

New issuance premium in European corporate bonds

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05/18

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**Drivers of the new issuance
premium in corporate bonds**

p.08

At a glance

- Low interest rates, coupled with shrinking bank balance sheets, have pushed issuance rates for corporate bonds to record levels. Over the last ten years, issuance rates have averaged over 20% per year of the total outstanding amount in corporate bonds.
- Issuance in debt markets is much more frequent and significant than in equity markets, as bonds mature and debts are refinanced.
- In the equity markets, studies on Initial public offerings (IPOs) show that equities tend to outperform post the IPO.
- This study investigates the short-term performance of newly-issued Euro denominated corporate bonds since 2009, while controlling for market and idiosyncratic effects.
- We find a persistent and sizeable new issuance premium (NIP), averaging at 14bps (80bps) in spread (price) terms.
- The study shows that there is significant variability in the NIP. The NIP depends on issue risk, market environment and other demand-supply variables, all of which are statistically and economically meaningful.
- We find that investment grade index investors, by not participating in new issues, have historically foregone nearly 20bps of return per year, which is over 25% of the long-term spread performance of these indices.

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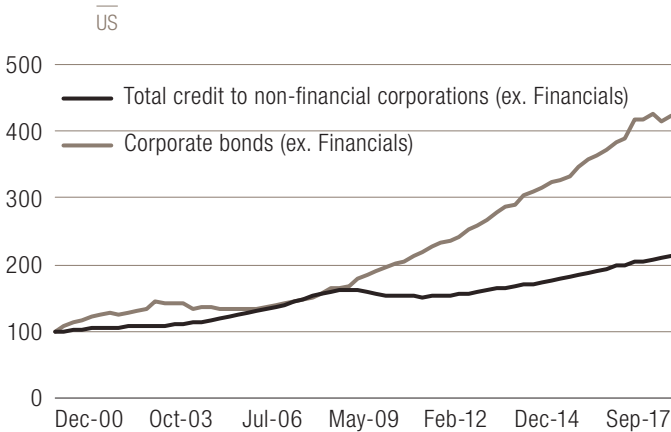
The new issuance premium:
the return missed by traditional
index investors

Introduction

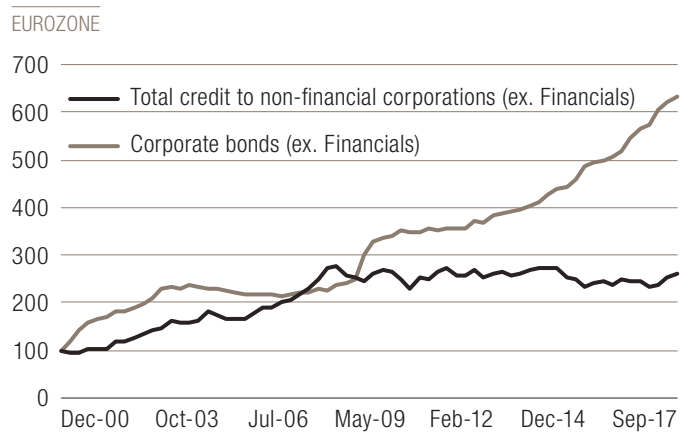
Corporate bond markets have become an increasingly important funding source for global corporations. Before the global financial crisis, corporations typically borrowed using bank loans and a smaller proportion of public debt. After the global financial crisis, banking regulations were tightened, making traditional bank lending operations more onerous. At the same time, global central banks took concerted action to incentivise lending to the real economy through low interest rates and quantitative easing.

The combination of low yields, coupled with banks deleveraging due to stricter regulations, encouraged corporations to access public debt markets for funding. As a result, corporate bond markets exploded, growing by six times between 2000 and 2017 in the Eurozone, and by over four times in the US over the same period, as seen in Figure 1.¹ By comparison, total corporate debt has increased by little over two times in the two regions.

FIG. 1 CORPORATE BONDS MARKET SIZE VERSUS TOTAL CORPORATE DEBT (INDEXED TO 100, DECEMBER 2000)



Source: Bank of International Settlements,² Barclays POINT, Bloomberg, LOIM calculations.



Source: Bank of International Settlements,² Barclays POINT, Bloomberg, LOIM calculations.

The increased attractiveness of financing through public debt markets has resulted in a large increase in corporate bond issuance over the past decade. Total net new issuance in the US and Eurozone grew at an effective annual rate of 5.7% between 2001 and 2017.

An interesting pattern of issuance that we see in Figure 1 is the flattening of the issuance rate between 2004 and 2006. The effective annual growth rate in this period was negative in the US and close to zero in the Eurozone. In the US, we saw issuance flatten again in 2017. The flattening of the issuance rate coincided with the rate hiking cycle in the US and Eurozone, indicating that corporations deleverage as interest rates are raised. In addition to

this general market deleveraging between 2004 and 2006, issuers that had increased leverage during the periods of low interest rates, such as Ford and GM, deleveraged once their debt was downgraded to high-yield.³

Figures 2a and 2b further illustrate the growth in issuance and rise in relative importance of corporate bonds as a means of financing.

While primary market issuance has reached record levels, buoyed by low interest rates in the US and Eurozone, liquidity in the secondary markets – especially for large off-the-run trades – has decreased. Regulation has again proven to be a driver of this development.

¹ Corporations within the Eurozone, especially the smaller and less global entities, have traditionally relied more on bank financing as opposed to the public markets.

² Total credit to non-financial corporations provided by BIS comprises of loans and debt securities, which itself comprises special drawing rights (SDR); insurance, pension and standardised guarantee schemes; and other accounts receivable/payable.

³ Any reference to a specific company or security does not constitute a recommendation to buy, sell, hold or directly invest in the company or securities. It should not be assumed that the recommendations made in the future will be profitable or will equal the performance of the securities discussed in this document

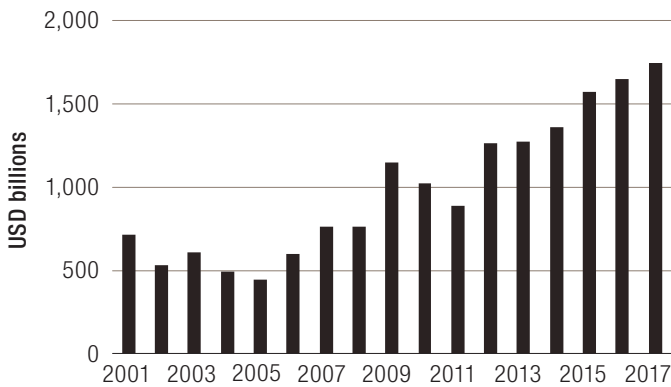
Figure 3 shows the decline in broker-dealer corporate bond inventories as regulation made their balance sheet usage progressively more expensive. Broker-dealers' role shifted, with them increasingly becoming intermediaries, matching buyers with sellers, as reflected in the rise in customer-to-customer trades (DC-DC) shown in Figure 4.

This "fractured liquidity" environment has been a key area of focus for LOIM in recent years, see Ahmed, S., "A new Paradigm in Fixed Income," Lombard Odier Investment Managers, March 2017. Primary markets, however, have remained robust, with liquidity significantly higher for primary issues and dropping off thereafter.⁴

In fact, in primary markets, broker-dealers are continuing to warehouse risk, with part of the new issue often allocated to trading desks of the banks managing the deal. Consequently, the resultant higher liquidity has made new issues especially attractive for investors.

There has been a significant body of work on the behaviour of stock prices following equity issuance through Initial Public Offerings (IPO's), but the literature on corporate bond issuance has been more limited. This is surprising given issuance in equity markets is less frequent. For example, in 2017 total IPO activity by market capitalisation totalled less than 0.2% of the world year-end equity market capitalisation, despite 2017 being the most active year for a decade, with 1,770 deals.⁵

FIG. 2a CORPORATE BOND ISSUANCE BY YEAR (EUROZONE AND US COMBINED)



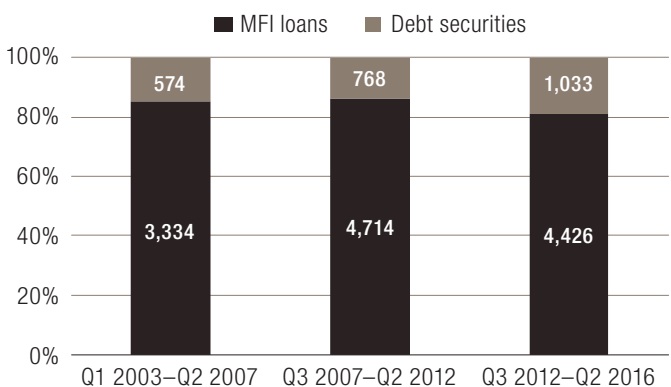
Source: Barclays POINT, Bloomberg, LOIM calculations.

FIG. 3 BROKER DEALER CORPORATE BOND INVENTORIES (% OF MARKET)



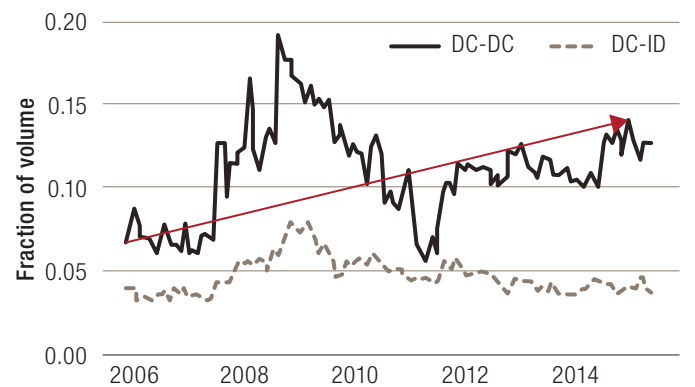
Source: Federal Reserve of NY, SIFMA, LOIM.

FIG. 2b IMPORTANCE OF MFI⁶ LOANS VERSUS DEBT SECURITIES FOR EURO AREA NON-FINANCIAL CORPORATES



Source: ECB. In percentages of the amount outstanding of MFI loans and debt securities issued by euro area non-financial corporates. Data in bars indicate the average over the respective period in EUR billions.

FIG. 4 TRADES BY CUSTOMER TYPE



Source: Choi & Huh (2016), US Federal Reserve. DC-DC are customer trades that are matched with other customer trades. DC-ID are customer trades which are matched with interdealer trades.

⁴ Mizrach, B, "Analysis of Corporate Bond Liquidity," FINRA.

⁵ Figures according to Dealogic and Bloomberg. 2017 global IPO proceeds raised USD 188.8 billion.

⁶ Monetary Financial Institution (MFI): Financial institutions which together form the money-issuing sector of the euro area. These include the Eurosystem, resident credit institutions (as defined in EU law) and all other resident financial institutions whose business is to receive deposits and/or close substitutes for deposits from entities other than MFIs and, for their own account (at least in economic terms), to grant credit and/or invest in securities. The latter group consists predominantly of money market funds. Definition source: <https://www.ecb.europa.eu/home/html/index.en.html>.

Ritter and Welch (2003) show that equity IPOs are followed by significant price appreciation on the first day of issuance but underperform thereafter. The price appreciation is attributed to a number of reasons, including asymmetric information (Welch (1989)), share allocation (Benveniste and Spindt (1989)), winner's curse (Rock (1986)) and valuations (Kim and Ritter (1999)).

Issuance in corporate bond markets is very different from equities because bonds have fixed maturities and new issuance is often used to refinance existing debt. Companies with secondary issues outstanding are generally well known. Therefore, it could be expected that the performance patterns of new corporate bond issues differ from those of newly-listed equities.

The literature on new issuance within the corporate bonds universe appears to show that new issues are under-priced. Brimmer (1960), Lindvall (1977) and Sorensen (1982) assess the spread differential between new issues and matched benchmark bonds and conclude that new issues tend to have a higher spread than aged issues.

Ben Dor (2015a), using a cleaner data set from Barclays' US syndicate desk, shows that new issues come in at higher spreads than their matched secondary bond within the US corporate bond

universe. In the same vein as the literature on equity IPOs, one can also analyse the return of new issues. Lindvall (1977), Datta et al (1997) and Cai et al (2007) show that new issues tend to have a significant positive short-term benchmark-adjusted performance.

Our study on corporate bonds issuance within European corporate bond markets shows a persistent pattern of outperformance post-issuance. This is especially relevant for index and smart-beta investors. As all indices (smart beta or market-capitalisation based) are constructed from bonds that are already trading in secondary markets, the premium associated with newly issued bonds is foregone.

The rest of the paper is organised as follows:

In Section 1 we describe the methodology and underlying data used to measure the new issuance premium (NIP), and include a simple case study to illustrate our approach. Section 2 presents the broad empirical evidence of the NIP in European corporate bonds since 2009. Section 3 explains the drivers of the NIP and proposes a few explanations for the premium. Section 4 quantifies the impact of new issuance on the performance of index investors, and Section 5 concludes.

1. Data and methodology

The process of new issuance, mostly for inaugural issuers in the region, begins with a deal roadshow, organised by the nominated investment bank, during which the issuing company meets investors. For smaller issuers, the roadshow acts as a signalling mechanism in which they market the company and describe the intended use of proceeds. The investment community also uses this forum to provide feedback on size and pricing. For large, regular issuers, there may be a general investment call (GIC) instead of a roadshow prior to issuance.

On the day of the issue, details of issuance size, use of proceeds and initial price/spread thoughts are announced as a precursor to the book-building process. Pricing for investment grade (IG) issues is quoted as a spread to the maturity-matched treasury or swap curve while, for high yield (HY) issues, it is quoted in terms of yield to maturity.

The investment bank's syndicate desk changes the pricing range based on investor demand until a final spread is set and the investors' orders are deemed as firm. At this point, the allocation process commences, and the investor runs the risk of having their order partially filled or not at all.⁷ The syndicate desk retains some autonomy in deciding on allocations; attendance at roadshows and providing pricing and other feedback are some of the factors considered by syndicate desks in determining allocations.

Measurement of the new issuance premium (NIP)

The NIP in corporate bonds has been calculated in the literature both as a spread discount as well as an excess return over a benchmark bond.⁸ We use a modification of the second approach and calculate the NIP as an excess spread compression of the primary issue over the closest matched secondary⁹ in the two days following issuance¹⁰ (Eq. 1).

$$NIP = (PRIM_t - PRIM_{t+2}) - (SEC_{t-1} - SEC_{t+2}) \quad (\text{Eq. 1})$$

Where:

PRIM = Mid spread of the primary bond¹¹

SEC = Mid spread of the secondary bond

Subscript "t" refers to the issuance end of day. The deal announcement usually coincides with the issuance date (t) but occurs at the beginning of day. To take into account the secondary spread prior to new-issue announcement, we use the secondary spread at (t-1) which is the previous end-of-day.

Using the matched secondary removes most of the systematic and idiosyncratic effects from the price performance of the primary. And calculating an excess spread compression, as opposed to a return difference has two main benefits. Firstly, this approach removes the effect of changes in the treasury curve that can drive return differences between the primary and the matched secondary. Secondly, it allows us to remove the effect of duration from the calculations, thereby characterising the NIP as a spread instead of a price effect. This makes it consistent with the spread discount approaches also used in the literature. The main drawback of this approach, however, is that it restricts us to the universe of issuers with a secondary issue outstanding. Despite this limitation, we are still left with a substantial universe of events, as discussed below.

As a case study, we consider the Anglo American 1.625 coupon bond maturing in 2025 and compare it to the 3.25 coupon bond maturing in 2023.¹² For this bond, the deal announcement was made on the morning of 13 September 2017. We use the spreads of the secondary bond at the end of 12 September as our reference secondary spread prior to announcement. The primary issue moved from a spread of 110bps (over swaps) at issuance to around 99bps by 15 September, while the secondary bond was almost unchanged from prior to the announcement at around 78bps. The excess spread compression was therefore around 10bps. The excess spread compression can be converted to spread excess returns by multiplying by the duration of the primary issue. To avoid analytical duration dependence of results, we prefer to use spread compression as opposed to spread excess returns in our study.

⁷ There exist orders called fill-or-kill orders that are usually of small size and can result in a binary (0% or 100%) allocation.

⁸ Cai et al (2007) uses a maturity and rating matched corporate sub-index as their benchmark while Datta et al (1998) and Fung (1986) used matched treasuries as the benchmark bond.

⁹ We select the secondary bond that is closest to the primary issue in duration with the same subordination as the primary issue.

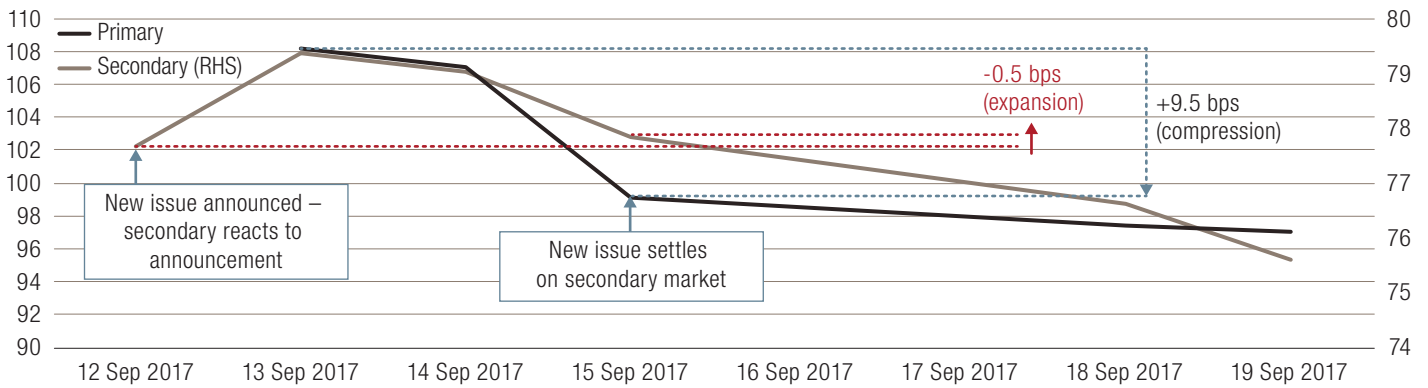
¹⁰ We use a two business-day window to calculate returns so as to coincide with the normal settlement date. Post settlement, the bond begins to trade in the secondary market. Investors can also trade in bonds prior to settlement in the "grey" market to cash in the NIP and this phenomena is called "flipping." Goldstein and Hotchkiss (2007) document evidence of flipping.

¹¹ For primary issues, we consider the spread at issuance on the announcement day and the mid spread thereafter.

¹² Any reference to a specific company or security does not constitute a recommendation to buy, sell, hold or directly invest in the company or securities. It should not be assumed that the recommendations made in the future will be profitable or will equal the performance of the securities discussed in this document.

FIG. 5 CASE STUDY FOR MEASUREMENT OF NIP

ANGLO AMERICAN SPREAD OVER SWAPS (13 SEPTEMBER 2017): PRIMARY (1.625 '25) VERSUS SECONDARY (3.25 '23)



Source: Bloomberg, LOIM calculations.

We do not attribute the new issuance premium to a valuation discount. Similar to studies in the equity markets, we simply consider the price performance of the primary issue after controlling for market and idiosyncratic effects. Explanation for this price performance can be a valuation discount (Ben Dor and Xu (2015a)) or a liquidity premium (Kozhanov and Ogden (2012)) that a new issue commands once it begins to trade in the secondary market.

In our broad event study within the European corporate bond market, we consider senior, non-callable¹³ bonds rated BB- or better from the Barclays Euro corporate bond universe that have an existing secondary issue that is sufficiently close to the primary issue.¹⁴ There are over 1,700 events in our sample spanning from January 2008 to October 2017, involving 380 unique issuers and this provides a rich dataset with which to assess the magnitude and drivers of the NIP.

¹³ Callable bonds are excluded for ease and reliability of calculating spread analytics.

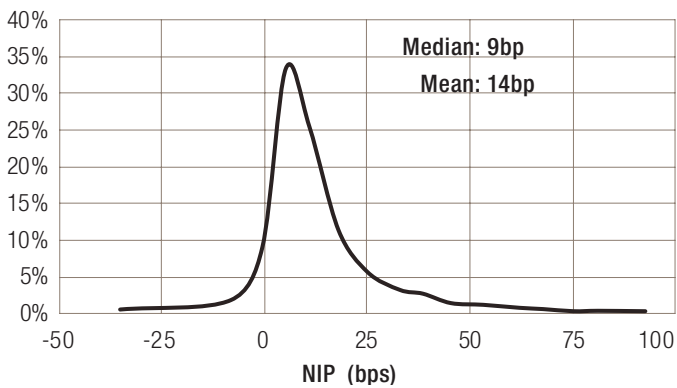
¹⁴ We only include events in which a secondary bond is available with a duration of more than two years and within five years of the maturity of the primary issue.

2. Empirical evidence of the NIP in European corporate bond markets

Figure 6 plots the distribution of the NIP and the estimated excess return over the past ten years. Our dataset shows the NIP to be mostly positive, with a median (mean) spread of 9bps (14bps) and a return of 55bps (80bps).

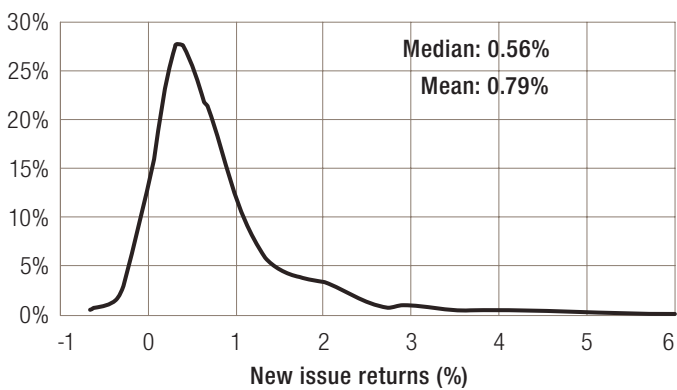
The mean NIP is significantly higher than the median suggesting that there are thick tails with a number of events with very higher premiums.

FIG. 6 DISTRIBUTION OF THE NIP



Source: Barclays POINT, Bloomberg, LOIM estimates.

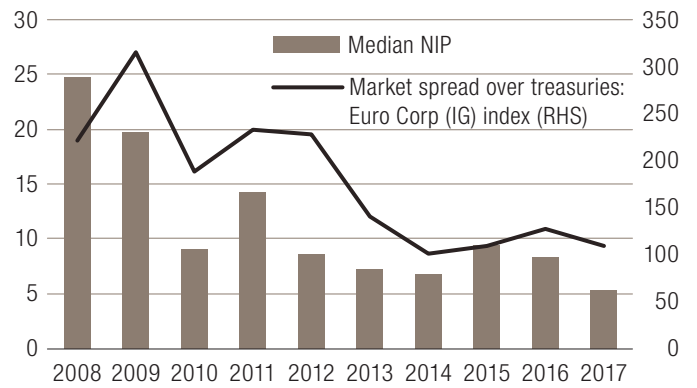
FIG. 7 DISTRIBUTION OF NEW ISSUE RETURNS



Source: Barclays POINT, Bloomberg, LOIM estimates.

An explanation for the distributional properties of the NIP is hinted at in Figure 8 where we plot the median NIP over time. Clearly, new issue premia have varied considerably over time and appear to be related to the market environment and general spread levels.

FIG. 8 NIP OVER TIME



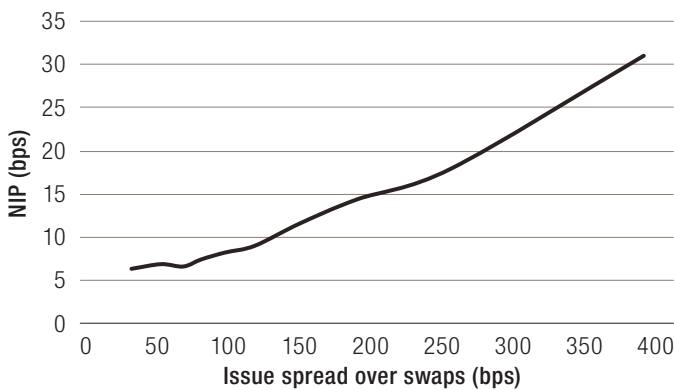
Source: Barclays POINT, Bloomberg, LOIM estimates.

3. Drivers of the NIP in corporate bonds

Issue spreads – The literature on new issues usually splits results into IG and HY buckets. Datta (1998), Cai (2007) and Hotchkiss (2007) all show that the NIP is much more significant in HY. However, we believe that the division between IG and HY is not a cliff-edge but rather a continuum along the credit risk spectrum. An obvious driver of the NIP is therefore the credit risk of corporate bonds, as captured by their spread levels. Barclays’ research¹⁵ shows that spread levels are, historically, linearly related to the volatility of spread changes. In addition, the same research also indicates that spread levels explain the cross-section of idiosyncratic risk in corporate bonds. Issue spreads should, therefore, be the primary driver of credit risk and therefore of the NIP.

In Figure 9, we plot the median NIP for each issue spread decile in our sample set. The figure shows a clear monotonic relationship between NIP and issue spreads.

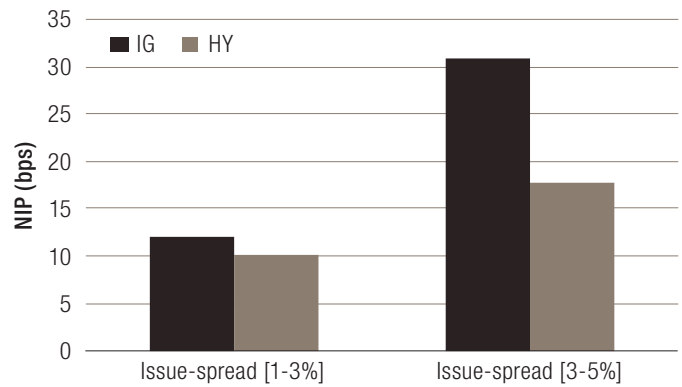
FIG. 9 NIP AS A FUNCTION OF ISSUE SPREADS: POOLED DATA FOR DECILES OF ISSUE SPREADS



Source: Barclays POINT, Bloomberg, LOIM calculations.

In fact, in opposition to the results shown in the literature, we find that HY issues¹⁶ have a lower NIP once we control for spreads, as seen in Figure 10. A caveat for the results shown in Figure 10 is that we do not control for other confounding variables, such as the market environment. IG issuers in the spread buckets used for comparison were largely in a volatile period while the corresponding HY issuers were in a benign spread environment. Controlling for

FIG. 10 NIP BY IG-HY RATINGS: PARTITIONED BY ISSUE SPREAD BUCKETS



Source: Barclays POINT, Bloomberg, LOIM.

these effects indicates that the IG-HY boundary does not matter much, as the spread levels themselves explain a large part of the cross-sectional variation in NIP.¹⁷ Factors linked to information asymmetry, such as low analyst coverage, should be incorporated in the spread itself. For example, Ben Dor and Xu (2015b) show that bonds of private companies have systematically higher spreads and higher downgrade frequency than public companies.

Market Spread Levels and Momentum – Market-wide spread levels are a good gauge of the general levels of risk-aversion in the market. We can, therefore, expect high levels of market spreads to be linked to higher new issue premiums.¹⁸ However, to capture market sentiment, the momentum of spreads may also be a useful variable. We use the trailing three-month excess returns¹⁹ of the Bloomberg Barclays Euro IG corporate bond index as a proxy for spread momentum. High-and-increasing spreads (negative spread momentum) should command a higher premium than high-but-decreasing spreads (positive spread momentum). In Figures 11 and 12, we partition the NIP into buckets of above- and below-median market spread levels and market spread momentum. We observe a strong dependence of the NIP on both market spread levels and market spread momentum, with high and increasing market spreads resulting in the highest NIP levels. Note that the market spread level is both a “supply” and a “demand” variable, as issuance tends to be pro-cyclical, with higher supply, when spreads are low.

¹⁵ Ben Dor, A., L. Dynkin, P. Houweling, J. Hyman, E. van Leeuwen, O. Penninga, “A New Measure of Spread Exposure in Credit Portfolios,” Barclays Research, 3 February 2010.

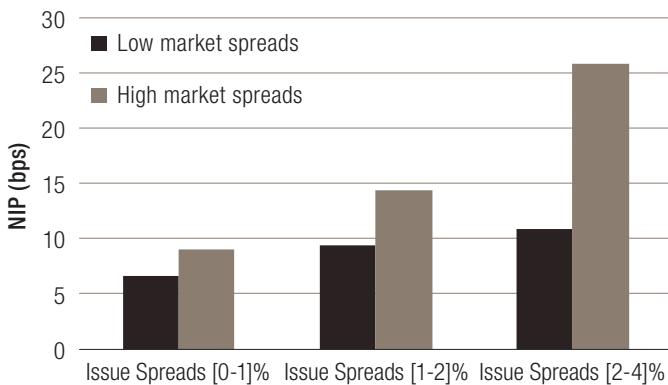
¹⁶ For this study, we restrict ourselves to BB or better rated issuers. In the Eurozone, the HY universe is dominated by BB’s, constituting around 70% by market value of the overall Bloomberg Barclays HY index.

¹⁷ We run a combined regression with an additional HY dummy variable. The loading on this dummy variables is still negative although less significant than other variables. We exclude this variable in our regression results.

¹⁸ Fung (1986) suggests a link between market environment and the NIP, using the yields as a measure of the market environment. We prefer to use the spread itself.

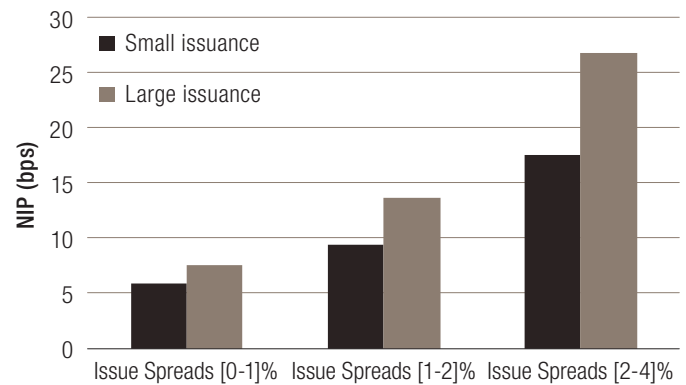
¹⁹ Excess returns are measured as the returns in excess of matched risk-free treasuries. We use published excess returns from Barclays which uses the German treasury curve as the risk-free treasury curve.

**FIG. 11 NIP BY MARKET SPREADS:
PARTITIONED BY ISSUE SPREAD BUCKETS**



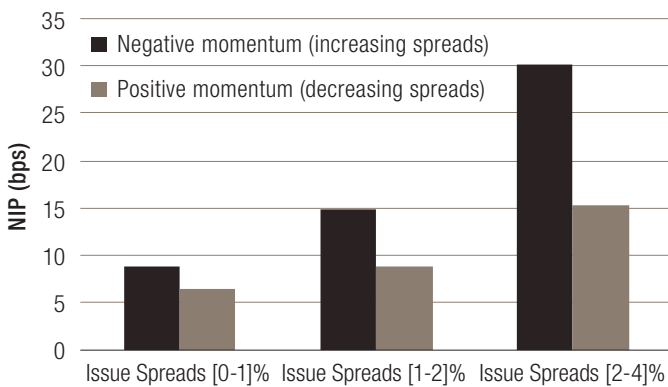
Source: Barclays POINT, Bloomberg, LOIM calculations.

**FIG. 13 NIP BY ISSUE SIZE:
PARTITIONED BY ISSUE SPREAD BUCKETS**



Source: Barclays POINT, Bloomberg, LOIM calculations.

**FIG. 12 NIP BY MARKET SPREAD CHANGES:
PARTITIONED BY ISSUE SPREAD BUCKETS**



Source: Barclays POINT, Bloomberg, LOIM calculations.

Issue size – We introduce issue size as the first variable that is purely supply driven. Large issues should, *ceteris paribus*, require a larger premium than small issues to “clear” the market. Figure 13 shows that controlling for issue spreads, larger sized issuance tend to command a higher NIP than smaller issuance.

To quantify the impact of these variables, we run a multi-factor regression of the NIP against issue spreads, market spreads, market spread change and size as the independent variables.

We run the regression in a stepwise manner to highlight the enhancement that each variable brings in explaining the cross-sectional variation in NIP. For ease of interpretation of the constant, variables other than issue spreads are de-meanned.

The results for Model 3 of Figure 14 can be described as follows. The NIP for a zero spread bond in an average market environment and of average size is 3.1bps.²⁰ There is a 7.4bps increase for every 100bps increase in issue spreads. For a 100bps increase in levels of market spreads we see a 2.5bps increase in NIP while for a 100bps credit return over the past three months implies a 1.6bps decrease in NIP. Finally, a EUR 1 billion increase in issuance size implies a 2.1bps increase in the NIP.

Also note that the t-stats (adjacent to the relevant coefficients in Figure 14, and in subscript) remain significant in all cases, apart from for the constant in Model 1.

FIG. 14 MULTI-FACTOR REGRESSIONS EXPLAINING THE CROSS-SECTIONAL DRIVERS OF NIP: BETA_(T-STAT): 2008 TO 2017

	MODEL 0	MODEL 1	MODEL 2	MODEL 3
ISSUE SPREAD [%]		9.1 _(28.9)	7.1 _(19.9)	7.4 _(20.8)
MARKET SPREAD [%]			2.7 _(5.9)	2.4 _(5.2)
MARKET SPREAD CHANGE [%]			-1.7 _(10.2)	-1.6 _(10.0)
SIZE [EUR B]				2.1 _(6.0)
CONSTANT [BPS]	13.9 ₍₃₂₎	0.7 _(1.1)	3.5 _(5.7)	3.1 _(4.9)
ADJUSTED R-SQUARED		32.5%	40.1%	41.3%

Source: LOIM.

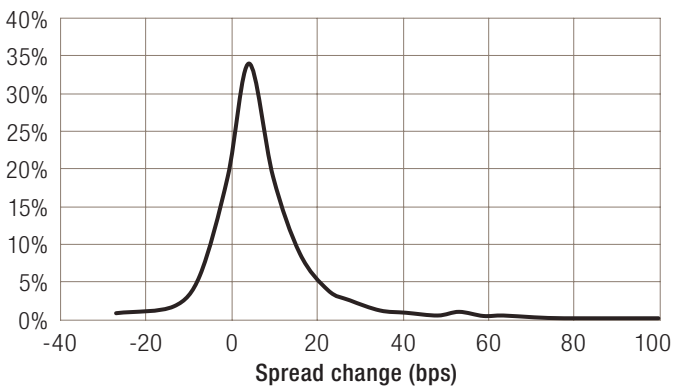
²⁰ The average market environment is an IG spread level of 150 bps and a trailing three month spread return of 20bps. The average issue size is approximately EUR 1.1 billion.

Behaviour of market participants and the NIP strategy

Is capturing the NIP premium an established strategy amongst market participants? A simple test is to consider the price movement of the secondary bond on the announcement day. The easiest way to capture the NIP within credit portfolios is to sell the secondary issue if available. This would minimise both the idiosyncratic and systematic biases generated by buying a new issue that has yet to be included as a part of any bond index.

In Figure 15, we plot the distribution of spread change of the nearest secondary issue on the announcement day. The secondary bond appears to sell-off on average, indicating that investors may indeed be selling secondary bonds to fund the primary issue.

FIG. 15 DISTRIBUTION OF SPREAD CHANGE OF SECONDARY BOND ON ANNOUNCEMENT DAY

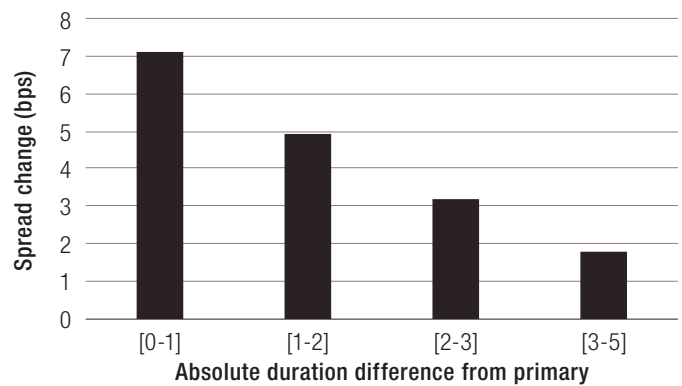


Source: Barclays POINT, Bloomberg, LOIM calculations.

How do we test that the replacement trade explains the spread movement of the secondary issue? One may propose that new issuance is a negative fundamental signal for existing issues and secondary bonds respond negatively to announcements of new issuance.²¹

We partition the data sample of secondary spread moves by the absolute duration difference between the primary and their corresponding closest secondary issue. A fundamentals-based reason for the spread move of the secondary bond should not be a function of the distance from the primary issue. Figure 16 shows that there is a monotonic relationship between the spread move of the secondary on announcement day and the duration difference from the primary. Therefore, the closer the secondary bond is to the primary, the greater the selling pressure as investors look to replace the secondary with the primary issue.

FIG. 16 SPREAD CHANGE OF SECONDARY BOND ON ANNOUNCEMENT DAY PARTITIONED BY ABSOLUTE DURATION DIFFERENCE FROM PRIMARY



Source: Barclays POINT, Bloomberg, LOIM calculations.

Since we define the NIP as the excess spread compression of the primary over the closest secondary, a higher spread expansion of the secondary bond should be captured by the NIP. In other words, the NIP should be higher, the lower the duration difference between the primary and secondary, as the secondary bond sells off more. We test this by running the multivariate regression and including the absolute duration difference between secondary and primary as an additional explanatory variable. Figure 17 indicates that there is a significant negative loading of the NIP on the duration difference between the primary and secondary issue.

FIG. 17 MULTI-FACTOR REGRESSIONS INCLUDING ABSOLUTE DURATION DIFFERENCE BETWEEN PRIMARY AND CLOSEST SECONDARY BOND: 2008 TO 2017

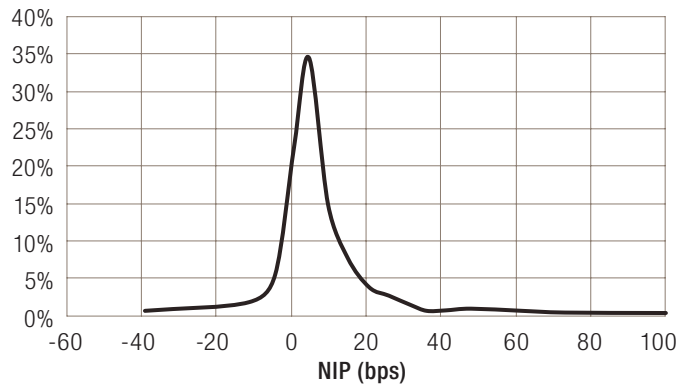
	MODEL 3	MODEL 4
ISSUE SPREAD [%]	7.4 _(20.8)	7.4 _(20.6)
MARKET SPREAD [%]	2.4 _(5.2)	2.3 _(5.0)
MARKET SPREAD CHANGE [%]	-1.6 _(10.0)	-1.6 _(9.8)
SIZE [EUR B]	2.1 _(6.0)	2.0 _(5.7)
ABS DURATION DIFF (YEARS)		-1.1 _(3.1)
CONSTANT [BPS]	3.1 _(4.9)	3.1 _(5.1)
ADJUSTED R-SQUAR ED	41.3%	41.6%

Source: LOIM calculations.

²¹ Cooper, Gulen and Schill (2008) conclude that the subsequent risk-adjusted equity returns of firms with low asset growth (less leverage) are substantially and significantly higher than those with high asset growth (more leverage).

We test for the persistence of the NIP post the replacement trade. The full extent of the NIP is realised only if we sell the secondary immediately after the new issue announcement (prior to the secondary spread expansion) and can get a corresponding replacement allocation to the primary. However, in most cases, liquidity becomes one-way for the secondary issue resulting in higher bid-ask cost. Alternatively, there may be no secondary bonds to sell within the portfolio. In Figure 18, we measure the NIP after removing the effect of the negative price move of the secondary issue on announcement day. The NIP remains highly significant and the strategy is robust even if we sell the secondary bond the day after the announcement day.

FIG. 18 DISTRIBUTION OF NIP (BPS) POST REPLACEMENT



Source: Barclays POINT, Bloomberg, LOIM calculations.

4. Impact of inclusion delay of new issues on index investors

Bond indices form the bedrock for fixed income investing. ETFs and passive investors attempt to replicate the bond indices closely by either buying a slice of the index or investing in a representative subset of the index.²² Even for active bond investors, bond indices are used for performance benchmarking and, as a result, are often the starting point for the portfolio construction.

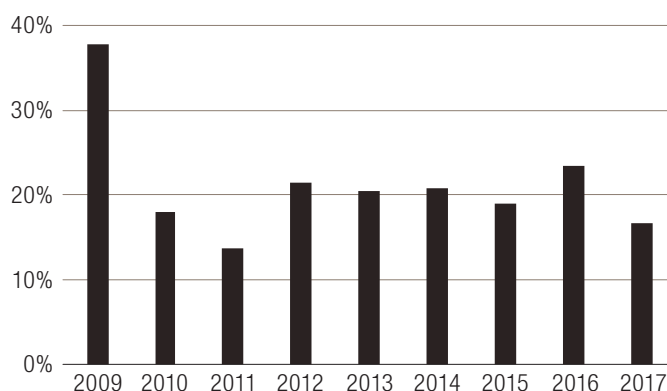
The broad-based bond indices such as the Bloomberg Barclays Global Aggregate, US Aggregate or Euro Aggregate indices are market-capitalisation based and includes all bonds above a certain size,²³ with a maturity of more than one year, and subject to rating constraints.²⁴

Broad-based bond indices generally follow a monthly rebalancing schedule. At the end of each month, newly eligible bonds are included in the index while bonds that are no longer eligible are removed. Thereafter, the index constituents are fixed for the month for index return calculations. Newly eligible bonds primarily consist of new issues, while exiting bonds are generally those with maturities below one year. However, new issues are not included in the index at issuance but rather at the end-of-month, and only if the bond is already trading in the secondary markets.

New issues constitute a significant proportion of the overall corporate index. This is very different from equities as bonds mature and debts are rolled over. The average life of most corporate bond indices is in the range of five to six years. Since the market as a whole, rolls over its debt in normal times, the bond indices tend to have a constant maturity profile. This implies an issuance rate of roughly the inverse of the average maturity of the index, around 15-20% of the size of the index.

In Figure 19 we see that the issuance rate for the European investment grade corporate index has in fact been higher, at over 20% over the past eight years. This is consistent with the increase in the size of bond indices both as the economy grows in nominal terms and corporates proportionately raise more funding using public markets.

FIG. 19 ISSUANCE AS PROPORTION OF INDEX SIZE



Source: Barclays POINT, Bloomberg, LOIM calculations.
2017 calculations based on data from January to October. All other figures are calculated based on data for entire years.

²² This approach is also referred to as stratified sampling.

²³ This is usually USD 300 million or EUR 300 million. See the Bloomberg index website for further details on index rules. <https://www.bloombergindices.com/bloomberg-barclays-indices-resources/>.

²⁴ Rating constraints for the standard Aggregate indices are investment grade (BBB-/BAA3 or better).

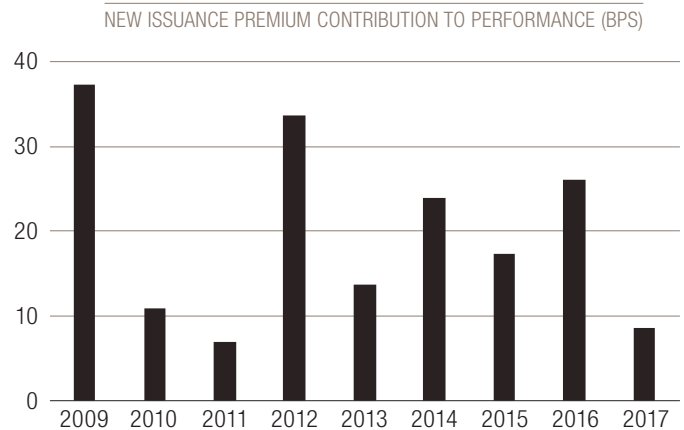
All bond indices exclusively consider secondary bonds within their index construction methodology. Index replicators can theoretically perfectly replicate the returns of such an index by buying a slice of the index. New issues, however, pose a problem to the index construction process, as there is no guaranteed allocation. Therefore, standard bond indices do not include new issues at issuance price. A consequence of this is that the inclusion of bonds into bond indices is post the realisation of the NIP.

We quantify the performance foregone by index investors as they buy bonds following index rules. We use the rules for the standard market cap indices by which bonds enter the index at the end-of-month. The performance impact of new issues is calculated as the total return of the new issue from issuance to index inclusion date, less the return of the broader index over the same period multiplied by the weight of the new issue in the broader index.²⁵

In the previous section, we looked to explain the cross-sectional variation of the NIP. Such a cross-sectional study requires that the primary bond has an existing secondary issue to control for market effects.²⁶ In the inclusion-delay exercise, we also include first time issues²⁷ as we effectively compare the performance of new issues with the relevant index performance.

The inclusion delay period within monthly-rebalanced indices is less than a month, on average, and we can expect the NIP to be the primary driver of any outperformance. In Figure 20 we see that the impact of new issues is significant, at nearly 20 bp per year for the European corporate IG index. For comparison, this is over 25% of the long-term index outperformance over treasuries.²⁸

FIG. 20 COST OF INCLUSION DELAY (BPS/Y)



Source: Barclays POINT, Bloomberg, LOIM calculations.

²⁵ The return impact of new issues to index performance is : $r_{index_incl_new_iss} - r_{index} = W * r_{new_iss} + (1-W) * r_{index} - r_{index} = W * (r_{new_iss} - r_{index})$.

²⁶ The r-squared reduces by 40-50% (from 41% to 25%) if we use the market spread change as a control variable indicating that controlling for the specific secondary issue is important to explain cross-sectional variation of NIP.

²⁷ The cost of inclusion delay is higher for first time issue (IPO) than for issues with secondary bonds outstanding. This is consistent with Cai et al (2007) who show higher under-pricing for IPOs and propose information based reasons as the driver of this premium.

²⁸ We calculate long-term outperformance as the monthly average excess return of the Bloomberg Barclays Euro corporate IG index over duration-matched German treasuries since June 2004 which is around 75bps/y.

Conclusions

Issuance in the corporate bond universe is very significant, constituting over 20% of the total outstanding amount. New issues tend to appreciate in price and this provides an incentive for investors to participate in the primary market. In our study, we measure the NIP as an excess spread compression of the primary over the matched secondary issue.

We find that the average NIP has been very significant at over 14bps of excess spread compression, translating into an excess credit performance of 80bps over the sample period from 2009 to 2017.²⁹ Issue spreads, market spread level and momentum and, finally, issue size appears to be the significant driver of the NIP. We also find that the NIP is exploited, although far from being arbitrated away, by market participants and is confirmed by the sell-off of the secondary bond the closer it is to the primary.

Finally, we measure the impact of delaying inclusion of new issues until the end of the month on investment grade corporate index investors. We find that the effect is substantial at nearly 18bps per year, which is close to a quarter of the spread performance of these indices.

Is the spread compression the result of a valuation discount or investors' preference for characteristics such as higher liquidity or par valuations? In a study on comparing corporate bonds with credit default swaps (CDS), Barclays research³⁰ shows that spread curves in the corporate bond universe are indeed flatter at the liquid issuance (five year and ten year) maturities than for corresponding CDS.

This indicates that the primary issue picks up a liquidity premium over time. Kozhanov and Ogden (2012) also show lower yields and long-term performance of new issues relative to seasoned benchmarks and suggest that both under-pricing and liquidity are at play. Hyman et al. (2014) show that discounted (low-coupon) bonds trade at a spread premium to high coupon bonds indicating a preference to hold par or below par bonds. New issues are usually issued at, or below par and may be more attractive for investors.³¹ Ben Dor and Xu (2015a), using data

directly from syndicate desks, show that there is a valuation difference between secondary and primary issues. We think that the NIP is realised as a combination of the two effects, valuation and investor preferences.

Why does the NIP, and especially the valuation discount, persist? A risk-based argument is that issuers compensate the investment community to take on more idiosyncratic risk as the issuer extends the maturity profile of its debt. Another argument is from the perspective of market makers. Trading arms of investment banks managing the primary issue, often subscribe to the new issue and make markets in these securities. Compensation for taking on principal risk, especially in a regime of increased balance sheet cost, is another potential explanation of the NIP. From the perspective of the issuer, one may argue that the NIP is a signalling mechanism to incentivise future participation in the primary market. Asymmetric information theories, often utilised in explaining the NIP for equities, may be another explanation, but this is likely to be incorporated in the spread dependence of the NIP, as less well-known issuers are also likely to come in at a higher spread.

In addition, our cross-sectional study focuses on issues with a secondary bond outstanding and these companies should be familiar to the analyst and investor community. Behavioural effects such as the winner's curse, also proposed in equities, are also less valid as investors in corporate bonds are mostly institutional as opposed to the larger retail participation seen in equity IPOs.³²

Areas of future research could include longer-term performance of new issues and the impact of new issues on the term structure of the issuer. The impact of the economy-wide leverage cycle on the NIP is also a potential area of research. The NIP for inaugural issuers is a further topic of interest, although one cannot control for market movements using the closest secondary bond as we have done in this study.

²⁹ Past performance is not a guarantee of future results.

³⁰ Desclée, A., A. Maitra, S. Polbennikov, "Why CDX HY and iTraxx XO have outperformed Barclays High Yield Bond Indices," Barclays Research, 14 January 2016.

³¹ Investor preference for discounted bonds can be due to several reasons. Hyman et al (2014) suggest a recovery value cushion to the price of a bond as an explanation. Other explanations can be tax related which may induce a preference for capital gains (discounted bonds) over income (high coupon, above par bonds).

³² Cai et al (2007) do not find evidence of the winner's curse (retail investors being under-allocated when the premium is high) using a subset of bonds with high retail participation.

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