

# The European Credit Strategist

## De-equitization and the information age

Bank of America  
Merrill Lynch



Credit Analysis

25 October 2019

### The “wow” factor

Draghi’s parting gift is potentially an infinite QE policy. But we would not overlook the “wow” effect that looms in just over a week’s time when buying begins in earnest. We think spreads quickly take a leg tighter once markets realise that the ECB is buying everything. Technicals aside, though, we think cyclicals can show some leadership into year-end too, given how investor longs have been purged of late in high-yield, and the better newsflow emerging on US-China trade and Brexit deals.

### De-equitization and the information age

QE “infinity” means bonds become the corporate financing tool of the future. But this suggests a continuation in the rapid pace of de-equitization. Since 2012, the number of listed EU companies has shrunk by 15%, a trend exacerbated by the era of central bank largesse, we feel. But this comes with its risks: fewer companies reporting could leave markets less equipped to assess the real-time state of the economy in the future.

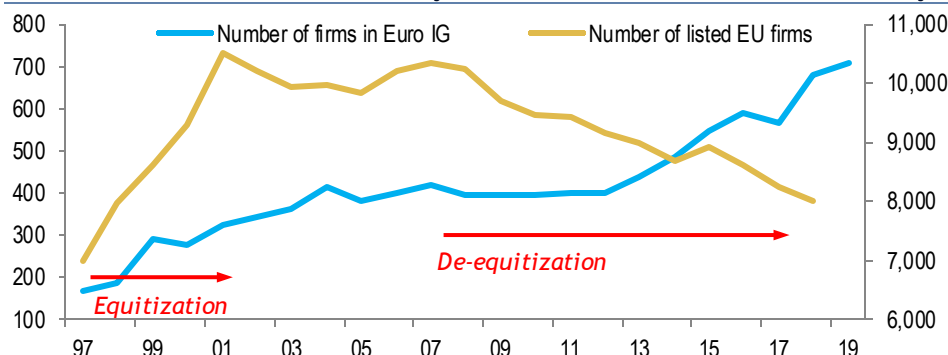
### Bonds and the manic stampede

Instead it’s corporate bonds that are likely to see rapid growth ahead. However, we think it’s less a case of existing companies gearing-up, but more a case of new entrants raising debt, and we see bank-to-bond disintermediation being a defining feature here. In contrast to equities, the credit market has seen the number of issuers jump by over 80% since 2012, with new sectors emerging from nothing. While “debut” issuers provide diversity and spread for an opportunity-starved market, investors should be cognizant of the cyclicity and leverage that they add to the overall credit market too.

### “Vive la France!”

The global trade narrative has taken a turn for the better over the last few weeks, with a “skinny” US-China deal emerging. Even still, import substitution means that the deglobalization theme is not a negative for everyone alike. French credits look interesting to us here, with spreads having underperformed over the last quarter, yet US imports from France still looking fairly rosy.

**The information age: “de-equitization” meets bond mania. Fewer listed companies mean that markets will have a smaller information set by which to assess the real-time state of the economy**



Source: BofA Merrill Lynch Global Investment Strategy Research team, World Federation of Exchanges, ICE data indices LLC. Number of publically listed (equity market listing). Euro IG issuers (LHS).

**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.**

12056554

Timestamp: 25 October 2019 12:15AM EDT

Credit Strategy  
Europe

**Barnaby Martin**  
Credit Strategist  
MLI (UK)  
+44 20 7995 0458  
[barnaby.martin@bofa.com](mailto:barnaby.martin@bofa.com)

**Ioannis Angelakis**  
Credit Derivatives Strategist  
MLI (UK)  
+44 20 7996 0059  
[ioannis.angelakis@bofa.com](mailto:ioannis.angelakis@bofa.com)

**Elyas Galou**  
Credit Strategist  
BofASE (France)  
+33 1 8770 0087  
[elyas.galou@bofa.com](mailto:elyas.galou@bofa.com)

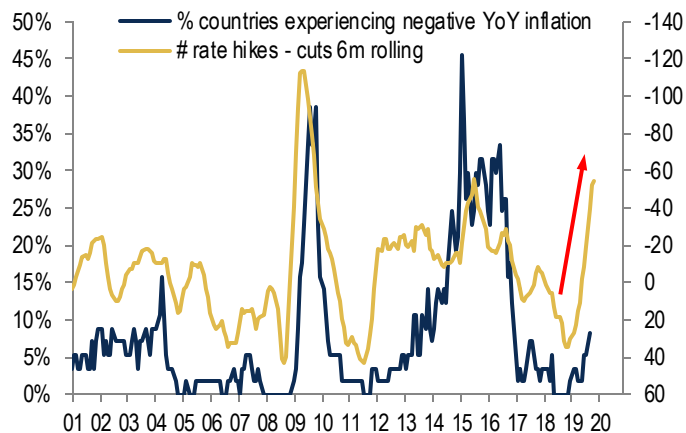
# De-equitization and the bond bubble

We remain bullish on corporate bonds into year-end. We see concerns over a repeat of Q4 '18 as overblown. Back then, Fed hikes – despite being patient and predictable – drove a disorderly market unwind precisely because they translated into much higher hedging costs (read LIBOR) for foreign buyers of corporate bonds. The lesson learned was that while it's easy to cut rates, monetary normalization is *much* more difficult.

Fast forward to today, and central bank behaviour is currently worlds apart from this. In fact, central banks seem to be falling over themselves to cut rates at present (chart 1). But it's not just cuts that are the order of the day: central bank bond purchases are being resurrected. By “confiscating” assets, monetary authorities will simply exacerbate the thirst for yield across markets, in our view. Chart 2 shows how the *Quantitative Tightening* episode will soon be consigned to the history books: central bank balance sheet growth should turn sharply positive in the first half of 2020 (Fed + ECB).

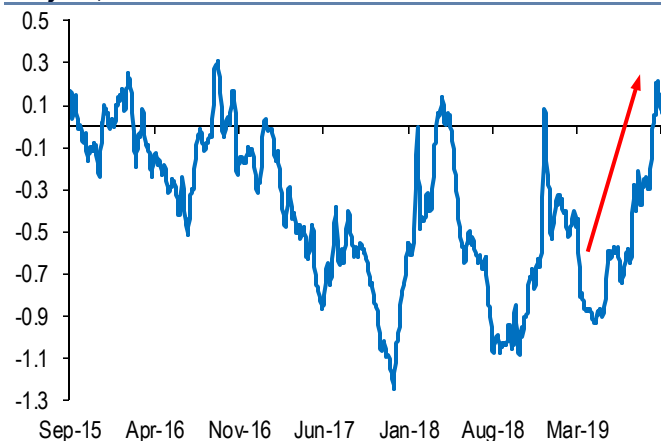
Today, therefore, financial conditions remain hugely supportive for risk assets. In fact, chart 3 shows how much Euro Area financial conditions have loosened vis-à-vis US conditions of late...all thanks to Draghi's last hurrah.

**Chart 1: The pace of central bank easing (# net rate cuts, RHS reversed) is now far outstripping the reality of the inflation data**



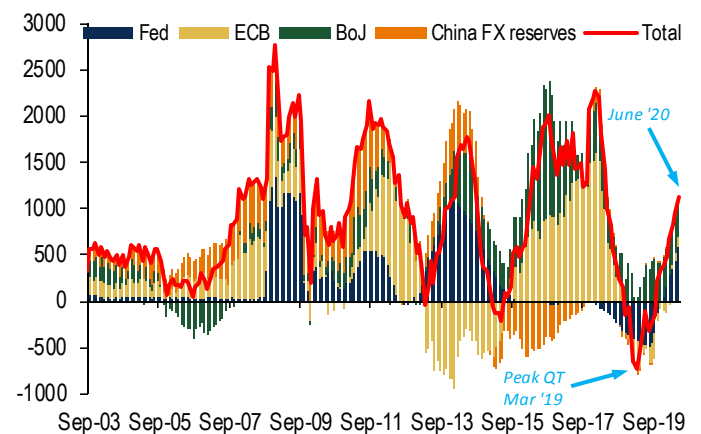
Source: BofA Merrill Lynch Global Research, Bloomberg, Haver. Using large sample of countries across the globe. Excluding Argentina. Inflation (LHS),

**Chart 3: European vs. US financial conditions: loosening more in Europe this year (Euro Area financial conditions minus US financial conditions)**



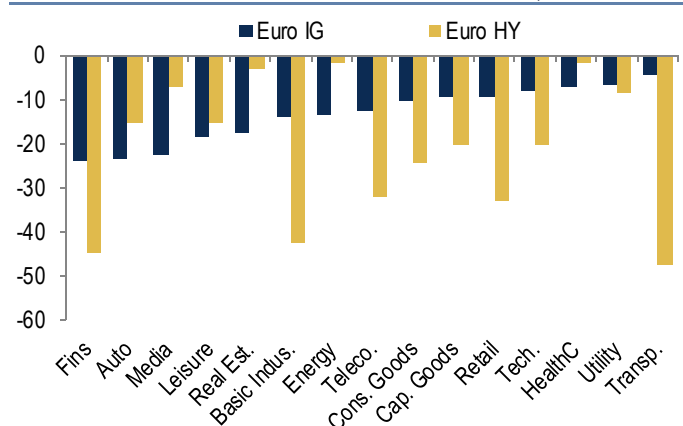
Source: BofA Merrill Lynch Global Research, Bloomberg.

**Chart 2: YoY changes in “Global QE”, \$bn (YoY CB balance sheet growth)**



Source: BofA Merrill Lynch, Bloomberg. Note converting ECB and BoJ balance sheet numbers into USD equivalents, hence FX plays a part in driving the changes in chart 2. China FX reserves are reported in USD. Note that we do not assume recent Fed repo outstandings shrink over time.

**Chart 4: Where's the cyclical beta? IG Auto, media and leisure spreads are most sensitive to the OECD Lead Economic indicator, fins too.**



Source: BofA Merrill Lynch, OECD. Beta of OAS to YoY change in OECD indicator (2006-2019)

## Cyclicals into year-end

Away from impressive technicals, markets have been treated to some better newsflow on the fundamental front too – in the form of a “skinny” US-China trade deal, and a lower likelihood of a no-deal Brexit. We think this sets-up cyclical areas of the credit market to post more encouraging returns into year-end, especially given how poor sentiment seems to be here now (note the drastic reduction in [high yield longs](#) witnessed in our latest Credit Investor Survey).

Which parts of the Euro corporate bond market could show cyclical leadership for the remainder of the year? Chart 4 shows the spread beta of parts of the Euro credit market to changes in the OECD Global Lead Economic Indicator.

- Perhaps unsurprisingly, high-grade **auto, media, real estate** and **industrial** spreads have tended to show the most sensitivity to global growth perceptions in the past, and thus could enjoy a bounce into December (albeit structural weaknesses in the auto sector are now clearly shining through via daunting profit warnings).
- In high-yield, **industrials, transport** and **retail** spreads could see more upside on better growth perceptions.
- In financials, note the relatively *high* cyclical sensitivity of the sector as well, which could be favourable (albeit, with Credit Survey showing investors have moved longer in fins over the last few months).

## The icing on the cake...

While we see enough reasons to be bullish into year-end, to top it off, in just over a week the ECB will commence QE2...a policy that will [add to the squeeze](#) in credit, in our view.

As something billed as open ended, we expect the long-run consequence of QE2 to be that investors migrate away from CSPP-eligible debt and [move into non-eligible parts of the credit market](#): **HY, AT1s, corporate hybrids**, and of course **US high-grade**.

This was exactly the 2017 CSPP playbook and we expect it to be relevant again. Back then, it reflected investors' desire to move away from parts of the market where it was becoming questionable as to whether spreads were reflecting fundamentals.

An example? Recall that industrial spreads reached a low of just 67bp in Feb-'18...but by the start of 2019 industrial spreads were hanging out at over 150bp.

## De-equitization, bond bubbles and the information age

If the future years are indeed one of constant QE from the ECB, then financial markets are likely to undergo tremendous shifts in both their make-up and in the clustering of risks. What seems a given is that credit markets will experience another bout of rapid expansion, coaxed on by the proliferation of negative yields. Since the start of 2014, for instance, Euro IG markets have grown close to 75%, and have grown over 10% this year alone (from €2.1tr. to €2.4tr).

But if bonds are the financing tool of the future...then equities can't be. After all, the gap between equity and debt costs in Europe is at a [100yr high](#). The consequence, therefore, is that Europe is likely to see further “de-equitization”: a continued [shrinkage in the number of publically listed companies](#).

We see this trend being exacerbated by the swathes of private capital waiting in the wings. The jump in PE activity in Europe over the last year (albeit more mid-cap, rather than large-cap focussed) highlights the discrepancy between “fatigued” public capital and more “patient” private money. At the very least, more PE interest swirling around might coax companies into traditional M&A (as protection against a potential PE bid).

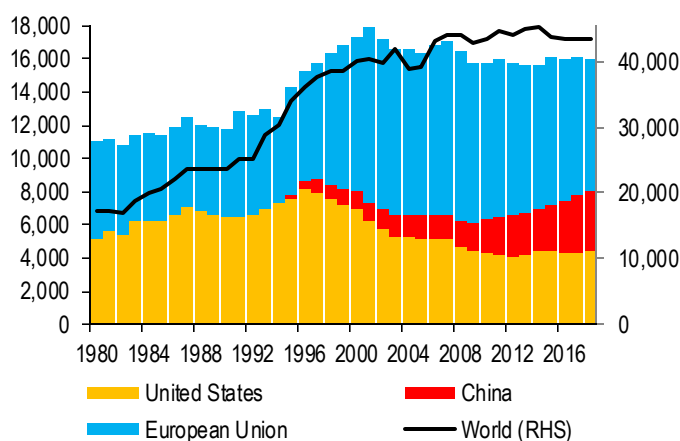
**Yet, we think the long-term consequence of de-equitization is that markets will be less able to assess the real-time state of the economy.** Fewer listed companies mean fewer disclosures about how earnings are faring, how business segments are performing, how geographical earnings splits are evolving... and ultimately, fewer disclosures about emerging risks.

And if there is a less reliable pulse on the economy, then this could impart more volatility to the consensus trades of the future, as markets suddenly realise that the “facts have changed”.

### De-equitization: now you see me...now you don't

The de-equitization theme has been in full swing in Europe over the last few years. Chart 5, from our Investment Strategy colleagues highlights the change in the number of listed companies over the last 40yrs, across major regions.

**Chart 5: Number of listed companies across the world: shrinkage in Europe the most profound of late**



Source: World Federation of Exchanges.

While for the World, the number of listed companies has been broadly stable over the last decade, the regional trends have been very different:

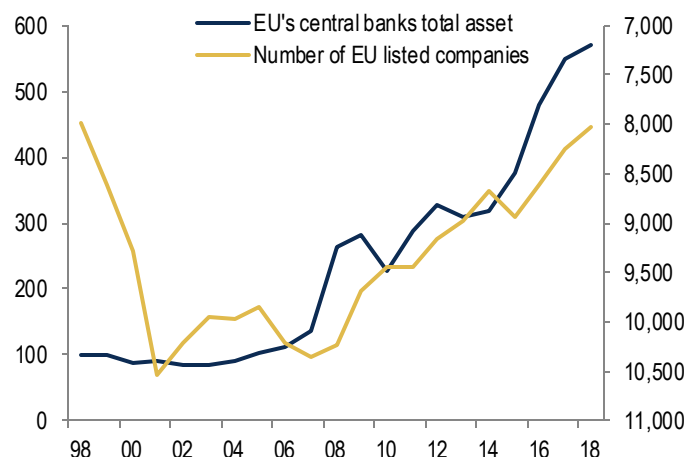
- The most conspicuous drop in the number of listed companies has been in the EU, where listed companies have shrunk from just over 10,000 a decade ago to around 8,000 at present, a roughly 25% drop.
- The decline in the number of US listed companies has been much less severe over the last decade (~5%), albeit this likely reflects the bigger drop in publically listed companies in the decade preceding this (between '97 and '07 the number of listed companies in the US fell from ~8,000 to ~5,000).
- Instead, the big growth in listed companies has been in China, where the number of listed companies has risen 53% since 2011.

What are the optimal conditions that drive de-equitization? We think some of the following: a big gap between debt and equity costs for companies, easy bank lending conditions, contained political risk and CFO confidence in the macro environment.

Perhaps no surprise, then, that the recent uptick in de-equitization across Europe corresponds with the ECB's push into unconventional monetary policies.

- Chart 6, for instance, shows how the growth in central bank balance sheets across the EU, post the Global Financial Crisis, has corresponded with the de-equitization trend.

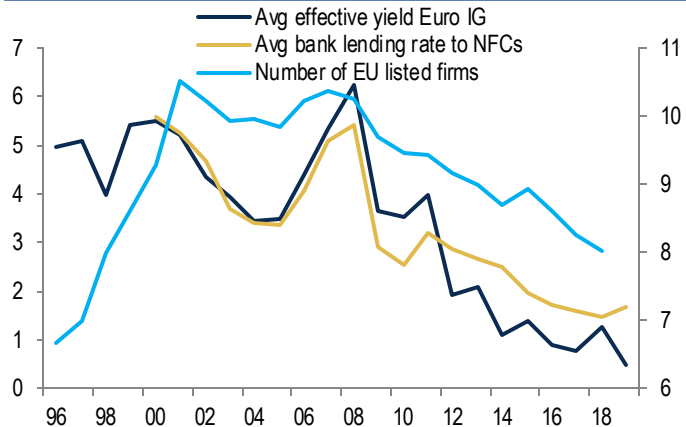
**Chart 6: More central bank largesse, fewer listed companies in Europe (CB total assets rebalanced to 100, as of 1999, LHS)**



Source: World Federation of Exchanges, Haver. FX-adjusted.

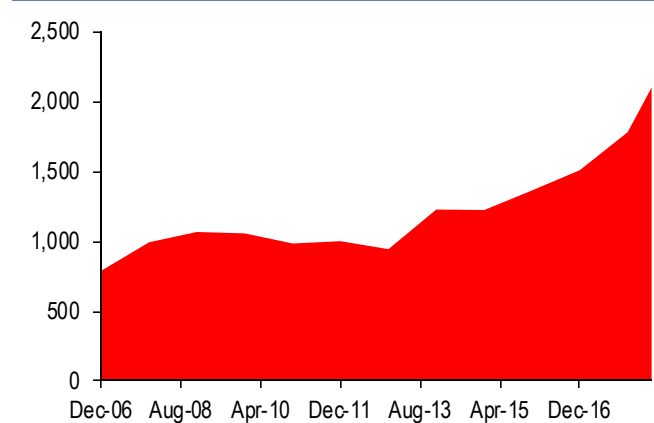
- Likewise, chart 7 shows, the drop in the number of EU listed companies versus bank lending rates, and corporate bond yields in Europe.

**Chart 7: A drop in the cost of debt (LHS, %) has pushed more EU firms to exit the equity market (RHS, '000s) since '08/'09**



Source: WFE, Haver, ICE Data Indices LLC. Number of listed firms in thousands (RHS).

**Chart 8: Global Private Capital “dry powder” now in excess of \$2tr.**



Source: Preqin

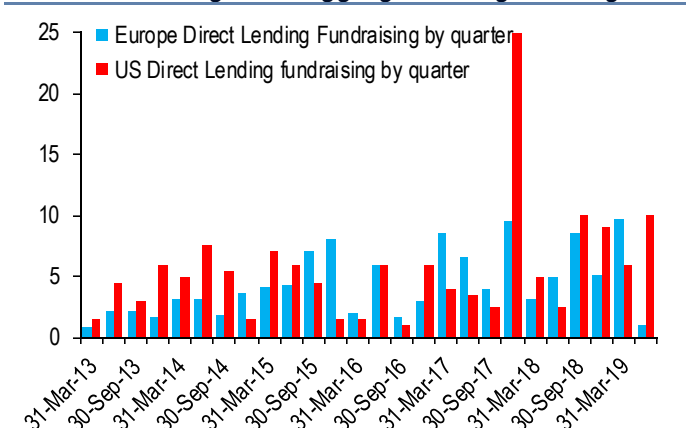
### Private markets now playing their part

Another factor that will likely add to the de-equitization theme in the coming years is the amount of private capital “dry powder” waiting in the wings (a reflection, also, of how starved markets are of yield in conventional bond markets now). As chart 8 shows, private capital “dry powder” is now in excess of \$2tr. according to Preqin, and Europe-focused dry powder accounts for roughly a quarter of total available capital.

Interestingly, while Private Equity accounted for a *shrinking* proportion of dry powder between 2006-2013 (as infrastructure and private debt sectors grew in prominence), PE now accounts for almost 60% of available dry powder – the *largest* proportion observed since 2012. And while dry powder is rising, the money is being spent too (witness the 20+ PE deals in Europe over the last year, albeit more mid-cap focussed). In other words, global private firepower is being put to work...and not simply stockpiled.

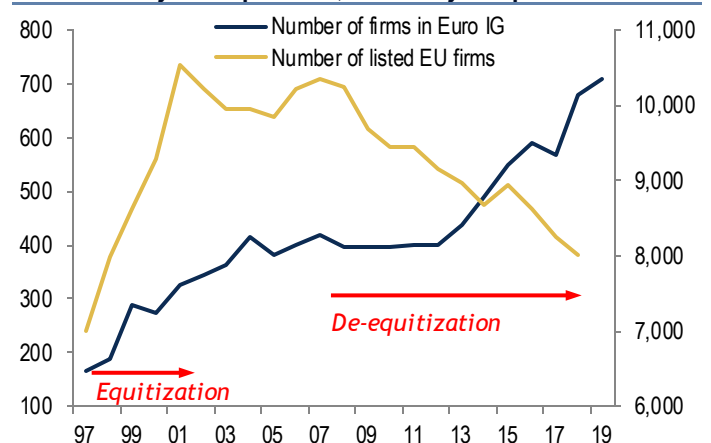
With European stocks having been stuck in a range for much of the 2017-2019 period (Stoxx Europe 600 trading between 360 and 400), public capital may well be fatigued. This opens the door to a more constructive dialogue between shareholders/management and potential PE buyers.

**Chart 9: Direct lending fundraising going from strength to strength**



Source: Quarterly \$bn. Deloitte Direct Lending Tracker.

**Chart 10: The cycle of equitization, followed by de-equitization**



Source: World Federation of Exchanges.

## The manic stampede

The flip side to de-equitization, however, is that credit markets are likely to experience rapid growth over the forthcoming years. But with any fast expansion comes the risk of misallocation of capital...

Chart 10 shows the equitization/de-equitization cycle in Europe over the last 20yrs. Note that as the number (of equity) listed companies in the EU has fallen, the number of credit market issuers has grown. Thus, it's the credit market that will be a better barometer for the state of the economy in future years.

## The dark side of bank disintermediation

Herein lies how the risk in the European credit market has changed...and will continue to change going forward. Credit market growth is not simply about the same names leveraging up:

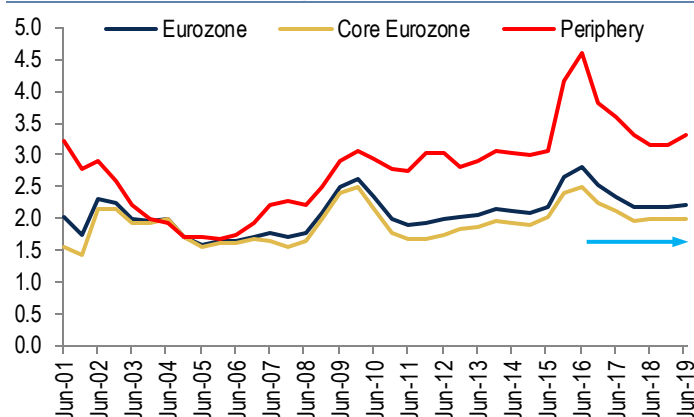
- Chart 11, below, shows how the leverage for established Euro Area high-grade issuers has, in fact, been broadly stable over the last two years, albeit more so for core than periphery (we define "established" issuers as those that have had bond debt outstanding since 2005).

Instead a key part of credit market growth in Europe has been as a consequence of "debut" issuers – companies that traditionally didn't use the corporate bond market as a funding source, as they tended to be bank financed. But we expect now, with CSPP2.0, that there will be another big wave of disintermediation: companies repaying bank loans and moving into bond financing.

And it's with this growth in debut issuers that we think greater credit risk comes. Chart 12 shows the distribution of net debt/EBITDA, by rating, for both "established" Euro Area issuers and "debut" issuers.

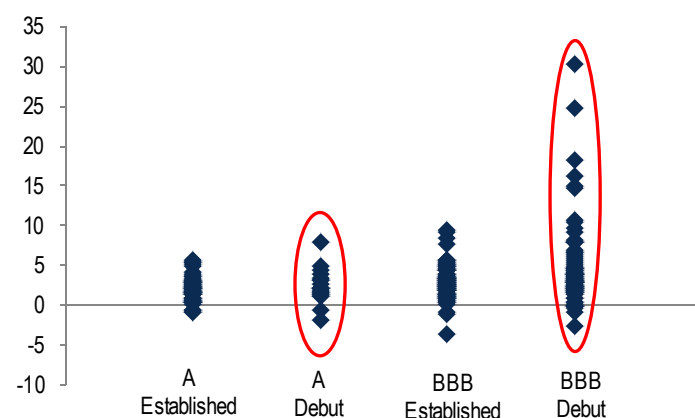
- As can be seen, for all ratings, the *average* leverage for debut names is *higher* than for established issuers.
- Moreover, the *distribution* of leverage is also greater for debut names than it is for established issuers (note real estate companies impact the picture here as their leverage tends to be very high).

**Chart 11: Net debt/EBITDA of established issuers: not too pressing at the moment for core Euro Area corporates**



Source: Bloomberg.

**Chart 12: Leverage: "Established" vs. "debut" issuers. Debut names often come to the market with higher, and more dispersed, leverage**



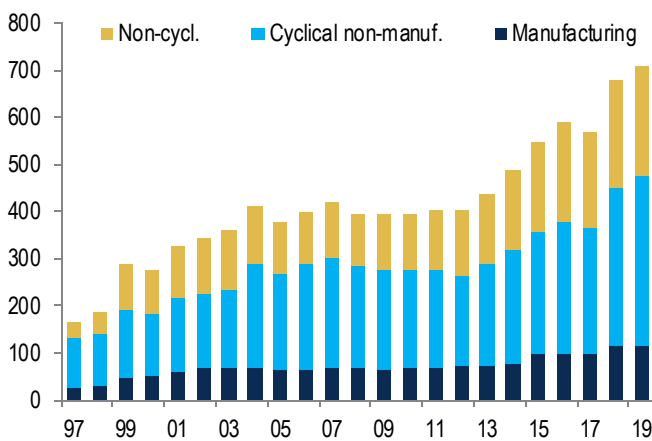
Source: BofA Merrill Lynch. Net debt/EBITDA. Each diamond represents a company in the sample. Note real estate bonds tend to have very high net debt/EBITDA metrics (and tend to be analysed instead on loan-to-value metrics).

## From the ashes...

The charts below highlight the growth in the number of Euro credit market issuers over the last few years. We think it highlights that credit markets in Europe are taking on a more cyclical nature, embracing companies that might be less financially flexible in the event that the economy turns sour.

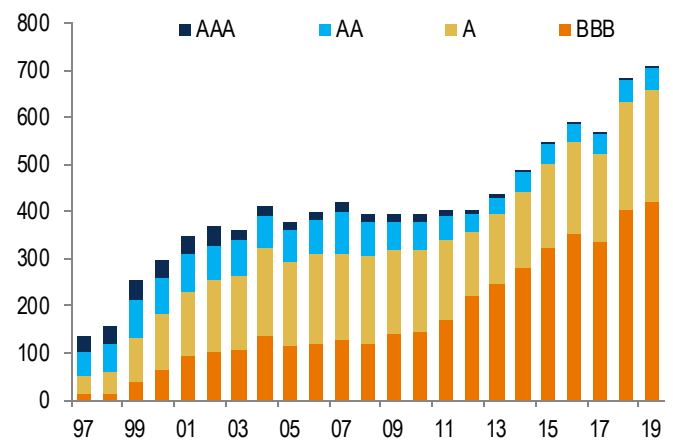
- As chart 13 highlights, the big growth in new names in the Euro high-grade market has been from cyclical sectors (albeit, the non-manufacturing parts).
- Chart 15 highlights the big growth in new names in the Euro high-grade market by sector. **Real estate** and **industrials** clearly stand out.
- And chart 16 shows that it's been less the periphery that has driven the influx of new issuers in the Euro credit market (witness Spain). Instead, the number of US and German corporate bond issuers has grown rapidly.

**Chart 13: Number of companies in Euro IG (ER00), by type**



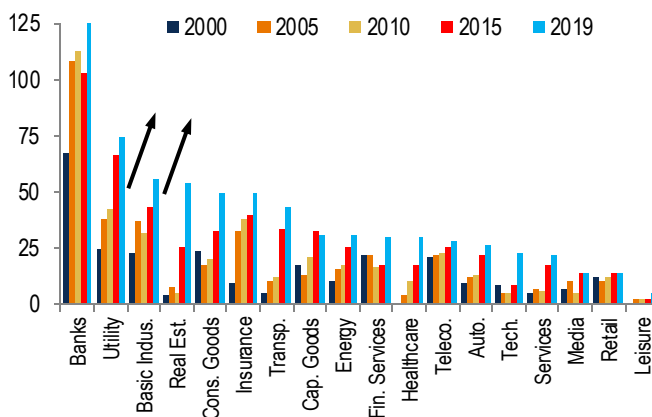
Source: ICE Data Indices LLC. Manufacturing sectors are: autos, basic industry and capital goods.

**Chart 14: Number of companies in Euro IG (ER00), by rating**



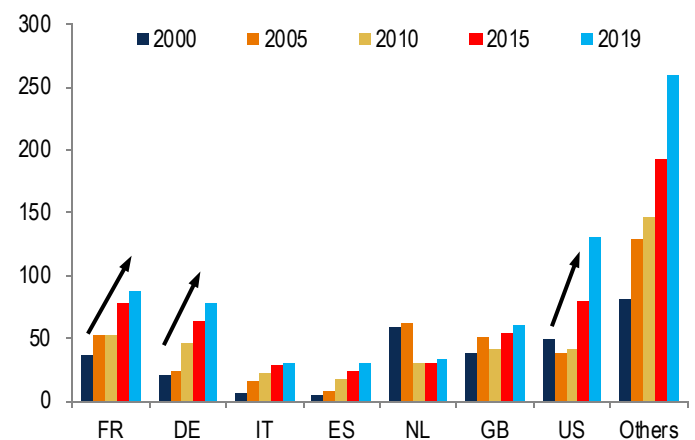
Source: ICE Data Indices LLC.

**Chart 15: Number of companies in Euro IG (ER00), by sector**



Source: ICE Data Indices LLC.

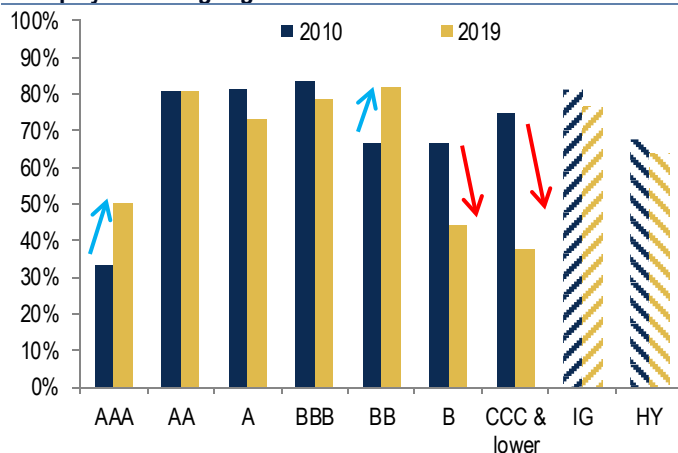
**Chart 16: Number of companies in Euro IG (ER00), by country**



Source: ICE Data Indices LLC.

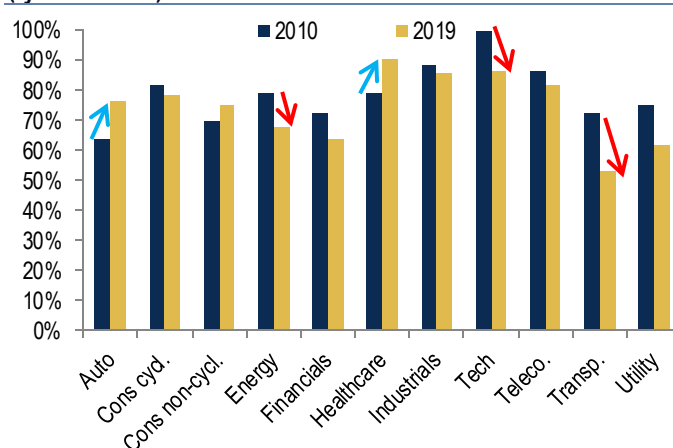
And as the credit market sees an influx of “debut” names due to bank disintermediation – names which are often smaller, cyclical and not listed – the “riskiness” of the Euro corporate bond market may increase. The charts below show a declining proportion of the Euro corporate bond market that has access to equity markets – an important source of financial flexibility for companies that struggle when the economy sours.

**Chart 17: The percentage of Euro credit market issuers that are listed on the equity market is going down...**



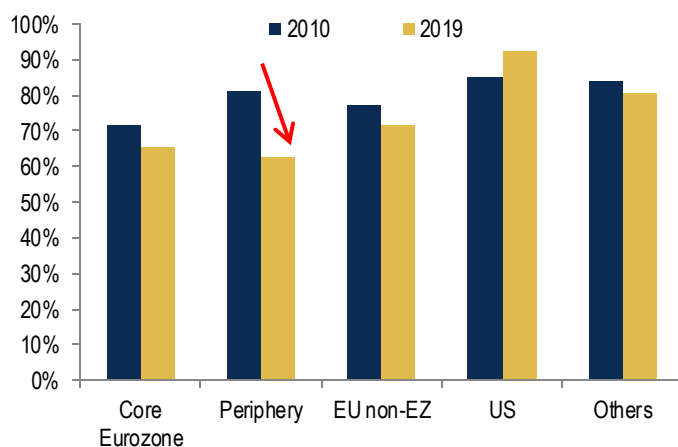
Source: ICE Data Indices LLC, Bloomberg.

**Chart 18: ...especially for sectors such as energy, transport and tech (cyclical sectors)**



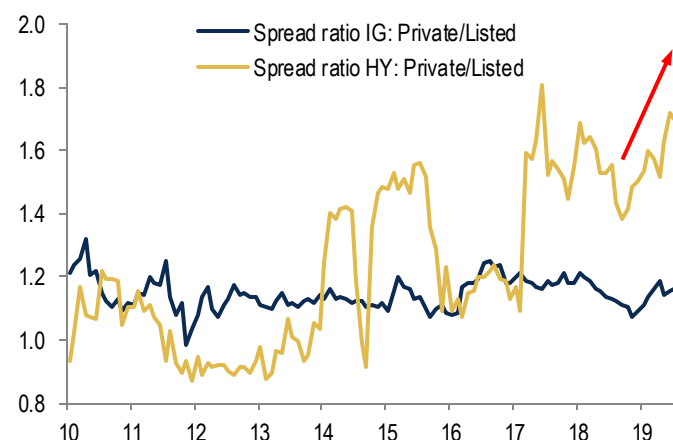
Source: ICE Data Indices LLC, Bloomberg.

**Chart 19: The percentage of Euro credit market issuers that are listed on the equity market: by domicile**



Source: ICE Data Indices LLC, Bloomberg.

**Chart 20: OAS of listed firms vs. non-listed: in HY, markets seem to be getting less comfortable with names that are not listed**



Source: ICE Data Indices LLC, Bloomberg. Average of option-adjusted spreads (OAS) of companies in EROO and HE00.

## Vive la France!

The global trade narrative has taken a turn for the better over the last few weeks, with a “skinny” US-China deal emerging. Focus still remains on potential trade tensions with Europe, however, especially with the USTR due to report to President Trump on the national security threat of auto imports by mid-November.

Yet, as we have flagged in the past, the “deglobalization” theme is not a blanket negative for every exporting company/country in Europe. While the US and China are clearly importing *less* from each other respectively now, there is a “substitution” effect underway.

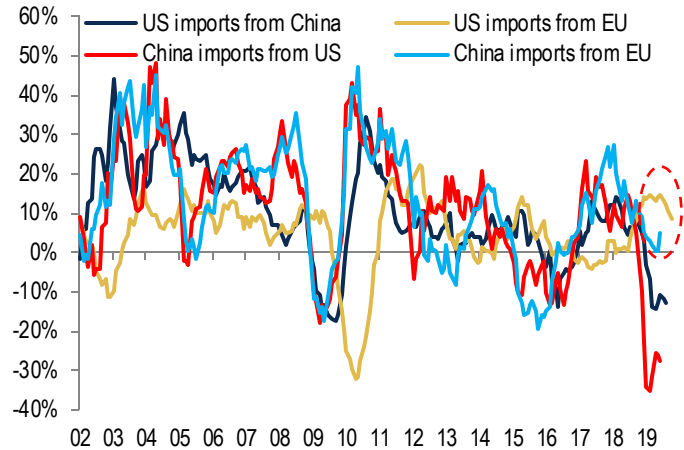
And we believe that French credits are the beneficiaries at this juncture:

- As chart 21 shows, US imports from the EU remain at fairly healthy levels. And the latest import data shows that US’s import growth from France (3m/3m basis) is still a solid 6.6%, albeit slowing.

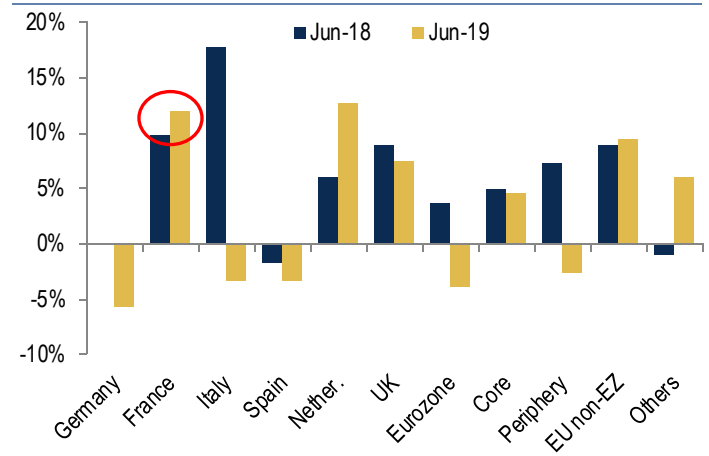


- We think this is helping to support the fundamentals of French issuers at present. Chart 22 shows YoY EBITDA growth (%) of European credits, by country. Note that yearly EBITDA growth for French names is currently at 12% YoY, again much better than for German credits (where it is now negative).

**Chart 21: YoY change in cross-country trade volumes. EU export growth to both the US and China has held-up lately while US/China cross-trade volumes have collapsed**

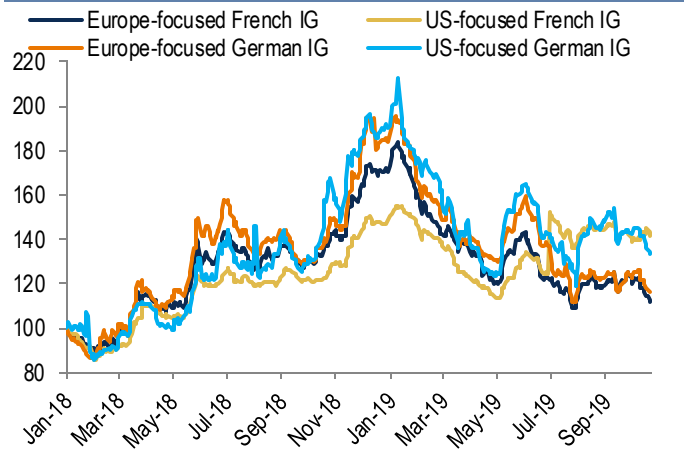


**Chart 22: YoY EBITDA growth by country: still encouraging for France (sample of “established” issuers only, as defined above)**

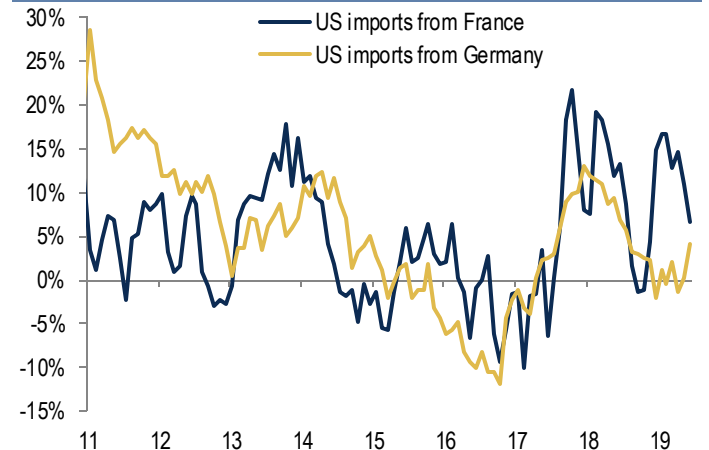


And the trade? French credits –with US revenue exposure –look on the cheap side still. Chart 23 below shows the spread of baskets of names with certain revenue exposure. As can be seen, the spread of US-exposed French credits have lagged over the last quarter, as trade war rhetoric soured.

**Chart 23: US-focused French credits looking cheap still**



**Chart 24: 3m/3m annual change (%) in US imports**



# 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/coi>

**"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. iQprofile<sup>SM</sup>, iQmethod<sup>SM</sup> are service marks of Bank of America Corporation. iQdatabase<sup>®</sup> 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 or 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.