ABBEY	0	15/06/2038	4.772
XS0812855277	America Movil Sab De Cv	AMXLMM	4.375	07/08/2041	4.756
XS0451790280	Koninklijke Kpn Nv	KPN	5.75	17/09/2029	4.751
FR0010039008	Orange Sa	ORAFP	5.625	23/01/2034	4.715
XS0735770637	Rwe Finance Bv	RWE	4.75	31/01/2034	4.697
XS0105244585	Tesco Plc	TSCOLN	6	14/12/2029	4.695
FR0010945436	Electricite De France	EDF	5.125	22/09/2050	4.657
XS0954302369	America Movil Sab De Cv	AMXLMM	4.948	22/07/2033	4.639
XS0276684700	Wells Fargo & Company	WFC	4.875	29/11/2035	4.635
FR0011132356	Electricite De France	EDF	5.5	17/10/2041	4.633
XS0221324154	Segro Plc	SGROLN	5.75	20/06/2035	4.623
XS0499449261	Dong Energy A/S	DONGAS	5.75	09/04/2040	4.621
XS0733786130	Gatwick Funding Limited	GATAIR	5.75	23/01/2037	4.621
XS0543369184	Lloyds Bank Plc	LLOYDS	6.5	17/09/2040	4.62

Source: J.P. Morgan

Long risk iBoxx £ TRS; short risk iBoxx €HY TRS

Our second trade is a relative-value trade using the iBoxx TRS indices to take advantage of the views expressed above. We recommend investors go long risk the iBoxx £ IG index versus short risk the iBoxx €HY LQD index via the TRS.

Table 2: Trade details

Instrument	Ticker	Expiry	Notional	Entry
iBoxx € LQD HY Index TRS	IBOXXMJA	20 December 2014	€ 100,000,000	166.94
iBoxx £ IG Index TRS	IYDU	20 December 2014	€ 100,000,000	270.16

Source: J.P. Morgan.

We believe this trade is attractive for the following reasons:

- 1) The £IG index provides exposure to longer-dated risk. While the mod duration of the €HY index is 2.5, that of the £IG index is 7.6.
- 2) The £IG index provides a higher yield than the lower-rated €HY index. The yield of the €HY index is 3.76 versus 4.31 for the £IG index.
- 3) The trade provides attractive valuation relative to NAV. The €HY index is trading 44bp above fair value, while the £IG index is 8bp above fair value.

Table 3: Index metrics

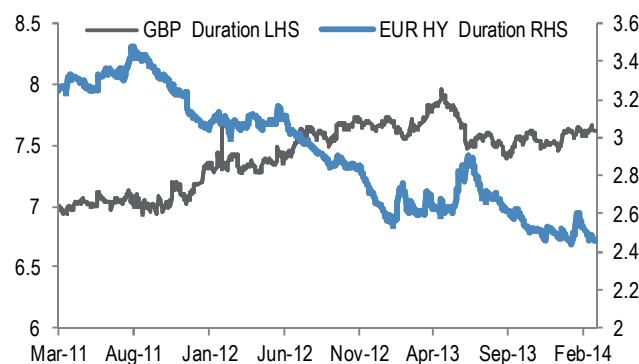
Instrument	Yield	Spread	Duration	Premium/Discount to NAV
iBoxx € LQD HY Index TRS	3.76	317	2.5	0.44%
iBoxx £ IG Index TRS	4.31	142	7.6	0.08%

Source: J.P. Morgan.

The £IG index provides exposure to longer-dated risk

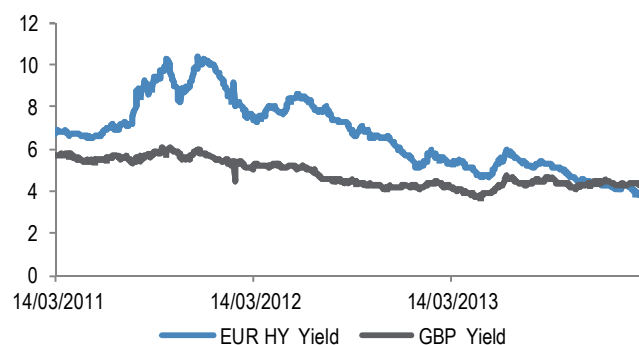
As highlighted above, we believe investors should be long risk through longer-dated instruments hedged with shorts in short-dated, high-yield instruments. The iBoxx £ IG index currently has a modified duration of 7.6 years versus only 2.5 for the € Liquid HY index. As Figure 8 shows, the duration of the €HY index has been shortening recently as bond prices have risen and many are trading above their call price. Conversely, the duration of the Sterling index has risen as yields have come down and longer-dated bonds have been issued.

Figure 8: Duration



Source: J.P. Morgan.

Figure 9: Yield



Source: J.P. Morgan.

The £IG index provides a higher yield than the lower-rated €HY index

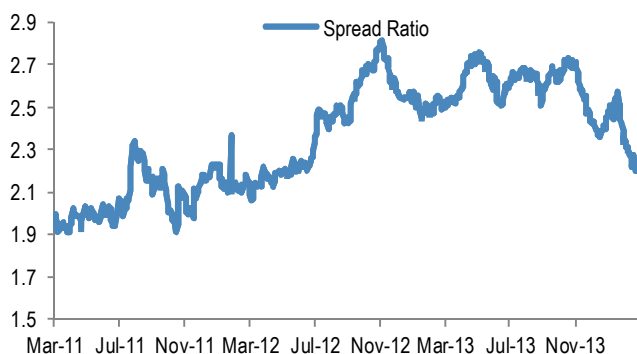
Despite the lower rating of the €HY index, the yield of the index is lower than that of the £IG index (Figure 9). While the spread of the €HY index is still higher than that of the £IG (317bp versus 142bp), this spread ratio has been compressing over the past year and currently trades with a ratio of 2.2 times. The higher yield of the £IG index is a function of both the longer maturity and steeper yield curve of Sterling versus Euro swaps.

The trade provides attractive valuation relative to NAV

Finally, we note that from a technical perspective, it is attractive to be long risk the £IG index versus short risk the €HY index. The flow of money into the €HY market has seen the index trade higher than the fair value. Conversely, the higher duration of the £IG index has seen investors taking differing views on this index, with some using it as a hedge for rising rates and others as a long risk opportunity.

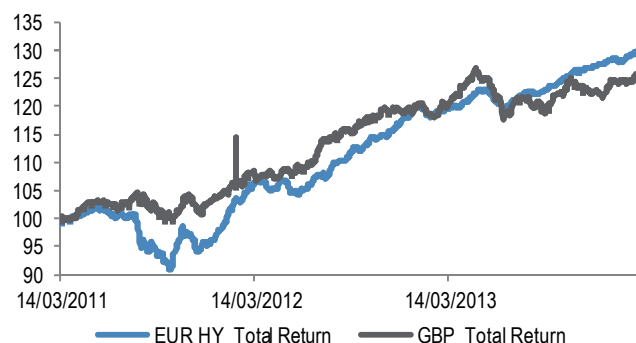
From a return perspective, the £IG index has outperformed the €HY index over the past few years (Figure 11) on a risk-adjusted basis. While the returns from both series has been similar, the volatility of the €HY index has been significantly greater.

Figure 10: Spread ratio



Source: J.P. Morgan.

Figure 11: Total return



Source: J.P. Morgan.

Long risk iTraxx Main 10y; short risk iTraxx Crossover 3y

The final trade we recommend is to be long risk through long-dated CDS and short risk through short-dated high yield CDS. We recommend investors buy protection on the iTraxx Crossover 3y and sell protection on the iTraxx Main 10y.

Given the liquidity of these indices, investors may find it more attractive to enter this trade through single names or baskets of single names.

Table 4: Trade details

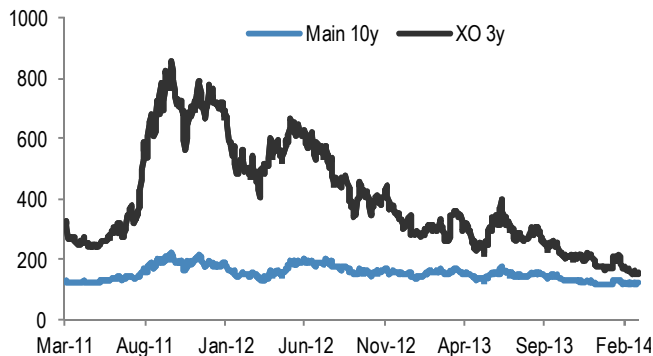
Instrument	Tenor	Notional	Spread	Upfront	Duration
iTraxx Crossover	3Y	€ 100,000,000	176	-9,850,690	2.88
iTraxx Main	10Y	€ 100,000,000	128	2,123,320	7.93

Source: J.P. Morgan.

The spread ratio and difference between iTraxx Main 10y and Crossover 3y is currently at multi year lows. Having traded as high as 640bp in 2011, the spread difference between the two indices is currently at 45bp while the ratio of spreads is 1.35 times. Investors are therefore able to sell long-dated investment-grade risk and buy short-dated HY risk for only 45bp.

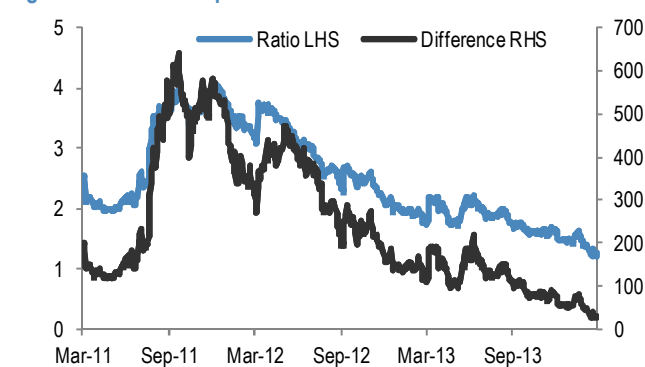
Figure 12: iTraxx Main 10y versus XO 3y

Spread (bp)



Source: J.P. Morgan.

Figure 13: Ratio and spread difference

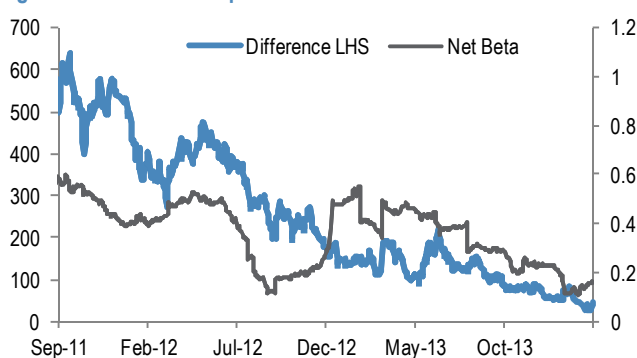


Source: J.P. Morgan.

We see this as a cheap option which will perform in market weakness, for a low cost. The trade has a short-risk bias with positive convexity. The current beta of the Crossover 3y to Main 10y is 3.4 times, meaning that for a 1bp change in the spread of the Main 10y, the Crossover index changes by 3.4bp (this is very similar to the beta of Crossover to Main 5y given that curves tend to move in a parallel fashion). The difference in duration between the two indices is currently 2.75 times, meaning the net position has a beta of 0.23bp ($=3.4/2.75-1$) relative to a 10y Main position. Therefore, a 1bp change in the 10y Main is equivalent to 0.23bp for the trade or €18,600 ($=0.23\text{bp} \times 7.93 \times \text{€}100\text{m}$) on the notionals given.

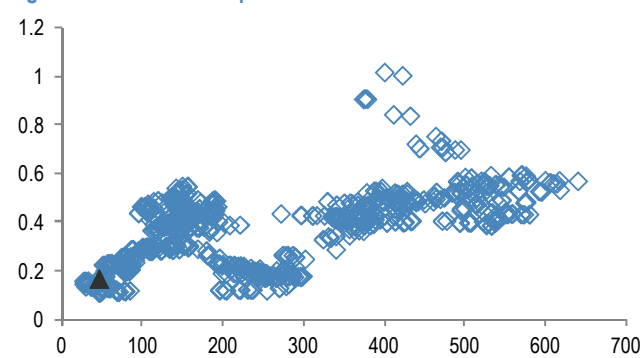
We expect the beta of the trade, however, increase as spreads widen and the differential increases, and fall as the differential between the two indices decreases (Figure 14 and Figure 15). This gives the trade an attractive positive convexity position – as the market widens, we expect the differential between the two indices to increase and net beta increases, making the trade more short risk. Conversely, as spreads tighten, the net beta declines meaning the short risk exposure decreases.

Figure 14: Beta versus Spreads Difference



Source: J.P. Morgan.

Figure 15: Beta versus Spreads Difference



Source: J.P. Morgan.

Analyst Certification: The research analyst(s) denoted by an “AC” on the cover of this report certifies (or, where multiple research analysts are primarily responsible for this report, the research analyst denoted by an “AC” on the cover or within the document individually certifies, with respect to each security or issuer that the research analyst covers in this research) that: (1) all of the views expressed in this report accurately reflect his or her personal views about any and all of the subject securities or issuers; and (2) no part of any of the research analyst's compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the research analyst(s) in this report. For all Korea-based research analysts listed on the front cover, they also certify, as per KOFIA requirements, that their analysis was made in good faith and that the views reflect their own opinion, without undue influence or intervention.

Important Disclosures

Company-Specific Disclosures: Important disclosures, including price charts, are available for compendium reports and all J.P. Morgan–covered companies by visiting <https://jpm.com/research/disclosures>, calling 1-800-477-0406, or e-mailing research.disclosure.inquiries@jpmorgan.com with your request. J.P. Morgan’s Strategy, Technical, and Quantitative Research teams may screen companies not covered by J.P. Morgan. For important disclosures for these companies, please call 1-800-477-0406 or e-mail research.disclosure.inquiries@jpmorgan.com.

Explanation of Credit Research Ratings:

Ratings System: J.P. Morgan uses the following issuer portfolio weightings: Overweight (over the next three months, the recommended risk position is expected to outperform the relevant index, sector, or benchmark), Neutral (over the next three months, the recommended risk position is expected to perform in line with the relevant index, sector, or benchmark), and Underweight (over the next three months, the recommended risk position is expected to underperform the relevant index, sector, or benchmark). J.P. Morgan Emerging Markets Sovereign Research uses Marketweight, which is equivalent to Neutral. NR is Not Rated. In this case, J.P. Morgan has removed the rating for this security because of either a lack of a sufficient fundamental basis or for legal, regulatory or policy reasons. The previous rating no longer should be relied upon. An NR designation is not a recommendation or a rating. NC is Not Covered. An NC designation is not a rating or a recommendation. Analysts can rate the issuer, the individual bonds of the issuer, or both. An issuer recommendation applies to all of the bonds at the same level of the issuer’s capital structure, unless we specify a different recommendation for the individual security. For CDS, we use the following rating system: Long Risk (over the next three months, the credit return on the recommended position is expected to exceed the relevant index, sector or benchmark), Neutral (over the next three months, the credit return on the recommended position is expected to match the relevant index, sector or benchmark), and Short Risk (over the next three months, the credit return on the recommended position is expected to underperform the relevant index, sector or benchmark).

Valuation & Methodology: In J.P. Morgan's credit research, we assign a rating to each issuer (Overweight, Underweight or Neutral) based on our credit view of the issuer and the relative value of its securities, taking into account the ratings assigned to the issuer by credit rating agencies and the market prices for the issuer's securities. Our credit view of an issuer is based upon our opinion as to whether the issuer will be able service its debt obligations when they become due and payable. We assess this by analyzing, among other things, the issuer's credit position using standard credit ratios such as cash flow to debt and fixed charge coverage (including and excluding capital investment). We also analyze the issuer's ability to generate cash flow by reviewing standard operational measures for comparable companies in the sector, such as revenue and earnings growth rates, margins, and the composition of the issuer's balance sheet relative to the operational leverage in its business.

J.P. Morgan Credit Research Ratings Distribution, as of January 1, 2014

	Overweight	Neutral	Underweight
Global Credit Research Universe	25%	56%	19%
IB clients*	64%	58%	52%

Note: The Credit Research Rating Distribution is at the issuer level. Please note that issuers with an NR or an NC designation are not included in the table above.

*Percentage of investment banking clients in each rating category.

Analysts' Compensation: The research analysts responsible for the preparation of this report receive compensation based upon various factors, including the quality and accuracy of research, client feedback, competitive factors, and overall firm revenues.

Other Disclosures

J.P. Morgan ("JPM") is the global brand name for J.P. Morgan Securities LLC ("JPMS") and its affiliates worldwide. J.P. Morgan Cazenove is a marketing name for the U.K. investment banking businesses and EMEA cash equities and equity research businesses of JPMorgan Chase & Co. and its subsidiaries.

Options related research: If the information contained herein regards options related research, such information is available only to persons who have received the proper option risk disclosure documents. For a copy of the Option Clearing Corporation's Characteristics and Risks of Standardized Options, please contact your J.P. Morgan Representative or visit the OCC's website at <http://www.optionsclearing.com/publications/risks/riskstoc.pdf>

Legal Entities Disclosures

U.S.: JPMS is a member of NYSE, FINRA, SIPC and the NFA. JPMorgan Chase Bank, N.A. is a member of FDIC. **U.K.:** JPMorgan Chase N.A., London Branch, is authorised by the Prudential Regulation Authority and is subject to regulation by the Financial Conduct Authority and to limited regulation by the Prudential Regulation Authority. Details about the extent of our regulation by the Prudential Regulation Authority are available from J.P. Morgan on request. J.P. Morgan Securities plc (JPMS plc) is a member of the London Stock Exchange and is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. Registered in England & Wales No. 2711006. Registered Office 25 Bank Street, London, E14 5JP. **South Africa:** J.P. Morgan Equities South Africa Proprietary Limited is a member of the Johannesburg Securities Exchange and is regulated by the Financial Services Board. **Hong Kong:** J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong. **Korea:** J.P. Morgan Securities (Far East) Ltd, Seoul Branch, is regulated by the Korea Financial Supervisory Service. **Australia:** J.P. Morgan Australia Limited (JPMSAL) (ABN 61 003 245 234/AFS Licence No: 238188) is regulated by ASIC and J.P. Morgan Securities Australia Limited (JPMSAL) (ABN 61 003 245 234/AFS Licence No: 238066) is regulated by ASIC and is a Market, Clearing and Settlement Participant of ASX Limited and CHI-X. **Taiwan:** J.P.Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Bureau. **India:** J.P. Morgan India Private Limited, having its registered office at J.P. Morgan Tower, Off. C.S.T. Road, Kalina, Santacruz East, Mumbai - 400098, is a member of the National Stock Exchange of India Limited (SEBI Registration Number - INB 230675231/INF 230675231/INE 230675231) and Bombay Stock Exchange Limited (SEBI Registration Number - INB 010675237/INF 010675237) and is regulated by Securities and Exchange Board of India. **Thailand:** JPMorgan Securities (Thailand) Limited is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission. **Indonesia:** PT J.P. Morgan Securities Indonesia is a member of the Indonesia Stock Exchange and is regulated by the BAPEPAM LK. **Philippines:** J.P. Morgan Securities Philippines Inc. is a Trading Participant of the Philippine Stock Exchange and a member of the Securities Clearing Corporation of the Philippines and the Securities Investor Protection Fund. It is regulated by the Securities and Exchange Commission. **Brazil:** Banco J.P. Morgan S.A. is regulated by the Comissao de Valores Mobiliarios (CVM) and by the Central Bank of Brazil. **Mexico:** J.P. Morgan Casa de Bolsa, S.A. de C.V., J.P. Morgan Grupo Financiero is a member of the Mexican Stock Exchange and authorized to act as a broker dealer by the National Banking and Securities Exchange Commission. **Singapore:** This material is issued and distributed in Singapore by J.P. Morgan Securities Singapore Private Limited (JPMSS) [MIC (P) 049/04/2013 and Co. Reg. No.: 199405335R] which is a member of the Singapore Exchange Securities Trading Limited and is regulated by the Monetary Authority of Singapore (MAS) and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore) which is regulated by the MAS. **Japan:** JPMorgan Securities Japan Co., Ltd. is regulated by the Financial Services Agency in Japan. **Malaysia:** This material is issued and distributed in Malaysia by JPMorgan Securities (Malaysia) Sdn Bhd (18146-X) which is a Participating Organization of Bursa Malaysia Berhad and a holder of Capital Markets Services License issued by the Securities Commission in Malaysia. **Pakistan:** J. P. Morgan Pakistan Broking (Pvt.) Ltd is a member of the Karachi Stock Exchange and regulated by the Securities and Exchange Commission of Pakistan. **Saudi Arabia:** J.P. Morgan Saudi Arabia Ltd. is authorized by the Capital Market Authority of the Kingdom of Saudi Arabia (CMA) to carry out dealing as an agent, arranging, advising and custody, with respect to securities business under licence number 35-07079 and its registered address is at 8th Floor, Al-Faisaliyah Tower, King Fahad Road, P.O. Box 51907, Riyadh 11553, Kingdom of Saudi Arabia. **Dubai:** JPMorgan Chase Bank, N.A., Dubai Branch is regulated by the Dubai Financial Services Authority (DFSA) and its registered address is Dubai International Financial Centre - Building 3, Level 7, PO Box 506551, Dubai, UAE.

Country and Region Specific Disclosures

U.K. and European Economic Area (EEA): Unless specified to the contrary, issued and approved for distribution in the U.K. and the EEA by JPMS plc. Investment research issued by JPMS plc has been prepared in accordance with JPMS plc's policies for managing conflicts of interest arising as a result of publication and distribution of investment research. Many European regulators require a firm to establish, implement and maintain such a policy. This report has been issued in the U.K. only to persons of a kind described in Article 19 (5), 38, 47 and 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (all such persons being referred to as "relevant persons"). This document must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this document relates is only available to relevant persons and will be engaged in only with relevant persons. In other EEA countries, the report has been issued to persons regarded as professional investors (or equivalent) in their home jurisdiction. **Australia:** This material is issued and distributed by JPMSAL in Australia to "wholesale clients" only. This material does not take into account the specific investment objectives, financial situation or particular needs of the recipient. The recipient of this material must not distribute it to any third party or outside Australia without the prior written consent of JPMSAL. For the purposes of this paragraph the term "wholesale client" has the meaning given in section 761G of the Corporations Act 2001. **Germany:** This material is distributed in Germany by J.P. Morgan Securities plc, Frankfurt Branch and J.P.Morgan Chase Bank, N.A., Frankfurt Branch which are regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht. **Hong Kong:** The 1% ownership disclosure as of the previous month end satisfies the requirements under Paragraph 16.5(a) of the Hong Kong Code of Conduct for Persons Licensed by or Registered with the Securities and Futures Commission. (For research published within the first ten days of the month, the disclosure may be based on the month end data from two months prior.) J.P. Morgan Broking (Hong Kong) Limited is the liquidity provider/market maker for derivative warrants, callable bull bear contracts and stock options listed on the Stock Exchange of Hong Kong Limited. An updated list can be found on HKEx website: <http://www.hkex.com.hk>. **Japan:** There is a risk that a loss may occur due to a change in the price of the shares in the case of share trading, and that a loss may occur due to the exchange rate in the case of foreign share trading. In the case of share trading, JPMorgan Securities Japan Co., Ltd., will be receiving a brokerage fee and consumption tax (shouhizei) calculated by multiplying the executed price by the commission rate which was individually agreed between JPMorgan Securities Japan Co., Ltd., and the customer in advance. Financial Instruments Firms: JPMorgan Securities Japan Co., Ltd., Kanto Local Finance Bureau (kinsho) No. 82 Participating Association / Japan Securities Dealers Association, The Financial Futures Association of Japan, Type II Financial Instruments Firms Association and Japan Investment Advisers Association. **Korea:** This report may have been edited or contributed to from time to time by affiliates of J.P. Morgan Securities (Far East) Ltd, Seoul Branch. **Singapore:** JPMSS and/or its affiliates may have a holding in any of the securities discussed in this report; for securities where the holding is 1% or greater, the specific holding is disclosed in the Important Disclosures section above. **India:** For private circulation only, not for sale. **Pakistan:** For private circulation only, not for sale. **New Zealand:** This material is issued and distributed by JPMSAL in New Zealand only to persons whose principal business is the investment of money or who, in the course of and for the purposes of their business, habitually invest money. JPMSAL does not issue or distribute this material to members of "the public" as determined in accordance with section 3 of the Securities Act 1978. The recipient of this material must not distribute it to any third party or outside New Zealand without the prior written consent of JPMSAL. **Canada:** The information contained herein is not, and under no circumstances is to be construed as, a prospectus, an

advertisement, a public offering, an offer to sell securities described herein, or solicitation of an offer to buy securities described herein, in Canada or any province or territory thereof. Any offer or sale of the securities described herein in Canada will be made only under an exemption from the requirements to file a prospectus with the relevant Canadian securities regulators and only by a dealer properly registered under applicable securities laws or, alternatively, pursuant to an exemption from the dealer registration requirement in the relevant province or territory of Canada in which such offer or sale is made. The information contained herein is under no circumstances to be construed as investment advice in any province or territory of Canada and is not tailored to the needs of the recipient. To the extent that the information contained herein references securities of an issuer incorporated, formed or created under the laws of Canada or a province or territory of Canada, any trades in such securities must be conducted through a dealer registered in Canada. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed judgment upon these materials, the information contained herein or the merits of the securities described herein, and any representation to the contrary is an offence. **Dubai:** This report has been issued to persons regarded as professional clients as defined under the DFSA rules. **Brazil:** Ombudsman J.P. Morgan: 0800-7700847 / ouvidoria.jp.morgan@jpmorgan.com.

General: Additional information is available upon request. Information has been obtained from sources believed to be reliable but JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively J.P. Morgan) do not warrant its completeness or accuracy except with respect to any disclosures relative to JPMS and/or its affiliates and the analyst's involvement with the issuer that is the subject of the research. All pricing is as of the close of market for the securities discussed, unless otherwise stated. Opinions and estimates constitute our judgment as of the date of this material and are subject to change without notice. Past performance is not indicative of future results. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. The recipient of this report must make its own independent decisions regarding any securities or financial instruments mentioned herein. JPMS distributes in the U.S. research published by non-U.S. affiliates and accepts responsibility for its contents. Periodic updates may be provided on companies/industries based on company specific developments or announcements, market conditions or any other publicly available information. Clients should contact analysts and execute transactions through a J.P. Morgan subsidiary or affiliate in their home jurisdiction unless governing law permits otherwise.

"Other Disclosures" last revised December 7, 2013.

Copyright 2014 JPMorgan Chase & Co. All rights reserved. This report or any portion hereof may not be reprinted, sold or redistributed without the written consent of J.P. Morgan.