EUREX

Basis, Carry and the Curve

How Credit Index futures generate returns

Following a period of relative quiet in the previous decade, the early and mid-2020s have undeniably witnessed a resurgence in fixed income volatility and rate levels. Corporate and Sovereign Credit promise attractive returns in 2024, after yield curves have shot up in 2022 and 2023. Exchange listed credit index futures are a convenient, transparent and leveraged tool that provides access to a range of market participants, who previously were restricted to unlevered cash market instruments (such as cash bonds and ETFs) and those not active in the credit default swap market. But how do these instruments generate returns and how are these impacted by the current rate environment?

Credit markets differ from equities in that bonds have limited upside. Where Equity pricing encapsulates both the upside and downside potential, bond pricing is mostly driven by downside and default risks, and the price of money itself. Returns are driven by the carry that the yield to maturity and coupons generate. In general, the yield and coupon of a corporate bond will exceed the yield and coupon of a corresponding (in the sense of issuance and maturity date) benchmark government bond, given the additional risk premium required by investors for taking on the default risk of the issuer.

Credit index futures provide *leveraged* access to credit markets. Traders of the instruments do not put down the current contract value of the futures on entering the trade but only an initial margin, which seeks to compensate for potential price changes of the underlying. Margins are only a fraction of the quoted contract value of the future; however, market participants are required to offset absolute changes in the settlement price on a daily basis in *variation margin* payments. Even though the initial capital required may be relatively low, variation margin payments can be large relative to the initial margin invested, and the invested capital is levered. Table 1 shows the margins that Eurex charges for a long futures position and the embedded leverage that is achieved when 3X that margin is posted to the exchange.

Credit Index Futures	Margin (% of notional)	Leverage with 3X margin coverage
€IG (FECX)	1.5%	22.2X
€HY (FEHY)	3.1%	10.75X
$EM Sov (FUEM)	2.8%	12X
£IG (FGBC)	2.4%	13.9X

Table 1: Initial Margin charged by Eurex for 1 lot (long) in the June 2024 expiry on April 8th and Leverage achieved when posting three times the initial margin as additional puffer.

But what returns do credit *futures* generate, compared to cash instruments? Disregarding trading costs for now, there are two factors at play, as both the performance of the underlying index and the current pricing of the futures versus said index (also called *Cash-Futures-Basis* or *Basis)* play a vital role. Futures prices are *not* the expected price of the index, which one may calculate by using the average carry and roll-down of the bonds in the index. Nor are they set based upon market expectations for where the underlying may be at expiry, as this will be expressed in the underlying itself. Instead, the *Basis* is driven in large part by the cost of funding the leverage. In mathematical terms, the *futures price* F_0 settling at time T can be calculated as function of *the index value* I_0, *the risk-free rate* r and the *implied borrow rate* of the index b:

$$F_0 = I_0 * (1 + r - b)^T$$

The term $r - b$ is the *annualized funding cost*. The final settlement price of the futures is the index value at the date, i.e., $F_T = I_T = I_0 * (1 + \pi)^T$, where π is the *realized* performance of the index until T. The *annualized* performance of the future is

$$\sqrt[T]{\frac{F_T}{F_0}} - 1 = \frac{1 + \pi}{1 + r - b} - 1 = \frac{\pi - r + b}{1 + r - b},$$

which is approximately the *realized return of the index net of funding costs.*

The inverted rate environment benefits high-carry assets in a levered long context. In the above equation, we see that index returns and borrow need to outperform the risk-free rate for the future to generate positive returns. Here, the

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current shape of the curve poses a bit of a disadvantage for long positions in the futures, as one finances the leverage on the short end of the curve, where yields are high, and generate returns in higher tenors. Figure 1 shows the steep inversion of higher tenors versus the overnight ESTR rate of 3.9%, and the 3M Euribor rate of 3.86%. This is where the embedded leverage of the future becomes a two-sided sword. Assets that fail to generate returns above the risk-free rate will have these returns amplified by the leverage embedded. Those that generate returns above the short-term rate, such as €HY (YTW: 7.43%), are poised to generate upside with the carry embedded.



Figure 1: Euribor (3M) Curve on April 8th, 2024. Source: Bloomberg LLP

Current market conditions are supportive of short positioning. The last factor, which we carefully omitted so far is the implied borrowing rate b, which reflects market positioning. If implied borrow is high, it is a reflection of more demand than supply of the underlying in securities lending transactions, such as shorting. Conversely, a low, or negative, implied borrowing rate is reflective of long positioning, supplying dealers with excess inventory that is available for lending and levered long positioning by Buyside clients in the underlying markets, which is reflective of the current environment. Table 2 details the breakdown of the annualized funding costs for all Eurex Credit index futures. We see that Net Carry, the yield to worst net of annualized funding, is indeed negative for €IG.

Credit Index Futures	YTW	Annualized funding cost	Risk free Rate	Implied borrow Rate	Net Carry
€IG	3.7 %	5.1%	3.9%	-1.2%	-1.4%
€HY	7.4 %	5.6%	3.9%	-1.7%	1.8%
$EM	7.6%	7%	5.3%	-1.7%	0.6%
£IG	5.4%	5.4%	5.2%	-0.2%	0.06%

Table 2: Net Carry calculations for Credit Index futures with market prices of April 8th, 2024. Source: Eurex Calculations, Bloomberg LP.

It is still possible for traders to make money on the long side, however. An investment in a money market instrument will generate returns in the vicinity of the risk-free rate and will offset this part of the funding costs. Additionally, Eurex pays the risk-free reference rate net a small (20bps) fee on cash in the margin account. Clients looking for quick positioning may look to go long the futures and invest the notional net of margin account funding in a money market instrument.

Opportunistic market participants may look to enter the market on the short side. Deeply negative implied borrowing rates provide opportunity on the downside. Corresponding levered long positions in ETFs tracking highly correlated indices can be combined with a short index position to generate returns on a hedged basis, if funding costs on the long side remain below the implied borrow rate.

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