

Previously published in the European Credit Alpha  
30 August 2019

## High yield: The meaning of ‘call-constrained’

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We look at the concept of ‘call-constrained’ in the European high yield market and assess its relevance for issuers and investors. While measuring ‘call-constrained’ by looking at the current price versus the next call price is simple and relevant in determining the trade-off involved in calling a bond and the potential (or limit to) return, it neglects the remaining time before a bond is callable and its coupon. We account for these and apply these concepts to screen for names with the best and poorest convexity, constrained names that offer the most protection before duration extends and, lastly, names that despite being ‘call-constrained’, still offer high YTC.

### Call-constrained: Assessing potential ‘price’ upside

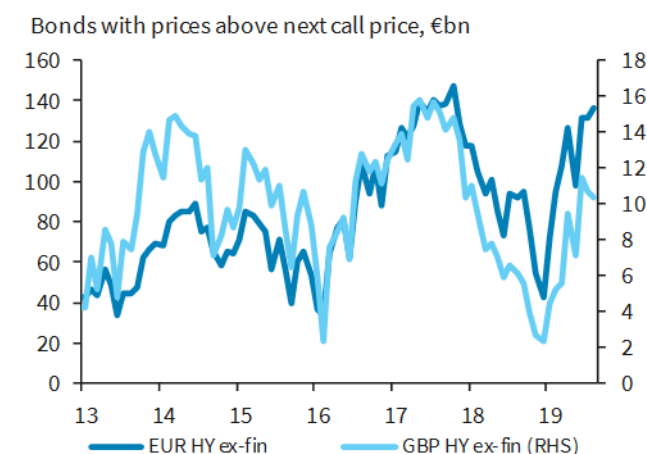
The concept of ‘call-constrained’ is not one that is commonly found in old university textbooks. In this week’s focus, we thus set out to define this term and explore its relevance from both an issuer and an investor perspective.

A bond is said to be ‘call-constrained’ if the current price is above its next call price. The idea of the ‘constraint’ being that when this occurs, it is attractive for an issuer to call its bonds as the lower current yield on the bond implies the company can reissue the same liability with a lower coupon; thus ‘limiting’ the upside in price for the bond.

The strong rally in the European high yield market YTD naturally means that the number of bonds currently call-constrained has increased significantly. At the start of the year, the percentage of bonds in the €- and £-HY non-fin market trading above their next call price was 20% and 8%, respectively; now, these are at 65% and 44%, respectively (see Figure 1 and Figure 2). If conditions now mean it is more attractive for issuers to call their bonds and refinance at a lower rate, this limits the potential price upside for the market.

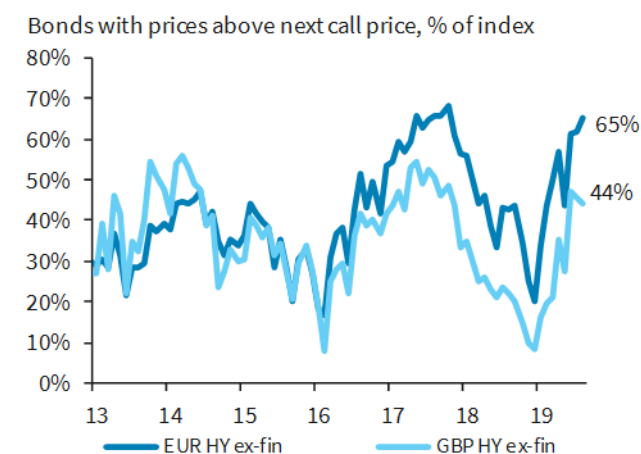
But surely the time to next call date matters?

FIGURE 3  
Number of €-HY bonds trading above next call price has risen significantly...



Source: Bloomberg Barclays Indices, Barclays Research

FIGURE 4  
...from 20% at the start of the year to 65% currently



Source: Bloomberg Barclays Indices, Barclays Research

## Introducing the 'call constraint frontier': accounting for 'time'

While the difference in current and next call price matters, the time to the next call date is also important. Intuitively, just as a bond price converges with par at maturity (otherwise, an arbitrage opportunity occurs), a bond that is likely to be called should converge with its next call price. If so, all else equal, a bond trading further away from the next call date is arguably less 'constrained' than other similar bonds trading closer to their next call date.

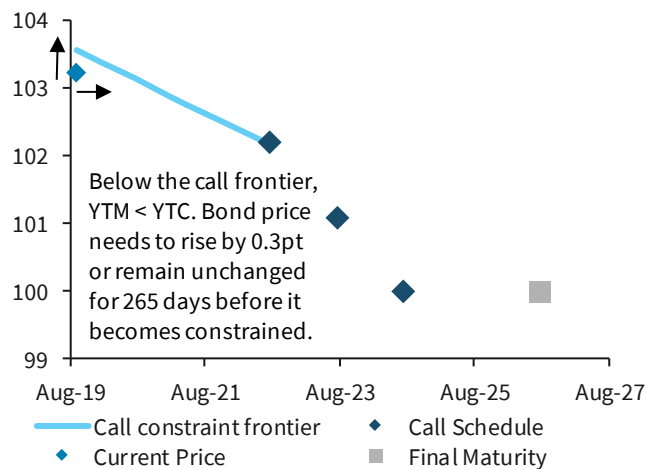
To measure and explain this further, we re-introduce a concept covered previously in *The call constraint frontier*, 14 February 2014, where a bond is defined as being truly call-constrained when the yield to worst of the bond explicitly references its next call price/date as opposed to its par value/maturity. It is the price threshold above which the bond becomes call-constrained and which varies with time.

When a bond trades above this price threshold, the yield-to-call (YTC) of the bond is lower than its yield-to-maturity (YTM), making it attractive for issuers to call the bond. In contrast, when prices are below the line, the YTC of the bond is higher than YTM, making it more attractive for investors if the bond is called. When prices are higher than the call price and par value, the yield becomes more attractive the longer the investor has to amortise the capital depreciation. While, on the other hand, if there is capital appreciation, the yield is more attractive if the value is captured within a shorter period of time.

This also implies that 'time' only matters then when the call schedule is not flat. If the next call price is the same as the par value, the call constraint frontier will be par value (100) and does not vary with time. If hypothetically, there is capital appreciation between the current price and the next call date, the shorter length to next call date would mean that all else equal, the capital appreciation required at maturity has to be higher (ie, upward sloping call schedule) for yields to breakeven at the same level. In reality, call schedules are downward sloping; accordingly, the call constraint frontier is downward sloping.

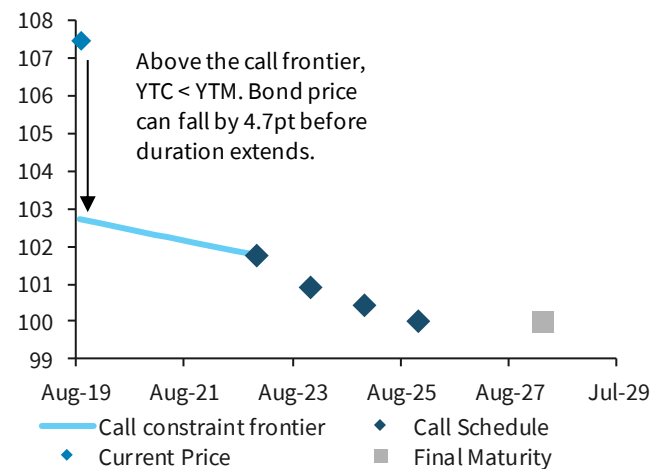
As Figure 3 shows, HOUSEH 4.375% '26s bonds are trading above the next call price, but are not constrained as there is almost three years until the next call date. The bond price can rise by 0.3pt or remain unchanged for 265 days before becoming constrained. Figure 4 alternatively shows that TNETBB 3.5% '28s are currently trading significantly above their

**FIGURE 5**  
HOUSEH 4.375% '26s are trading above their next call price but are not call-constrained



Source: Bloomberg Barclays Indices, Bloomberg, Barclays Research

**FIGURE 6**  
TNETBB 3.5% '28s are trading above their next call price and are heavily call-constrained



Source: Bloomberg Barclays Indices, Bloomberg, Barclays Research

next call price and are call-constrained. This also means that the price of the bond can drop by at least 4.7pt before duration extends – an especially useful consideration for managers with short duration mandates to assess extension risk.

Why would anyone buy a bond so deeply call-constrained?

## Ultimately, it's about yield: coupon matters

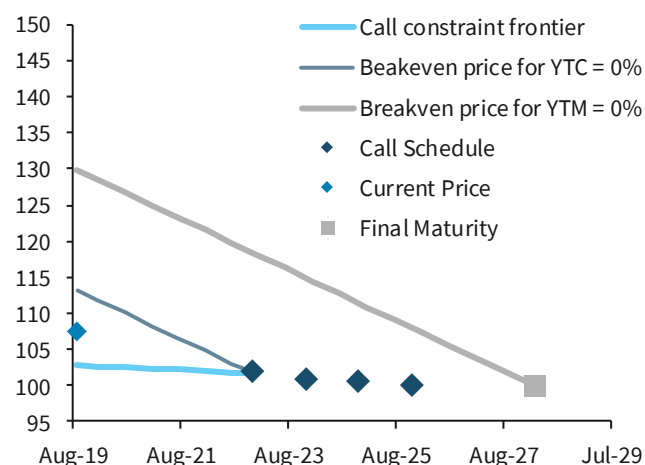
The yield/returns of a bond can be explained by three variables: i) the difference between current price and next call price/par value; ii) time; and iii) coupon.

In Figure 5, we show how although TNETBB 3.5% '28s are deeply call-constrained, the price of the bond can appreciate by more than 5pt before its YTC becomes zero and more than 22pt before its YTM becomes zero. Figure 6 shows an example of a bond that is trading to call, around the breakeven price for YTC to equal zero but retains upside in yield if the bond won't be called.

Figure 7 shows that 63% of bonds in European high yield currently trade above their next call price, but adjusting for time to next call date, 60% of bonds are truly call-constrained and 13% of bonds have negative yield to call. While we do not think high yield bonds should be negative yielding, in an environment of low core bond yields and an increasing number of negative yielding bonds globally, it is not unthinkable that investors will continue to buy some of these call-constrained bonds despite their limited price upside if an attractive yield is still offered. As Figure 8 shows, 87% of BB bonds in Europe currently trade above their next call price and 84% are truly call-constrained, which is unsurprising given the return of 'tourist' investors in the market for yield as an increasing number of investment grade bonds are now very low or negative yielding. We note that interestingly, the BB cohort has the lowest percentage of bonds that currently trade with a negative yield to call.

FIGURE 7

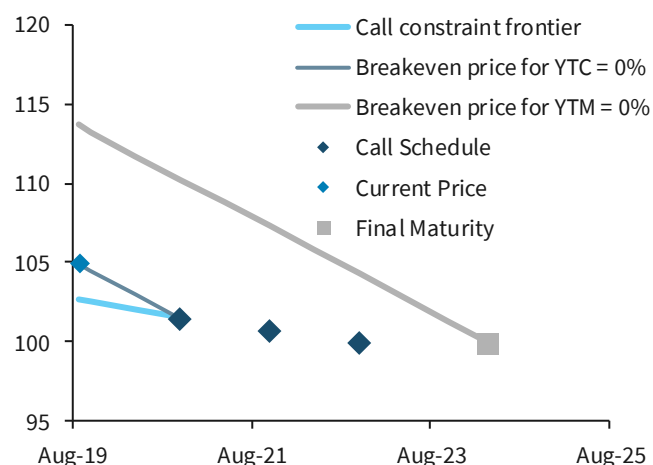
Price for TNETBB 3.5% '28s can rise by another 5pt before YTC for the bond is negative



Source: Bloomberg Barclays Indices, Bloomberg, Barclays Research

FIGURE 8

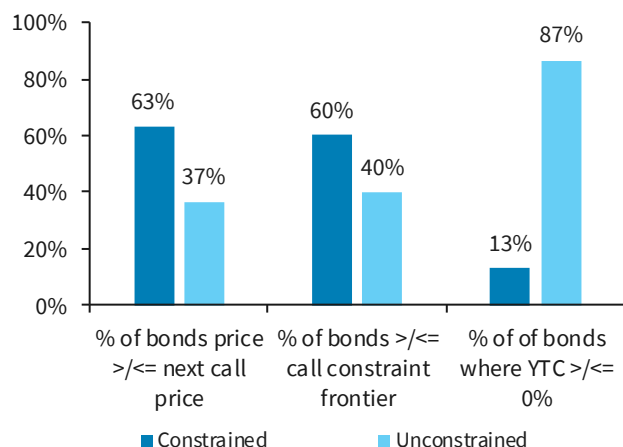
CRTING 3% '24s are trading well above call constraint frontier and around breakeven price where YTC is zero



Source: Bloomberg Barclays Indices, Bloomberg, Barclays Research

FIGURE 9

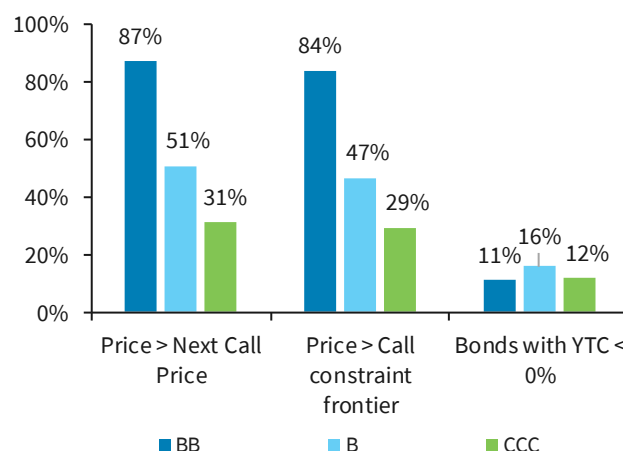
European high yield: 60% of bonds are call-constrained and 13% have negative YTC



Source: Bloomberg Barclays Indices, Bloomberg, Barclays Research

FIGURE 10

European high yield: BB bonds have the highest percentage of call-constrained bonds but the least with negative YTC



Source: Bloomberg Barclays Indices, Bloomberg, Barclays Research

## Applying the concepts

Applying the concepts above, we thus screen for the following:

- 1) **Unconstrained bonds:** BB bonds with at least 2pt upside to the call constraint frontier (ranked by upside to call constraint frontier) that have an attractive convexity profile, as the return will be greater than the current yield-to-worst (ie, YTM) if bonds are called at the next call price.
- 2) **Bonds that are constrained near the frontier ( $< 1$ pt):** Poor convexity profile as price upside is limited but loss is likely accelerated if price falls given that the buffer is small before duration extends. We rank these by worst yield-to-worst (currently, the top 10 in our screen are all trading with negative YTC).
- 3) **Deeply call-constrained bonds:** Bonds that can drop at least 3pt in price before duration extends. Ranked by the most attractive YTC.
- 4) **Constrained but attractive yield:** Bonds that are call-constrained but have yield to worst above the average for the rating bucket the bond belongs to (average YTW for BB, B and CCC bonds in European high yield are 1.7%, 4.8% and 13.8% respectively). We also screen for bonds that have at least a year to the next call date. Ranked by the most attractive YTC versus average YTW for bond's rating cohort.

FIGURE 11

## Unconstrained BB bonds: largest upside to call frontier

| ISIN         | Security name         | Issuer                   | Next call date | Next call price | Years to maturity | Years to next call | Price | YTW | Points above call frontier | Points above zero YTC break-even | Broad rating |
|--------------|-----------------------|--------------------------|----------------|-----------------|-------------------|--------------------|-------|-----|----------------------------|----------------------------------|--------------|
| XS1827600724 | CC 4 05/15/26         | CHEMOURS CO              | 15/05/2021     | 103.0           | 6.7               | 1.7                | 92.0  | 5.4 | -11.0                      | -16.9                            | BB           |
| XS1128324164 | PUMAFN 2.65 05/14/24  | PUMA INTERNATIONAL FINAN | 30/09/2019     | 101.1           | 4.7               | 0.1                | 93.7  | 5.3 | -6.4                       | -6.6                             | BB           |
| XS1680281133 | KRO 3 3/4 09/15/25    | KRONOS INTERNATIONAL INC | 15/09/2020     | 102.8           | 6.0               | 1.0                | 97.2  | 4.3 | -5.5                       | -8.9                             | BB           |
| XS2032590007 | VCPLN 5 1/4 07/15/24  | VICTORIA PLC             | 15/07/2021     | 102.6           | 4.9               | 1.9                | 99.7  | 5.3 | -4.0                       | -12.4                            | BB           |
| XS1757821688 | SMTPLN 2 01/31/25     | SUMMIT PROPERTIES LTD    | 31/01/2021     | 101.0           | 5.4               | 1.4                | 97.5  | 2.5 | -3.5                       | -6.0                             | BB           |
| XS1486544254 | ARWLN 5 1/8 09/15/24  | ARROW GLOBAL FINANCE     | 15/09/2019     | 102.6           | 5.0               | 0.0                | 99.1  | 5.3 | -3.3                       | -3.5                             | BB           |
| XS1843461689 | KOANO 5 07/15/25      | KONGSBERG ACT SYS        | 15/07/2021     | 102.5           | 5.9               | 1.9                | 99.6  | 5.1 | -3.2                       | -11.6                            | BB           |
| XS2004451121 | SHAEFF 3 7/8 05/15/27 | IHO VERWALTUNGS GMBH     | 15/05/2022     | 101.9           | 7.7               | 2.7                | 99.9  | 3.9 | -2.5                       | -12.1                            | BB           |
| XS1689521125 | MLNHMS 5 1/2 10/15/24 | MILLER HOMES GRP HLDS    | 15/10/2020     | 102.8           | 5.1               | 1.1                | 100.6 | 5.3 | -2.4                       | -8.0                             | BB           |
| XS1713495759 | IRM 3 7/8 11/15/25    | IRON MOUNTAIN UK PLC     | 15/11/2020     | 101.9           | 6.2               | 1.2                | 99.4  | 4.0 | -2.3                       | -6.6                             | BB           |

Source: Bloomberg Barclays Indices, Bloomberg, Barclays Research Note: Prices updated as of close on 28 August 2019.

FIGURE 12

## Constrained near the frontier: lowest yield and poorest convexity profile

| ISIN         | Security name         | Issuer                   | Next call date | Next call price | Years to maturity | Years to next call | Price | YTW   | Points above call frontier | Points above zero YTC break-even | Broad rating |
|--------------|-----------------------|--------------------------|----------------|-----------------|-------------------|--------------------|-------|-------|----------------------------|----------------------------------|--------------|
| XS1221105759 | SNFF 2 7/8 06/15/23   | SPCM SA                  | 09/09/2019     | 100.7           | 3.8               | 0.0                | 101.1 | -16.3 | 0.7                        | 0.6                              | BB           |
| DE000A2AA0W5 | WEPAHY 3 3/4 05/15/24 | WEPA HYGIENEPRODUKTE GMB | 09/09/2019     | 101.9           | 4.7               | 0.0                | 102.3 | -16.3 | 0.8                        | 0.7                              | B            |
| XS1468538035 | AXTA 4 1/4 08/15/24   | AXALTA COATING SYSTEMS   | 09/09/2019     | 103.2           | 5.0               | 0.0                | 103.6 | -14.0 | 0.8                        | 0.7                              | B            |
| XS1591779399 | LOXAM 3 1/2 04/15/22  | LOXAM SAS                | 09/09/2019     | 101.8           | 2.6               | 0.0                | 102.0 | -10.5 | 0.7                        | 0.6                              | BB           |
| XS1401324972 | LOXAM 3 1/2 05/03/23  | LOXAM SAS                | 09/09/2019     | 101.8           | 3.7               | 0.0                | 102.0 | -10.1 | 0.7                        | 0.6                              | BB           |
| XS1406669553 | ARGID 4 1/8 05/15/23  | ARDAGH PKG FIN/HLDGS USA | 09/09/2019     | 102.1           | 3.7               | 0.0                | 102.3 | -5.3  | 0.5                        | 0.3                              | BB           |
| XS1028956149 | SFRFP 5 5/8 05/15/24  | ALTICE FRANCE SA         | 30/09/2019     | 102.8           | 4.7               | 0.1                | 103.6 | -4.1  | 0.8                        | 0.3                              | B            |
| XS1384278203 | EOFP 3 5/8 06/15/23   | FAURECIA                 | 09/09/2019     | 101.8           | 3.8               | 0.0                | 102.0 | -3.7  | 0.4                        | 0.3                              | BB           |
| XS1797821037 | VMED 5 3/4 04/15/23   | VIRGIN MEDIA RECEIVABLE  | 15/09/2019     | 102.9           | 3.6               | 0.0                | 103.2 | -1.4  | 0.5                        | 0.3                              | B            |
| XS1634531344 | INTRUM 2 3/4 07/15/22 | INTRUM AB                | 30/09/2019     | 101.4           | 2.9               | 0.1                | 101.7 | -1.4  | 0.6                        | 0.4                              | BB           |

Source: Bloomberg Barclays Indices, Bloomberg, Barclays Research Note: Prices updated as of close on 28 August 2019.

FIGURE 13

## Deeply call constrained bonds: highest yielding bonds with at least 3pt cushion before duration extend

| ISIN         | Security name         | Issuer                  | Next call date | Next call price | Years to maturity | Years to next call | Price | YTW | Points above call frontier | Points above zero YTC break-even | Broad rating |
|--------------|-----------------------|-------------------------|----------------|-----------------|-------------------|--------------------|-------|-----|----------------------------|----------------------------------|--------------|
| XS1843436731 | ADRBID 9 11/15/25     | SUMMER BIDCO BV         | 15/05/2021     | 102.0           | 6.2               | 1.7                | 106.5 | 6.0 | 4.4                        | -10.4                            | B            |
| XS1881594946 | ROSINI 6 3/4 10/30/25 | ROSSINI SARL            | 30/10/2021     | 103.4           | 6.2               | 2.2                | 109.2 | 3.8 | 4.6                        | -8.6                             | B            |
| XS1859258383 | TCHEN 6 07/30/26      | TECHEM VERWALTUNGSGES   | 30/07/2021     | 103.0           | 6.9               | 1.9                | 108.2 | 3.1 | 4.9                        | -5.7                             | CCC          |
| XS1859337419 | SFRFP 5 7/8 02/01/27  | ALTICE FRANCE SA        | 01/02/2022     | 104.4           | 7.4               | 2.4                | 110.6 | 3.0 | 4.6                        | -7.9                             | B            |
| XS1629969327 | UPCB 3 7/8 06/15/29   | UPC HOLDING BV          | 15/06/2022     | 101.9           | 9.8               | 2.8                | 105.6 | 2.5 | 3.4                        | -6.8                             | B            |
| XS1889107931 | CAR 4 3/4 01/30/26    | AVIS BUDGET FINANCE PLC | 30/09/2021     | 102.4           | 6.4               | 2.1                | 107.1 | 2.4 | 4.0                        | -4.9                             | B            |
| XS2034068432 | TRIVIU 3 3/4 08/15/26 | TRIVIU PACKAGING FIN    | 15/08/2022     | 101.9           | 7.0               | 3.0                | 106.1 | 2.2 | 3.6                        | -6.2                             | B            |
| XS1843434520 | ETOLN 4 5/8 07/15/26  | ENTERTAINMENT ONE LTD   | 15/07/2022     | 102.3           | 6.9               | 2.9                | 108.9 | 2.2 | 5.3                        | -6.5                             | B            |
| XS1843460103 | FINRSK 6 7/8 11/15/26 | REFINITIV US HOLDINGS   | 15/11/2021     | 103.4           | 7.2               | 2.2                | 113.5 | 2.1 | 9.4                        | -4.6                             | B            |
| XS2009038113 | IGT 3 1/2 06/15/26    | INTERNATIONAL GAME TECH | 15/06/2022     | 101.8           | 6.8               | 2.8                | 106.0 | 1.9 | 3.6                        | -5.1                             | BB           |

Source: Bloomberg Barclays Indices, Bloomberg, Barclays Research Note: Prices updated as of close on 28 August 2019.

FIGURE 14

**Constrained but attractive yield: highest yielding bonds in respective rating cohort, at least a year to next call date**

| ISIN         | Security name         | Issuer                   | Next call date | Next call price | Years to maturity | Years to next call | Price | YTW | Points above call frontier | Points above zero YTC break-even | Broad rating |
|--------------|-----------------------|--------------------------|----------------|-----------------|-------------------|--------------------|-------|-----|----------------------------|----------------------------------|--------------|
| XS1996438948 | VMED 5 1/4 05/15/29   | VIRGIN MEDIA SECURED FIN | 15/05/2024     | 102.6           | 9.7               | 4.7                | 105.8 | 4.3 | 1.6                        | -21.2                            | BB           |
| XS1047556664 | VMED 6 1/4 03/28/29   | VIRGIN MEDIA SECURED FIN | 15/01/2021     | 103.1           | 9.6               | 1.4                | 106.1 | 3.9 | 2.9                        | -5.4                             | BB           |
| XS1555173019 | VMED 5 04/15/27       | VIRGIN MEDIA SECURED FIN | 15/04/2022     | 102.5           | 7.6               | 2.6                | 104.9 | 3.9 | 1.4                        | -10.6                            | BB           |
| XS1207459725 | VMED 4 7/8 01/15/27   | VIRGIN MEDIA SECURED FIN | 15/01/2021     | 102.4           | 7.4               | 1.4                | 104.3 | 3.4 | 1.7                        | -4.6                             | BB           |
| XS1789515134 | BDC 3 7/8 03/15/28    | BELDEN INC               | 15/03/2023     | 101.9           | 8.5               | 3.5                | 104.6 | 3.0 | 2.0                        | -10.5                            | BB           |
| XS2031871069 | LOXAM 3 3/4 07/15/26  | LOXAM SAS                | 15/07/2022     | 101.9           | 6.9               | 2.9                | 103.9 | 2.9 | 1.7                        | -7.9                             | BB           |
| XS1843436731 | ADRBID 9 11/15/25     | SUMMER BIDCO BV          | 15/05/2021     | 102.0           | 6.2               | 1.7                | 106.5 | 6.0 | 4.4                        | -10.4                            | B            |
| XS1640668940 | BDC 3 3/8 07/15/27    | BELDEN INC               | 15/07/2022     | 101.7           | 7.9               | 2.9                | 103.1 | 2.8 | 1.2                        | -7.7                             | BB           |
| XS2034925375 | INTRUM 3 1/2 07/15/26 | INTRUM AB                | 15/07/2022     | 101.8           | 6.9               | 2.9                | 103.6 | 2.7 | 1.6                        | -7.4                             | BB           |
| XS1500600280 | BDC 4 1/8 10/15/26    | BELDEN INC               | 15/10/2021     | 102.1           | 7.1               | 2.1                | 105.1 | 2.6 | 2.9                        | -5.1                             | BB           |

Source: Bloomberg Barclays Indices, Bloomberg, Barclays Research Note: Prices updated as of close on 28 August 2019.

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