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European crossover bonds

A sweet spot?

Demand for crossover credit

Record low government bond yields and extraordinary easing measures in the aftermath of the global financial crisis have facilitated the demand for crossover credit. The search for yield in an environment of economic and policy uncertainty has emphasized the need to move down the credit spectrum without a material increase in credit risk exposure. Crossover bonds[1] offer exposure to a blend of investment grade and the highest rated layer of high yield credit and have become a compelling add-on for fixed income asset allocation.

'Today's crossover market exceeds €1trn in value'

Market Overview

The crossover segment has seen considerable growth in recent years. The market now exceeds €1trn in value, which is five times the size it was a decade ago (Chart 1). Crossover credit now accounts for half of the overall EUR corporate market compared to less than one third in 2006 (Table 1).

Table 1: EUR Corporate Crossover Market

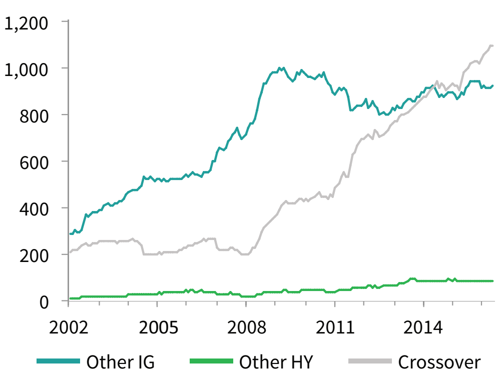
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017*
Market Value																
EUR bn	212	258	258	207	236	224	195	373	434	484	708	768	873	925	1055	1167
% of EUR Corporate	42%	39%	35%	27%	29%	25%	20%	27%	30%	34%	43%	46%	47%	49%	51%	53%
Notional Value																
EUR bn	204	236	232	194	227	231	236	364	420	501	651	704	785	876	984	1087
% of EUR Corporate	42%	38%	34%	27%	29%	25%	22%	27%	30%	36%	44%	46%	47%	49%	51%	53%
Number of Issuers																
EUR Crossover	104	134	142	147	170	180	168	209	255	287	309	353	398	441	464	504
EUR Corporate	280	357	397	402	424	459	444	466	483	514	540	613	692	761	780	804
Number of Bonds																
EUR Crossover	210	265	272	277	319	330	336	500	591	702	896	989	1098	1228	1354	1501
EUR Corporate	547	741	846	926	1034	1161	1272	1473	1556	1642	1828	1959	2167	2358	2521	2676

*2002-2016: Year-end. 2017: 09/30/2017. Source: IHS Markit

The expansion of the crossover market has been supported by a substantial increase in the number of issuing companies, which quadrupled in the last 15 years to over 500 issuers as of September 2017 from only 100 issuers in 2002 – a pace of issuer diversification far exceeding that observed in the EUR corporate market as a whole. More than 80% of the current market size is coming from companies that were not part of crossover prior to the financial crisis.

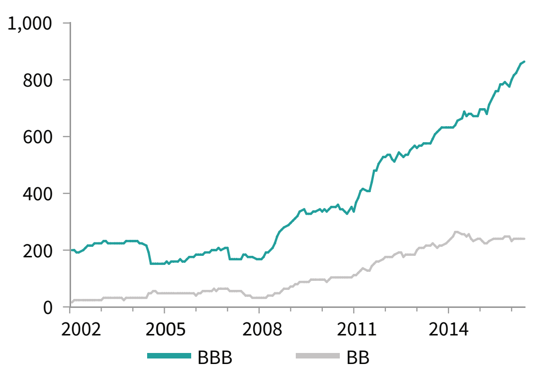
'A compelling add-on for fixed income asset allocation.'

Chart 1: EUR Corp Market Value by Rating(EUR bn)



Source:IHS Markit

Chart 2: EUR Crossover Market Value by Rating (EUR bn)



Source:IHS Markit

The crossover market is dominated by BBB rated bonds, but the share of BB rated names has increased steadily from 7% in 2002 to about 20% currently (Chart 2). Sound growth can also be observed in relation to the larger EUR corporate market, with BBB-rated names currently capturing about 50% of the market value of the EUR investment grade universe, from a low of 20% in 2008. BB rated names account for almost 75% of the EUR high yield market.

Importantly, the majority of crossover bonds tend to maintain their rating over the subsequent 12 months, with a varying degree of volatility across economic and financial market cycles (Table 2). The financial crisis of 2008-09 had resulted in widespread downgrades across sectors and countries. The European sovereign debt crisis that followed in 2011-12 had a large impact on the health of the financial sector, with the largest number of downgrades observed in Italy, France, Spain and Portugal.

1 The EUR corporate universe is constructed following the same bond selection rules as the iBoxx EUR Corporates and iBoxx EUR High Yield indices, with restrictions on bond type, amount outstanding and time to maturity. Bonds are rated according to iBoxx average rating methodology. More information on index construction is available at http://www.markit.com/Documentation/Product/iBoxx

The crossover segment is well diversified in terms of country and sector exposure. The share of financials has increased steadily in the last decade and currently accounts for about 30% of the market, compared to only 4% in 2002. The share of utilities and industrials has also

Table 2: Transition of Crossover Bonds over 12M
(% of number of bonds)

From	To	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*
BBB	AA	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	A	4%	17%	4%	21%	9%	2%	2%	4%	2%	0%	2%	2%	3%	2%
	BBB	93%	72%	91%	78%	86%	89%	94%	87%	84%	93%	93%	92%	94%	97%
	BB	2%	8%	3%	1%	5%	9%	4%	8%	13%	6%	5%	6%	3%	1%
	B	0%	2%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
BB	BBB	5%	5%	7%	6%	8%	0%	3%	7%	4%	1%	2%	7%	4%	8%
	BB	90%	90%	89%	85%	70%	79%	90%	91%	82%	94%	93%	86%	92%	89%
	B	5%	5%	4%	8%	13%	19%	7%	2%	13%	5%	5%	7%	4%	3%
	CCC	0%	0%	0%	0%	4%	1%	0%	0%	1%	0%	0%	0%	0%	0%
	CC	0%	0%	0%	0%	3%	0%	0%	0%	1%	0%	0%	0%	0%	0%
	C	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%

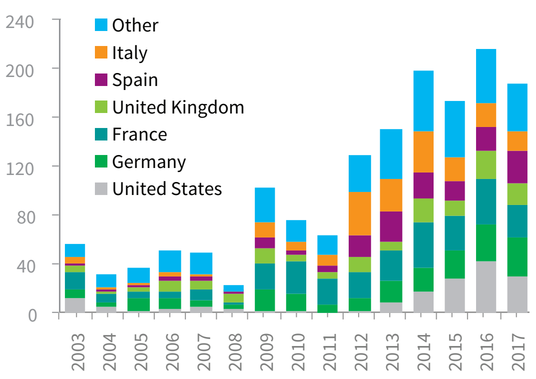
*2003-2015: Year-end. 2016: 09/30/2016. Source: IHS Markit

increased, each accounting for about 12% currently. The (cumulative) weight of consumer goods and telecommunications companies, on the other hand, has declined from over 70% in 2002 to only 28% today. Eurozone issuers account for 70% of the market, led by France (18%), Germany (15%) and Italy (14%). United Kingdom and the United States account for 10% each.

The pace of bond issuance has more than doubled in the aftermath of the financial crisis and reached a new record high in 2016 (312 deals, €223bn), about 25% of total outstanding volume. The primary market remained robust in 2017, with 276 deals (€192bn) issued this year through April.

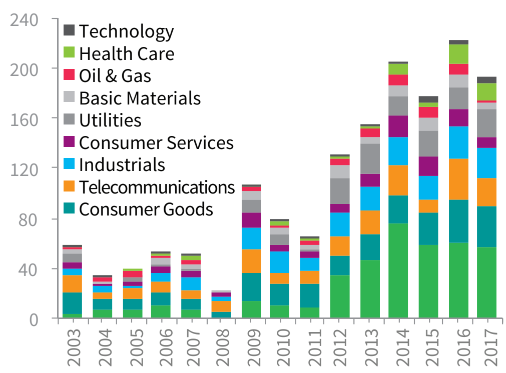
New issuance in recent years is clearly tilted towards financials (Chart 4), a reflection of regulatory changes and funding pressures in the sector.

Chart 3: EUR Corp Crossover New Issuance by Country(EUR bn)



*2017 through Sep 30. Source: IHS Markit

Chart 4: EUR Corp Crossover New Issuance by Sector(EUR bn)



* 2017 through Sep 30. Source: IHS Markit

The robust growth in new issuance in recent years can be attributed to several factors:

- a) Corporations taking advantage of the low yield environment to obtain financing and lower their funding costs. Foreign companies are also hedging their currency exposure through the issuance of EUR denominated debt, which is especially important at times when the EUR is weak relative to the local currency. Interestingly, with Eurozone interest rates at record lows, more and more foreign companies have turned to EUR denominated bond financing. U.S. companies stand out, with a surge in issuance from 2013 to 2016 (Chart 3). During this time frame the U.S. dollar appreciated by almost 20% relative to the EUR. U.S. firms have been the largest borrower in the EUR crossover space last year, with €44bn new issuance, surpassing France (€38bn) and Germany (€30bn).

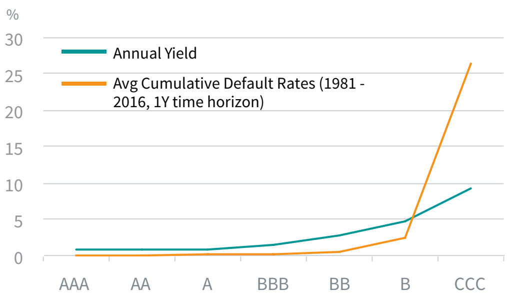
- b) Strong demand for yield in a low interest rate environment. The longer the record low rates remain in place, the higher the emphasis will be on yield and the acceptance of more credit risk in exchange for yield.
- c) Diversification of European corporations away from traditional channels such as bank-based financing and towards debt capital markets for low cost financing as the availability of bank lending has declined considerably in some countries. This is particularly relevant for issuers from Greece, Spain, Italy, Ireland and Portugal who sought out debt capital market funding during the Eurozone sovereign debt crisis. In 2015 almost 25% of corporate borrowing has been done via bond markets, compared to 18% in 2009 [2].
- d) Increased demand for corporate debt as it became eligible for the ECB's asset purchase program since the second half of 2016.

Crossover – a sweet spot?

1.Risk/reward profile

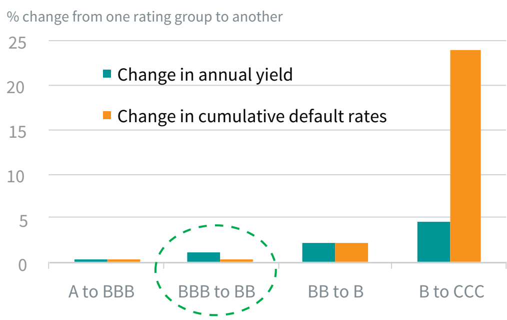
The crossover segment offers a blend of investment grade and high yield corporate debt with an attractive risk/reward profile. The inclusion of the BB rated bonds enhances yield compared to an investment grade universe, with only a marginal increase in risk - an increasingly valuable profile in the low interest rate environment of recent years. The charts below show the relationship between cumulative default rates and annual yield for each rating group. The transition from the lowest investment grade rating (BBB) to the highest high yield rating (BB) offers a favourable risk/return trade-off, adding about 1.3% of yield for only 33bps of additional default risk. The relationship becomes less favorable with lower credit rating tiers: the 2.1% pickup in yield from BB to B is associated with a 2.2 percentage point increase in default rates, while the transition from B to CCC is associated with a steep increase of 24% in cumulative default rates, for a 4.6% additional yield.

Chart 5: EUR Corp Cumulative Default Rates and Annual Yield



Source: IHS Markit, Standard & Poor's.Yield data as Apr 30, 2017

Chart 6: EUR Corp Cumulative Default Rates and Annual Yield



Source: IHS Markit, Standard & Poor's.Yield data as Apr 30, 2017

Table 3 highlights the performance of EUR corporates across rating categories over a period spanning from June 2004 to September 2017. Over this period the crossover segment clearly stands out on a risk-adjusted return basis, with a Sharpe ratio of 2.13 versus 1.56 for pure IG and 1.87 for the BBB tier. The addition of BB rated names enhanced return with a slightly lower volatility than either IG or BBB only strategies. Furthermore, the crossover portfolio offers a yield 35bps above that of EUR IG and 15 bps above that of a BBB only segment.

[2] Association for Financial Markets in Europe

[3] For performance comparison purposes we included a rising stars and fallen angels index in the table above. The rising stars index is calculated based on a group of 98 upgraded bonds during 2003-2015. Similarly, the fallen angels index tracks the performance of 367 bonds that were downgraded from IG into HY.

Table 3: EUR Corporate Performance

	EUR IG	EUR HY	BBB	BB	RisingStars	FallenAngels	Crossover
Volatility	2.69%	4.44%	2.73%	3.95%	3.62%	5.48%	2.63%
Annualized Return	4.19%	7.17%	5.11%	7.50%	4.47%	9.93%	5.61%
Sharpe (0 rates)	1.56	1.61	1.87	1.90	1.23	1.81	2.13
Max Drawdown	-9.06%	-37.17%	-10.00%	-29.47%	-19.75%	-30.94%	-12.89%
Max Drawdown Date	13/10/08	12/03/09	29/10/08	09/12/08	28/10/08	12/12/08	29/10/08
Average ERL*	5.71	4.78	5.77	4.78	3.97	4.76	5.57
Annual Modified Duration*	5.18	3.03	5.18	3.42	3.55	3.94	4.82
Coupon*	2.32	4.63	2.52	4.12	3.91	4.58	2.85
Asset Swap Spread*	58	239	81	199	120	202	98
OAS*	106	288	128	245	166	242	145
Annual Yield*	1.09	2.64	1.31	2.24	1.43	2.34	1.45
Number of Bonds *	2088	553	1103	373	47	87	1476

Performance data for 06/30/2004-09/30/2017. * 09/30/2017. Source: IHS Markit

2.Price distortions

Corporate bonds that are part of the investment grade universe and are downgraded to high yield are commonly referred to as “fallen angels”. Similarly, corporate bonds in the high yield space with improving fundamentals that are upgraded to investment grade are referred to as “rising stars[3]”.

The crossing between the investment grade (“IG”) and high yield (“HY”) benchmarks historically has created notable price distortions, with opportunities arising due to mispriced risk or forced selling when the rating event occurs.

Regulatory rules and institutional investor mandate restrictions often require the forced selling of bonds downgraded to a non-investment grade status (the “fallen angels”), triggering a significant price pressure on downgraded securities. Passive investment vehicles and the growth in ETFs in recent years are an increasingly relevant source of such price pressure. Importantly, the magnitude of the resulting selloff often well exceeds the price impact warranted by the rating change and/or fundamentals[4]. Moreover, in many cases, the prices of soon-to-be downgraded bonds start to decrease well ahead of the time of downgrade (market anticipates the rating actions), which means that a pure-investment grade mandate forces a selling of the downgraded bond often at a large loss[5].

Straddling the line between IG and HY, the crossover segment allows for the exploitation of such price distortions that is not otherwise available in a pure IG universe. The crossover segment allows for the opportunity for the prices of the downgraded bonds (“fallen angels”) to revert back in value, provided that the bonds are not downgraded further to a rating below BB. The price reversal tends to be the highest for the bonds that suffered the highest downward price pressure following the downgrade announcement[6]. In some cases the fallen angels are eventually upgraded back to IG, resulting in additional return.

Chart 7 illustrates the average cumulative excess performance of the fallen angels and rising stars bonds relative to a peer group during the 12 months centered on the rating event[7]. As expected, on average, fallen angels tend to underperform peers for several months prior to the downgrade to below investment grade – as the market anticipates the upcoming rating action (Chart 8). At the time of downgrade[8], fallen angels experience additional selling pressure as the bonds are removed from investment grade indices. However, a sharp price reversal occurs in the month immediately following the downgrade, and the fallen angel bonds start outperforming BB rated peers (on average), with buying pressure from HY investors. The prices tend to return to equilibrium level over time, as distortions abate.[9,10]

[4] Bolognesi et al, 2014, Dor et al, 2012.

[5] In cases when the bond is rated by more than one agency, for example, the time lag between the rating changes and the subsequent exclusion from the benchmark is often accompanied by downward price action (sell in falling market).

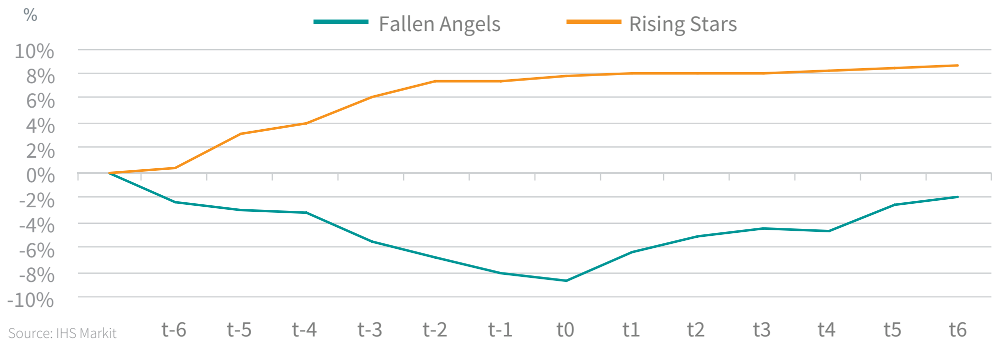
[6] Bolognesi et al, 2014

[7] The peer group was constructed based on companies with similar rating, sector and duration. Only peer groups of at least 25 companies were considered in calculating excess returns. The rating event is defined as the change in iBoxx average rating. The indices capture rating events from 2003 to 2015.

[8] End of the month of downgrade

[9] Dor et al., 2012

Chart 7: Average Cumulative Excess Performance Relative to Peers



Similarly, corporate bonds about to be upgraded from HY to IG tend to outperform peers in the six months prior to the upgrade, on anticipation of the rating event. The performance after the upgrade is relatively in line with peers.

Following the same logic, fallen angels tend to offer progressively higher yields than their peers in the months prior to the downgrade (Chart 9). The yield spread relative to peers gradually subsides after the bond enters the HY space. Rising stars on the other hand, on average, are offering a yield below peers in the months preceding the downgrade, and trade at a small spread to peers after joining the IG universe.

Chart 8: Fallen Angels and Rising Stars Excess Return Relative to Peers

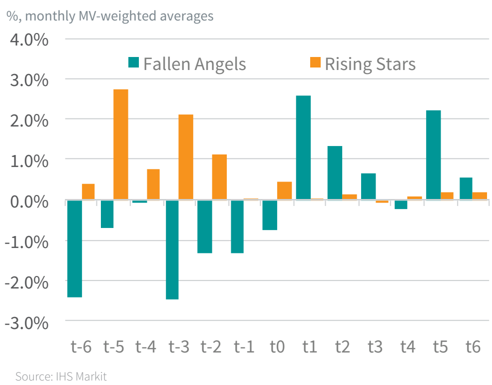
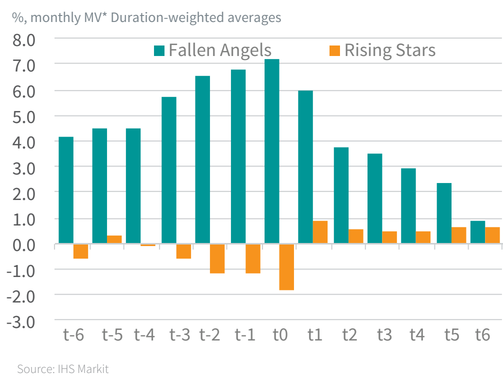


Chart 9: Fallen Angels and Rising Stars Excess Yield Relative to Peers



3. Diversification benefits and exposure to rate hikes

The crossover segment is a large asset class which offers notable diversification benefits when compared to a traditional IG portfolio.

Table 4: EUR Corporate Indices - Return Correlations

Correlation with EUR Sovereign Bonds*	EUR IG	EUR HY	BBB	BB	Rising Stars	Fallen Angels	Cross over
7/31/2004-9/30/3017	0.38	-0.28	0.18	-0.24	-0.14	-0.24	0.04
7 Year	0.46	-0.21	0.23	-0.16	-0.18	-0.17	0.11
5 Year	0.63	-0.08	0.45	-0.04	0.00	-0.10	0.32
3 Year	0.64	-0.04	0.48	0.00	0.04	-0.05	0.35
2 Year	0.63	-0.05	0.47	-0.02	0.02	-0.07	0.33

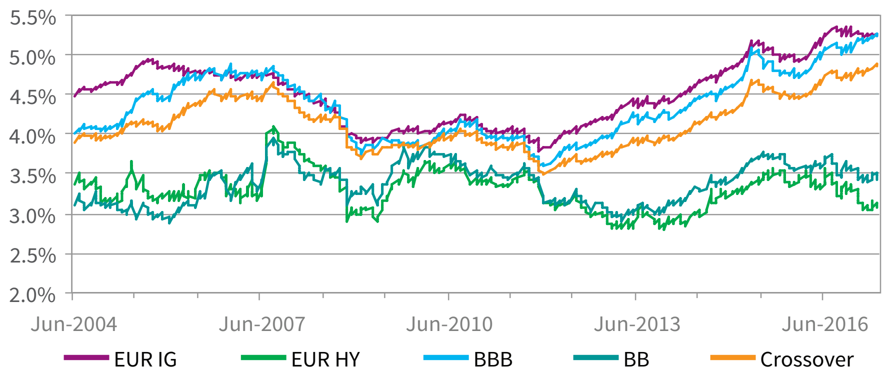
** Proxied by iBoxx € Germany. Source: IHS Markit*

- a) Lower correlation with government bonds than a pure IG universe, which can be particularly advantageous when facing the risk of interest rate hikes. Crossover 3- year correlation with sovereign bond returns is 0.3, about half of that for investment grade bonds.

[10] It can be argued that the magnitude of the price distortion also depends on the size of the issue being downgraded/upgraded. A downgrade of a larger issuer can have a spillover effect to the market segment as a whole.

- b) Lower duration. The addition of the high yield layer brings the duration of a crossover portfolio (4.8) below that of pure IG exposure (5.2) which is another important consideration when rate hikes are a risk.

Chart 10: Annual Modified Duration



Source: IHS Markit

- c) Sector diversification. The crossover segment provides clear sector diversification compared to IG alone. Exposure to financials reached almost 60% in the IG universe in mid-2008, versus only 10% in the crossover segment. (Table 5)

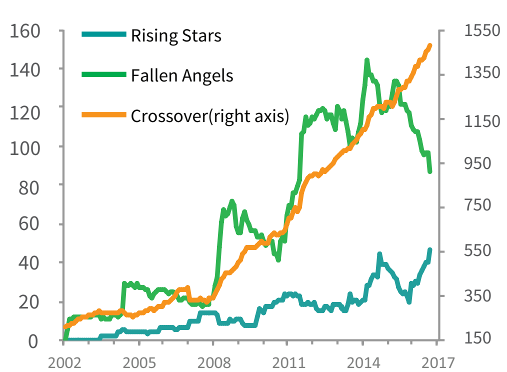
Table 5: Sector Exposure (% of Market Value)

	Aug-08					Apr-17				
	HY	IG	Crossover	Rising Stars	Fallen Angels	HY	IG	Crossover	Rising Stars	Fallen Angels
Financials	15%	56%	10%	4%	13%	21%	40%	27%	33%	39%
Consumer Goods	16%	8%	13%	42%	46%	16%	13%	16%	13%	15%
Utilities	0%	9%	4%	0%	0%	3%	11%	12%	14%	2%
Telecommunications	12%	10%	27%	0%	6%	13%	8%	12%	0%	9%
Industrials	18%	6%	17%	12%	13%	18%	9%	11%	21%	12%
Consumer Services	19%	3%	11%	4%	4%	8%	4%	7%	0%	1%
Oil & Gas	1%	3%	7%	24%	0%	4%	5%	4%	3%	10%
Basic Materials	14%	3%	8%	15%	19%	9%	3%	4%	3%	11%
Health Care	2%	2%	2%	0%	0%	4%	5%	4%	14%	0%
Technology	2%	0%	1%	0%	0%	4%	2%	2%	0%	1%

Source: IHS Markit

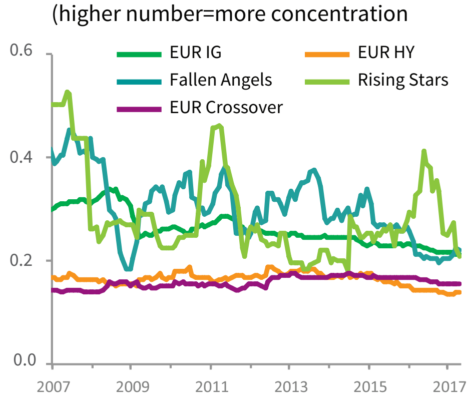
The crossover segment is also more diversified than the fallen angels or rising stars, which tend to be much more driven by cyclical and industry trends. (Table 5, Chart 11-12)

Chart 11: Number of Bonds



Source: IHS Markit

Chart 12: Sector Concentration
(higher number=more concentration

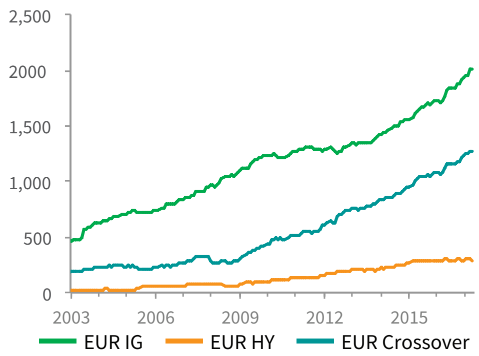


Source: IHS Markit

4. Liquidity

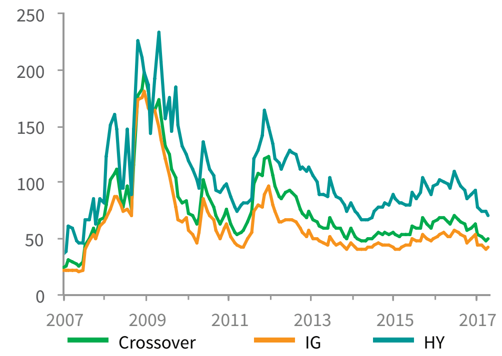
Lastly, liquidity in the crossover space has been increasing steadily. There are almost 1300 bonds with notional exceeding €500 mil in the crossover segment, compared to 2121 bonds in IG and 295 in HY (Chart 13). Bid-offer spreads have also narrowed, to levels only 7bps above those observed in IG.

Chart 13: Number of Bonds with Notional >=EUR 500ml



Source: IHS Markit

Chart 14: Average Bid-Offer Spread(bps)



Source: IHS Markit

Conclusion

The EUR crossover market is a large and growing asset class with an attractive risk/return profile. Price distortions arise as corporate credits move between the investment grade and high yield benchmarks which create windows of opportunity in fixed income portfolio asset allocation. Being positioned at the intersection between IG and HY, the crossover segment is well positioned to exploit such opportunities. In addition, low correlation with government bonds, diversified sector exposure and lower duration compared to a pure IG universe make the crossover sector an appealing candidate at times when interest rate hikes are a risk. iBoxx indices offer diversified exposure to EUR crossover credit, with iBoxx EUR Corporates BBB-BB index and the iBoxx EUR Corporates Yield Plus index being two of the available offerings.

'When interest rate hikes are a risk, the crossover sector is an appealing candidate.'

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