

The European Credit Strategist

Are corporates safer than governments?

Bank of America
Merrill Lynch



Credit Analysis

26 July 2019

Happy 7th anniversary of “Whatever it takes” (26 July '12)

Perhaps it was no surprise that 7yrs after the infamous line from Draghi, he gave markets another dose of dovishness. The ECB left the door open for all stimulus options yesterday. We continue to think that the era of financial repression will drive beta-compression in credit, just like in '16/'17. And we think the beta trade still has legs.

Learning to live in a very strange world

Across the globe, bond markets are flush with securities yielding below zero. But it's in credit that the numbers have surged from nowhere. Today there is €825bn of negative corporate debt, and some sectors have almost half of their bonds yielding below zero. Yet demand for these securities remains strong, as they are perceived as a better “store of cash” than parking money with custodians. Negative credit could soon be the norm.

How do you say “squeeze” in high-yield?

We expect money to flow up the risk chain as high-grade becomes inundated with negative yields. But this movement of money could really squeeze some markets, given relative size differentials. For example, the volume of negative yielding bank, consumer, utility and energy paper in the IG market is over 5x the size of their respective high-yield sectors. Thus, we see spreads going a lot tighter in these high-yield pockets.

Are corporates safer than governments?

It seems only logical that amid such financial repression, companies should be terming out their debt maturities, just like governments. But they aren't, and the dichotomy is striking. Companies seem comfortable running with *more* shorter-dated (-ve yielding) debt now. While low/negative interest costs can help offset margin pressure, refi needs in credit will stay high. The irony is that this will require dovish-for-longer central banks.

The dark side of negative yielding corporate debt

We can't help but feel, however, that at some point companies will bite the bullet and issue negative debt to please shareholders. We find that corporate FCF generation has fallen markedly of late, given trade stress, and companies might think about plugging this gap via bond supply. Our screen on page 10 suggests that the industrial sector has an (unhelpful) combination of lots of negative debt and a lagging share price YTD.

Spanish govt terming out debt, Spanish companies not. But greater refi risk for credit...



Source: BofA Merrill Lynch, ICE Data Indices LLC. Spanish names only. Spain govt avg bond index maturity (LHS, yrs). Fixed-rate indices only.

Credit Strategy
Europe

Barnaby Martin
Credit Strategist
MLI (UK)
+44 20 7995 0458
barnaby.martin@baml.com

Sphia Salim
Rates Strategist
MLI (UK)
+44 20 7996 2227
sphia.salim@baml.com

Ioannis Angelakis
Credit Derivatives Strategist
MLI (UK)
+44 20 7996 0059
ioannis.angelakis@baml.com

Elyas Galou
Credit Strategist
BofASE (France)
+33 1 8770 0087
elyas.galou@baml.com

BofA Merrill Lynch does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 10 to 12.

12024917

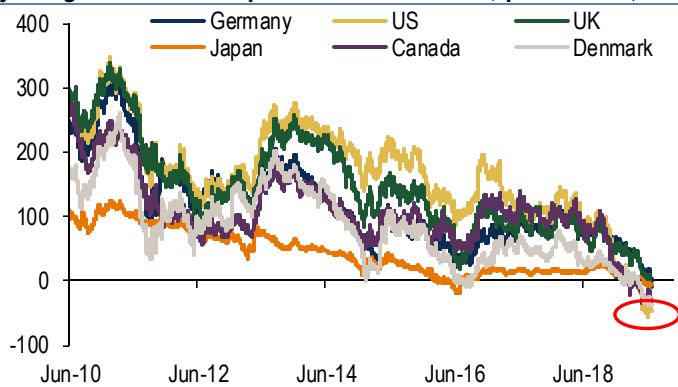
Timestamp: 26 July 2019 12:15AM EDT

Here we go again...

Happy 7th anniversary of “Whatever it takes” (26th July ‘12). Perhaps it is no surprise then that Mario Draghi gave another dovish performance yesterday, leaving the door open for all stimulus options in the near-term, including a resumption of QE (albeit with nothing decided as yet). The era of financial repression lives on (note 10y government bond yields trading below respective CB rates)...driving a great thirst for yield across markets.

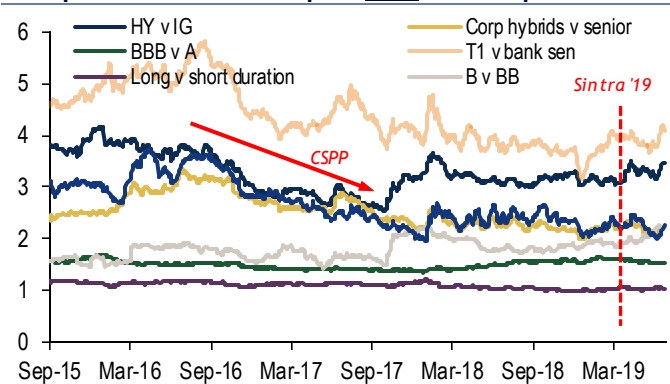
In credit, we think the ultimate end game is crowding into riskier assets, and thus beta-compression. And with €800bn+ of negative yielding high-grade credit, the movement of money up the risk chain will have very squeezey consequences (the HY market is just €280bn in size). But as chart 2 shows, beta has generally *underperformed* since Draghi’s Sintra speech: most spread ratios have gone *up*, not *down* (with the lone outperformer being BBBs vs. As). Yet when CSPP1 was announced, it took around 6m before the beta trade finally worked...and then it played out for well over a year. We expect a shorter time-lag for the beta trade to ignite this time around, but remain confident that it will.

Chart 1: Great (dovish) expectations. Many 10yr govt bonds are now yielding less than their respective central bank rate (bps difference)



Source: BofA Merrill Lynch Global Research. CB interest rates minus 10yr generic govt bond yield.

Chart 2: Beta worked (eventually) in 2016 and 2017 amid a dovish ECB. We expect the same this time. Spread ratios of market pairs.

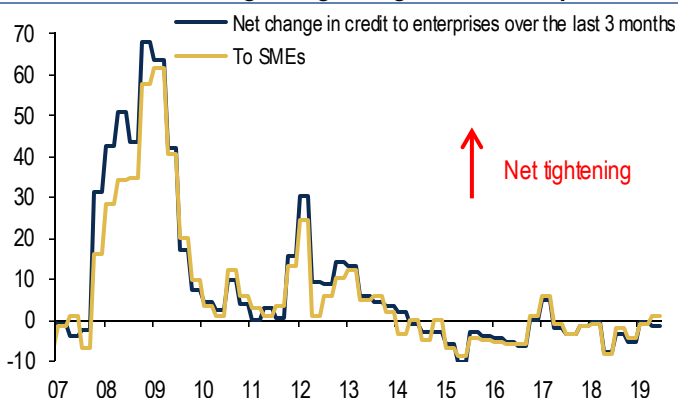


Source: BofA Merrill Lynch Global Research. Spread ratios over time.

Longer-term, as we argued [last week](#), central banks will have to work harder – for longer – to ensure that their efforts translate into real economy progress, and not just asset price inflation. This week’s Lending Survey from the ECB highlighted banks’ planned tightening of credit standards to companies, an unhelpful statistic (chart 3).

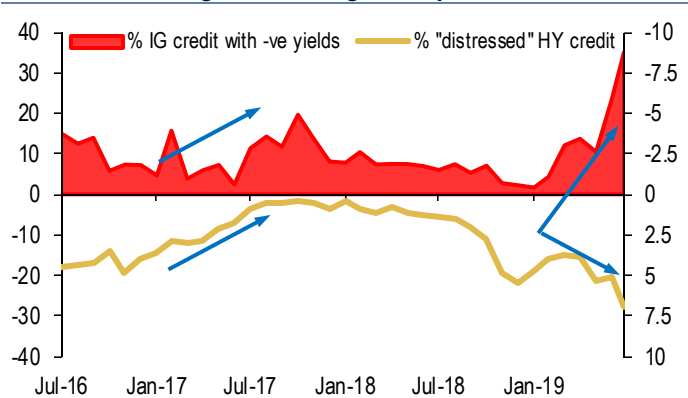
Investors may lament the return of uber dovish central banks, given the challenges of outperforming. But credit markets currently are a paradox: spreads are rallying but distress is increasing (chart 4). Today, a rising tide is not lifting all boats in the credit market, and this is good news for active managers.

Chart 3: Euro Area banks tightening lending standards to corporates



Source: BofA Merrill Lynch, ECB. Net change in credit standards to enterprises over the last 3m.

Chart 4: Active managers’ dream? Tighter IG spreads, more HY distress



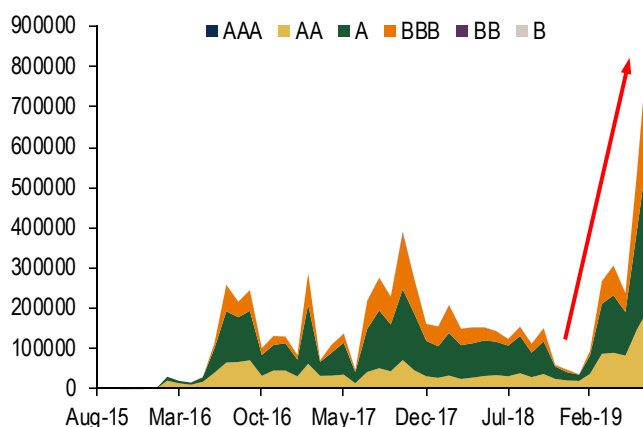
Source: BofA Merrill Lynch. % -ve yielding IG credit LHS. Distress = % HY bonds with yields >10%.

Learning to live in a very strange world

Across the globe, bond markets are now flush with securities yielding below zero. How did we get here? Central banks “pulled the rug” from under the market this year, and signalled that rates were not at the lower bound. The effect has been to kick-start expectations of a race to the bottom in interest rates. After all, currency weakness is a powerful weapon to aid the return of inflation.

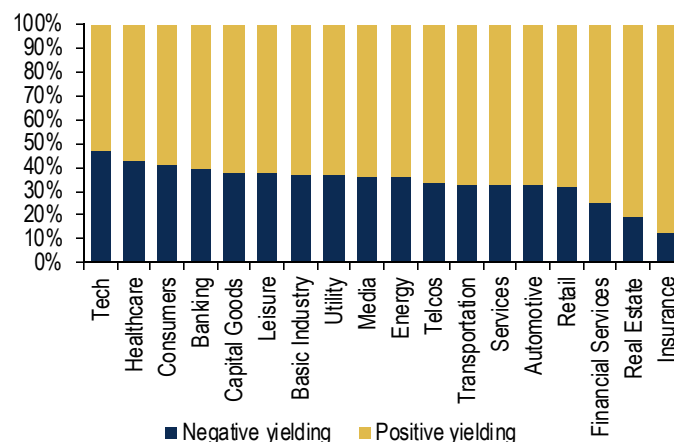
The fastest rate of growth in the negative yielding story, however, has been in the Euro corporate bond market (chart 5). At the start of the year, there were virtually no negative yielding corporate bonds. Today, €825bn of Euro-denominated credit yields below zero, a number greater than the GDP of Switzerland. In fact, close to 40% of the Euro high-grade credit market is now negative yielding.

Chart 5: From zero to hero? Negative yielding credit has surged in '19



Source: BofA Merrill Lynch, ICE Data Indices LLC. Face value of Euro credit with -ve yields, mn.

Chart 6: Percentage of IG credit sectors trading -ve/+ve yield



Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

Topsy-turvy statistics: the new normal

The staggering negative yielding credit statistics keep coming, however:

- While the lion's share of negative yielding corporate debt is to be found in single-A rated bonds (46%), the phenomenon is widespread and entrenched: even some single-B rated debt now yields below zero.
- The yield on ICE BofAML's 1-3yr Euro high-grade credit index has just dipped into negative territory (-2bp), a whisker away from being a record low.
- 7 Euro IG bonds now trade below the ECB's (current) deposit rate of -40bp, which would make them unpurchaseable under QE. Thus, we think a possible return of ECB QE (and CSPP 2.0) would force credit curves flatter still.

For some sectors, negative yielding credit is close to being the *norm* rather than the *exception*. Chart 6 shows the percentage of negative/positive bonds for all high-grade sectors:

- The tech, healthcare, consumers and [banking](#) sectors now have over 40% of their bonds yielding below zero.

And by country, the predicament is similar:

- Chart 7 shows that almost 55% of Portuguese high-grade credit is negative yielding, 50% of Dutch high-grade credit is negative yielding and a third of Reverse Yankee bonds enjoy negative rates.

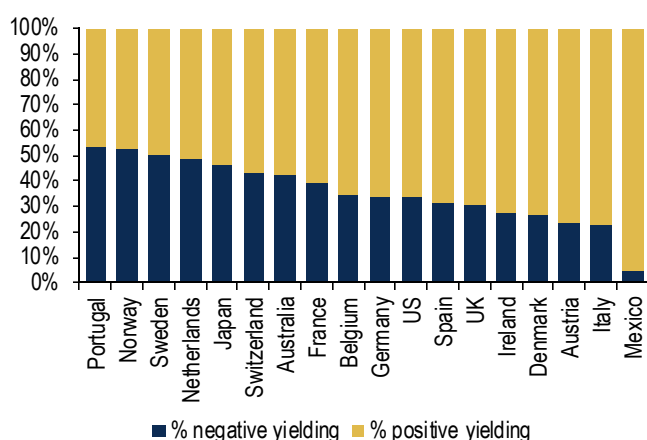
Yielding to the inevitable: next stop -60bp?

The obvious question becomes “who is buying negative yielding credit?” given the risks inherent in corporate debt – be it event risk, shareholder-friendly activity or the risk of plunging bonds. Yet, we see very robust demand for negative yielding € credit across the marketplace.

Why? Because they serve as “attractive” avenues for fund managers to park excess cash. Anecdotally, we hear from some clients that their custodian charges for cash holdings are as punitive as -60bp. In this regard, negative yielding corporate bonds can still be viewed as “cheap”. Or, put another way, negative yielding credit is turning into a classic Giffen good.

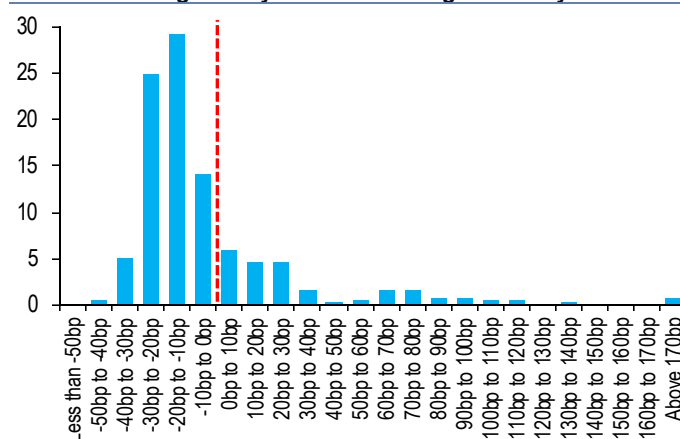
Chart 8 shows the yield distribution (in %) of 1-3yr corporate bonds in Euros. Note that most are bunched-up between the -30bp and -10bp yield range. While this is already eye-wateringly tight, the above suggests that front-end corporate bonds can still be pushed even tighter...perhaps even to the unthinkable yield of -60bp.

Chart 7: Percentage of Euro IG credit, by country, trading -ve/+ve yield



Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

Chart 8: Percentage of 1-3yr € IG credit trading in various yield buckets



Source: BofA Merrill Lynch, ICE Data Indices LLC. Percentage of the market trading at various yields.

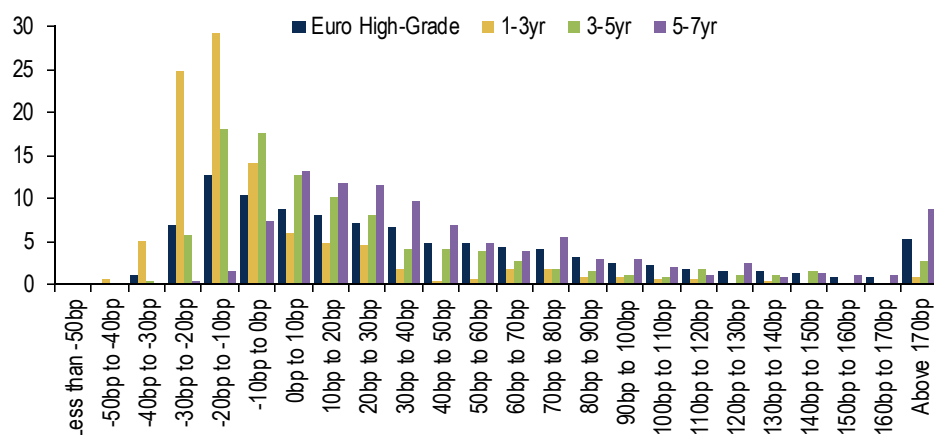
Escaping the wrath of central banks

Where in high-grade can investors escape the negative yielding wrath (for now):

- By sector, we could see a more forceful bid emerging for insurance, real estate and auto bonds, in the near-term, as these sectors have less than 30% negative debt (chart 6),
- By country, Italian, UK (in Euros) and Spanish credit also has less than 30% negative debt (chart 7).
- Duration. While only 25% of 1-3yr bonds have positive yields now, 90% of 5-7yr corporate bonds and 95% of 7-10yr corporate bonds have yields above zero (chart 9).

In short, the negative debt phenomenon across the Euro credit market is a powerful catalyst for beta compression to eventually play out, in our view.

Chart 9: Percentage of Euro IG credit trading in various yield buckets (% of market in yield buckets)



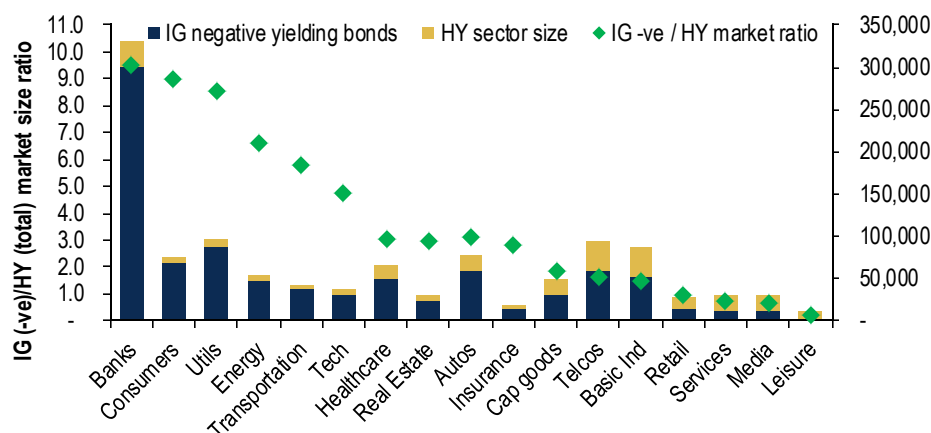
Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

How do you say “squeeze” in high-yield?

We argued in our note [here](#) that the best template for investing in a negative yielding world was to think about how money would jump incrementally – from safer to riskier parts of the market – in search of positive yield.

For credit markets, the next logical step when high-grade sectors become overwhelmed with negative yields is to move the money into the equivalent BB sector (and eventually equities stand to see a return on inflows). But given the different sizes of the market, and recent growth rates, this movement of money could have some very bullish implications for high-yield credit. Consider that since the start of 2015, the Euro IG market has grown by €800bn (+50% growth rate), while the Euro high-yield market has shrunk by around €10bn (-5% growth rate).

Chart 10: Where could the movement of money from high-grade into high-yield be the most powerful for high-yield spreads?



Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC. Market size (RHS), ratios (LHS)

Chart 10 shows the relative proportions of Euro high-grade negative yielding bonds, and the total size of Euro high-yield sectors.

What are the implications of the reach for yield?

- Those sectors to the left of chart 6 have a very big ratio of high-grade negative bonds relative to HY debt. Thus, the reach your yield could be very powerful for these high-yield sectors.

- **HY banks** stand to benefit, as do the high-yield **consumer, utility** and **energy** sectors. All have ratios of IG negative debt/HY total market size of 5x or greater.

Negative yielding corporate debt IS the new normal

The negative yielding bond story has often come in waves. Central bank dovishness (and hawkishness) has been the key driver of this number. Given the weak inflation outlook, and the experience of the Fed's tightening last year, we doubt that the \$12.3tr. of global negative yielding assets will vanish anytime soon.

But in the Euro corporate bond market, we see other reasons why investors should prepare for the negative debt phenomenon to be the norm rather than the exception.

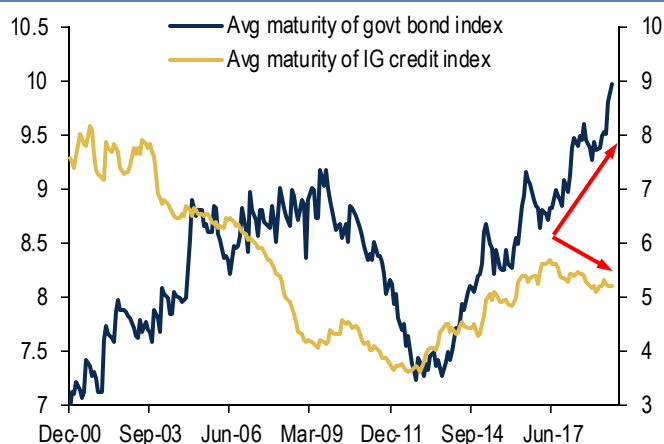
What do corporates know that governments don't (or vice-versa)?

The charts below show a striking divergence in how companies are reacting to the yield environment, versus sovereigns.

Governments are terming-out their debt, as witnessed by the rise in average maturity of Euro government bond indices (ICE BofAML indices). Yet, corporates are doing the opposite. In fact, they are choosing to let more of their debt stock become short-dated, rather than term-out debt. Note that the proportion of 1-5yr high-grade credit has *grown* from 48% of the overall market to 54%, since the start of 2018.

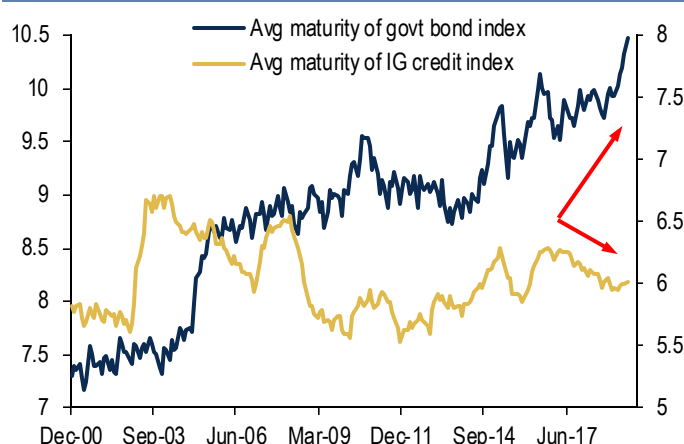
- In the case of Spain, for instance, chart 11 shows that the average maturity of Spanish high-grade credit has shrunk from 5.4yrs to 5.2yrs since the start of 2017, yet the average maturity of Spain's (fixed-rate) government debt has jumped from 8.8yrs to 9.9yrs.
- The same developments hold for France and Italy, albeit less extreme. Even Germany, has seen only a modest rise in the average maturity of its corporate debt compared to a bigger rise in the average maturity of its (fixed-rate) sovereign debt.

Chart 11: Spanish government terming out debt, Spanish corporates not



Source: BofA Merrill Lynch, ICE Data Indices LLC. Spain govt avg bond index maturity (LHS)

Chart 12: France government terming out debt, French corporates not

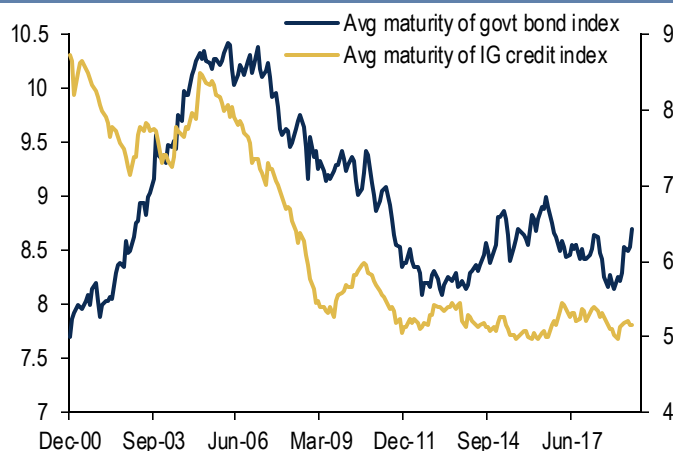


Source: BofA Merrill Lynch, ICE Data Indices LLC. France govt bond index maturity (LHS)

Sovereigns react to growing long-end demand

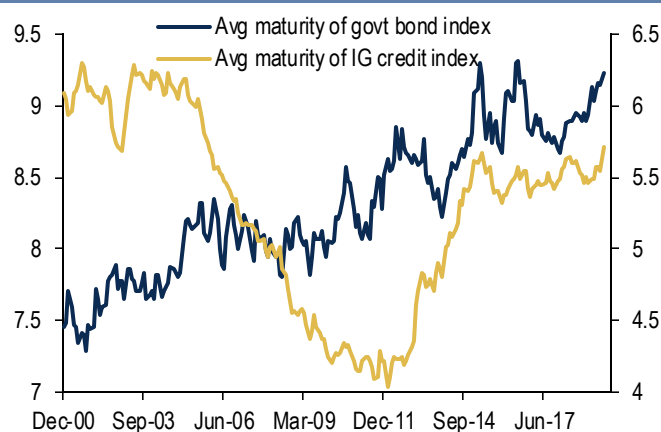
What's been behind the rise in sovereign debt average maturities over the last few years? Our rates strategist Sphia Salim argues that sovereign treasuries' mandates tend to strike a balance between lowering the cost of debt and ensuring re-financing risks are contained. The latter certainly means avoiding heavy reliance on short-term funding, as a percentage of total debt, but it also entails adapting issuance to market demand, maintaining some degree of predictability, and ensuring a high level of liquidity in secondary markets. Sovereign deviations from historical issuance patterns therefore require caution and take time to materialize.

Chart 13: Italian govts. terming out debt, Italian corporates less so



Source: BofA Merrill Lynch, ICE Data Indices LLC. Italy govt average bond index maturity (LHS).

Chart 14: German governments terming out debt, German corps less so



Source: BofA Merrill Lynch, ICE Data Indices LLC. German govt average bond index maturity (LHS).

The last few years have seen a continuous rise in the Weighted Average Maturity of EZ govt bond issuance, with a declining supply of short-dated bonds but also a rising amount of long-dated issues (see our analysis on the topic back in 2017 – [Global Rates weekly 19-May-17](#)). One could therefore argue that QE has helped, not only in lowering the average funding costs for EZ sovereigns, but also in allowing them to lengthen the WAM of their outstanding debt, which has for most, risen above pre-crisis levels.

Earlier this year, however, we flagged the limited EGB issuance in 15y+ auction, as a sign of reduced investor demand for long-dated bonds in Q1 ([Global Rates Weekly](#), 3-May). Since then, the substantial decline in yields, with the pricing of ECB rate cuts, has led many investors further out the curve, especially in semi core and peripheral govies. The result was a renewed pick-up in long-end issuance – as can be seen the chart below.

Chart 13: 12w rolling sum of 15y+ EGB supply (auctions only)



Source: BofA Merrill Lynch Global Research. (*) Germany, periph and semi-core. In bn 30y equiv.

Why would corporates do the opposite to governments, though, and let their debt become shorter-dated (and incur potentially greater refi-risk down the line)? Part of it may simply be a reflection of where the investor credit demand is in Europe.

- Our [Follow the Flow](#) note has highlighted for some time that a dovish ECB has spurred retail demand for front-end corporate bond funds because of the attractive “roll down”. We sense companies are simply responding to this demand by issuing more at the short-end accordingly. Note that the average maturity of IG new issues this year has been 7.5yrs, lower than 2018 (7.75yrs) and 2017 (8.25yrs).

- There is less natural investor demand for credit duration in Europe. Hedge funds, for instance, prefer to take credit risk in an environment of greater spread dispersion, rather than trade long-duration credit for the convexity.
- Another possibility is that companies may well be looking to keep interest costs as low as possible so that they can alleviate margin pressure from other areas (less global trade, rising raw material costs etc). Having more negative yielding debt would clearly be cost effective for companies.

The lesser of two evils?

But while corporate debt may be “safer” from the perspective of lower bond market duration, vis-à-vis government debt, corporates are building up a greater debt refinancing wall in the years to come.

All this points, paradoxically, to a need for the ECB to remain dovish for longer, and assure bond market conditions are smooth enough for continuous refinancing activity.

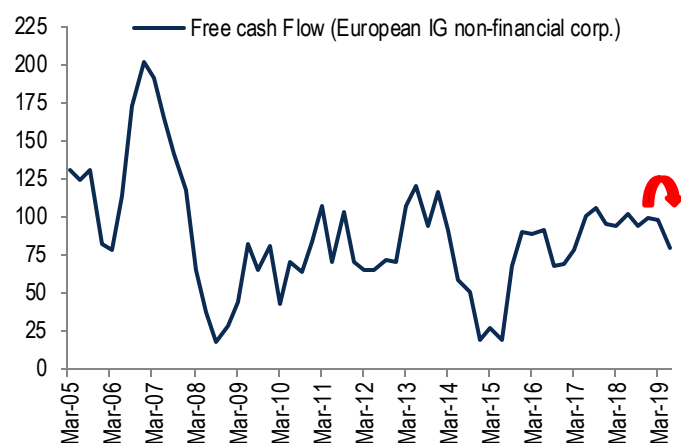
Negative credit: the dark side

We can't help but feel, however, that at some point companies will bite the bullet and use negative debt to please shareholders. The obvious potential uses could be M&A or funding dividend payments (share buybacks have always been less prevalent in Europe), although the former likely requires political risk (Brexit, Italy) to subside first.

Another option has become more pressing we think: **the need to plug gaps in companies' free cashflow.**

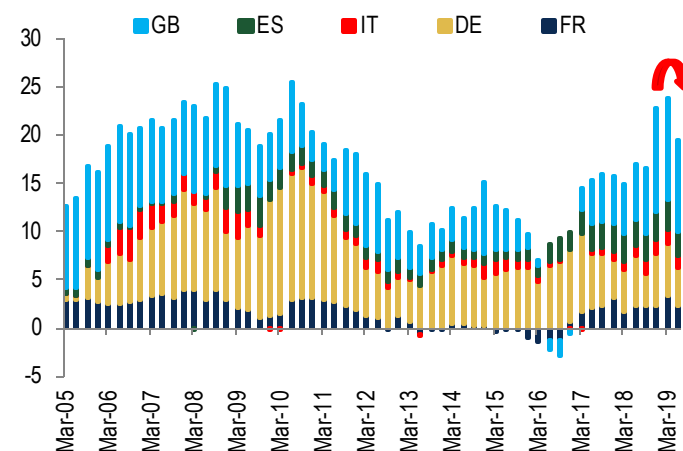
- Chart 16 shows that there has been a visible drop in the total free cashflow generation of European non-financials recently. YoY, we find that it has dropped by around 15% – reflective, we think, of the effects of weaker world trade, policy uncertainty in the periphery and rising wage costs, to name a few.
- In fact, chart 18 shows that the drop in FCF is greater for exporter companies in Europe, than it has been for domestically-orientated firms.

Chart 16: Cash generation of European companies has waned of late. Weaker global trade isn't helping (total FCF €bn)



Source: BofA Merrill Lynch Global Research. Large sample of Euro IG non-financials

Chart 17: Cash generation of European companies has waned of late (total FCF €bn, by select countries)



Source: BofA Merrill Lynch. Smaller sample of Euro IG non-financials than in chart 15.

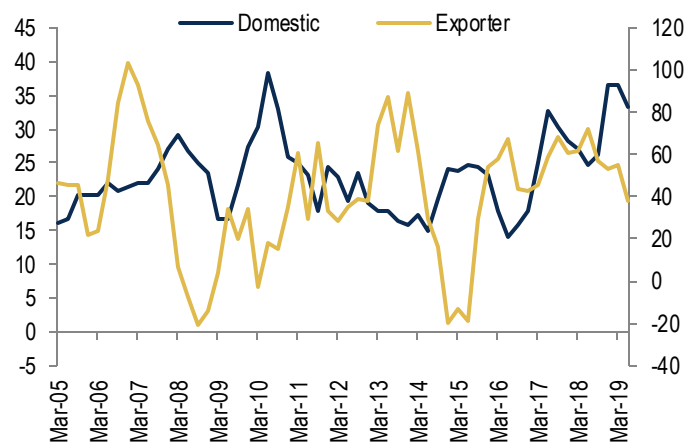
The temptation, therefore, could be for European non-financials to resort to issuing negative-yielding bonds to plug the recent decline in free cashflow. And to state the obvious, it would not cost issuers anything to raise the debt.

We think credit investors should therefore be cognizant of these sectors, given the potential supply risk.

Chart 19 finishes with a simple screen. We show credit sectors' % of negative yielding debt versus their equity market performance year-to-date (relative to the overall market). Those sectors to the top left of the chart have 1) higher amounts of negative yielding bonds, and 2) have seen their equities underperform the broad market YTD.

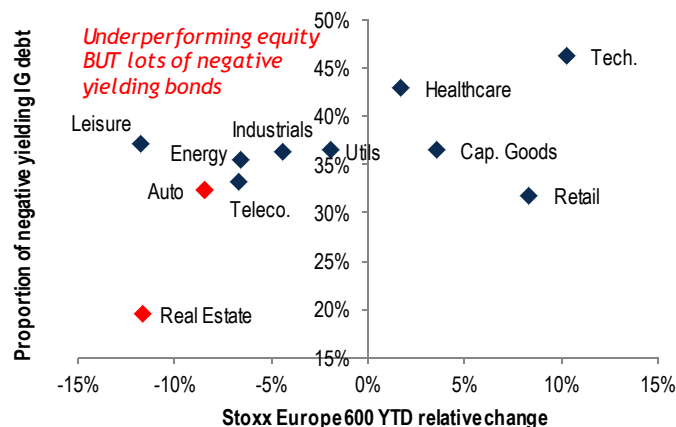
- **Industrials** continue to stand out as the sector with lots of negative yielding debt (35%+ of the sector) but with lagging equity prices YTD (because of global trade tensions). Investors should be wary of (negative yielding) supply risk here, we think.
- **Energy, telcos** and **autos** also feature as having lagging share prices YTD but lots of negative yielding bonds.

Chart 18: Cash generation of European companies has waned of late – a bigger impact can be seen for exporters (total FCF €bn)



Source: BofA Merrill Lynch. Large sample of Euro IG non-financials. Domestic FCF, LHS.

Chart 19: Sectors to the top left of the chart could be motivated to use negative debt to please shareholders (as equity prices have lagged YTD)



Source: BofA Merrill Lynch Global Research. Red dots indicate negative FCF.

Disclosures

Important Disclosures

Due to the nature of strategic analysis, the issuers or securities recommended or discussed in this report are not continuously followed. Accordingly, investors must regard this report as providing stand-alone analysis and should not expect continuing analysis or additional reports relating to such issuers and/or securities.

BofA Merrill Lynch Research Personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

BofA Merrill Lynch fixed income analysts regularly interact with sales and trading desk personnel in connection with their research, including to ascertain pricing and liquidity in the fixed income markets.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Merrill Lynch policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for the purpose of any recommendation in relation to: (i) an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report; or (ii) a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including Bank of America Merrill Lynch trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

This report may refer to fixed income securities that may not be offered or sold in one or more states or jurisdictions. Readers of this report are advised that any discussion, recommendation or other mention of such securities is not a solicitation or offer to transact in such securities. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor for information relating to fixed income securities.

Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended. SECURITIES DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

The securities discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these securities are exempt from registration or have been qualified for sale.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

This report, and the securities discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors.

Information relating to Affiliates of BofAS, MLPF&S and Distribution of Affiliate Research Reports:

BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at <https://rsch.baml.com/col>

"BofA Merrill Lynch" includes BofA Securities, Inc. ("BofAS"), Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") and its affiliates. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Merrill Lynch" and "Merrill Lynch" are each global brands for BofA Merrill Lynch Global Research.

BofAS and/or MLPF&S or may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF); BAMLI DAC (Milan): Bank of America Merrill Lynch International DAC, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; Merrill Lynch (Japan): Merrill Lynch Japan Securities Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; DSP Merrill Lynch (India): DSP Merrill Lynch Limited, regulated by the Securities and Exchange Board of India; Merrill Lynch (Indonesia): PT Merrill Lynch Sekuritas Indonesia, regulated by Otoritas Jasa Keuangan (OJK); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (Russia): OOO Merrill Lynch Securities, Moscow, regulated by the Central Bank of the Russian Federation; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Spain): Merrill Lynch Capital Markets Espana, S.A.S.V., regulated by Comisión Nacional del Mercado De Valores; Merrill Lynch (Brazil): Bank of America Merrill Lynch Banco Múltiplo S.A., regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by Merrill Lynch (Japan), a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by DSP Merrill Lynch (India); and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Bank of America N.A., Australian Branch (ARBN 064 874 531), AFS License 412901 (BANA Australia) and Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distribute this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of BANA Australia, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. Bank of America Merrill Lynch International DAC, Frankfurt Branch (BAMLI DAC (Frankfurt)) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Merrill Lynch entities, including BAMLI DAC and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Merrill Lynch group. You may be contacted by a different BofA Merrill Lynch entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please use this link <http://www.bankofamerica.com/emaildisclaimer> for further information.

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for

information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Merrill Lynch.

This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Merrill Lynch clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Merrill Lynch, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

BofA Merrill Lynch is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

This report may contain a trading idea or recommendation which highlights a specific identified near-term catalyst or event impacting a security, issuer, industry sector or the market generally that presents a transaction opportunity, but does not have any impact on the analyst's particular "Overweight" or "Underweight" rating (which is based on a three month trade horizon). Trading ideas and recommendations may differ directionally from the analyst's rating on a security or issuer because they reflect the impact of a near-term catalyst or event.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments effectively assume currency risk.

UK Readers: The protections provided by the U.K. regulatory regime, including the Financial Services Scheme, do not apply in general to business coordinated by BofA Merrill Lynch entities located outside of the United Kingdom.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Merrill Lynch, through business units other than BofA Merrill Lynch Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Merrill Lynch is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright, User Agreement and other general information related to this report:

Copyright 2019 Bank of America Corporation. All rights reserved. iQprofileSM, iQmethodSM are service marks of Bank of America Corporation. iQdatabase[®] is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Merrill Lynch. BofA Merrill Lynch Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Merrill Lynch and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Merrill Lynch.

Materials prepared by BofA Merrill Lynch Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch, including investment banking personnel. BofA Merrill Lynch has established information barriers between BofA Merrill Lynch Global Research and certain business groups. As a result, BofA Merrill Lynch does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Merrill Lynch Global Research personnel's knowledge of legal proceedings in which any BofA Merrill Lynch entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Merrill Lynch Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Merrill Lynch and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Merrill Lynch is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Merrill Lynch. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Merrill Lynch is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Merrill Lynch is under no obligation to update this information and BofA Merrill Lynch's ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Merrill Lynch will not update any fact, circumstance or opinion contained herein.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not

solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies. Neither BofA Merrill Lynch nor any officer or employee of BofA Merrill Lynch accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.