SUSTAINABILITY

Transition bonds – New funding for a greener world

KEY MESSAGES

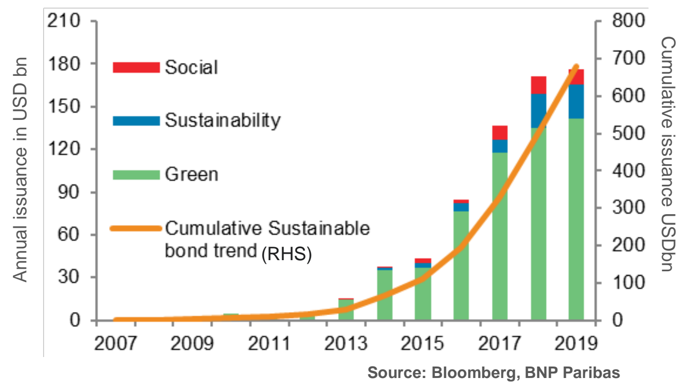
We think transition bonds can be the next evolution in helping allocate capital towards a low carbon economy.

A brand new asset class, these bonds are not to be confused with green bonds, which can only be used for sustainable allocation of capital. Rather, less-green companies can use them to shift to greener business activities.

We expect the broader scope of the use of transition capital to make them an attractive prospect, with transparency key to their success.

Further, we anticipate firms will use science-based targets and key performance indicators to build investor trust.

Fig. 1: Green, social and sustainable bond issuance YTD 2019



Source: Bloomberg, BNP Paribas

From brown to green: Transition bonds are a new asset class for industries with high greenhouse gas emissions – 'brown industries' - that will allow them to raise capital specifically to become less brown.

These bonds differ from green bonds, which are designed for green industries alone. The firms likely to issue transition bonds are brown industries that will continue their business activities as society and governments rely on them for growth, eg industrials, utilities and transport.

However, we expect growing societal and governmental pressure to force these companies to shift to less-brown business activities where possible, as part of the global effort to keep the increase in the global average temperature to 2°C above pre-industrial levels, or even 1.5°C (as agreed under the 2015 Paris Accord). We are currently on track to reach an increase of between 2.9°C and 3.4°C.

Not green bonds: Brown companies cannot issue green bonds to raise capital for this shift, because they are not green industries, but they can issue transition bonds, which will allow them to continue their business activities while having access to capital they can deploy to lower their GHG-emitting activity.

We note that some darker brown companies, such as coal mining, will never be able to transition successfully to a greener business, and as such are likely to be excluded from issuing transition bonds.

A brand new asset class with high potential: To date there have been three transition bond issuances – from an oil company, a utility and a beef producer – but there is not yet an established market.

Investors know there is demand for a market-based solution to sustainable finance – the sustainable bond market rose 25% between 2017 and 18 (Figure 1), driven by European corporate and sovereign green bonds, and we forecast it will grow by slightly more this year, finishing above USD220bn.

As environmental, social and governance (ESG) shifts from being a gauge of corporate social responsibility to a significant driver of investment strategy, we think transition issuance can play a major role.

Indeed, given its broader potential investment base, we think the transition market could outgrow the green bond market by the mid-2020s.

Trevor Allen, Sustainability Analyst | BNP Paribas London Branch

The benefits and the challenges ahead

Advantages: Aside from the global push toward sustainable practice that also drives the sustainable bond market, we see the following advantages that are specific to transition bonds:

- They will allow brown industries to attract capital to transform into less GHG intensive businesses, not necessarily become totally green, which is unlikely to be possible for some brown industries.
- There will be more choice on the greener targets linked to transition issuance. These might be lower GHG emissions set at company level, or broader targets tied to the nationally determined contributions (NDC) under the Paris Accord or the UN's sustainable development goals (SDGs). For more details on global sustainability see the BNP Paribas Sustainability Primer published on 8 April 2019.
- They will create a market with more investment options. The EU has set a goal to be carbon neutral by 2050, a target so far signed up to by 12 countries including Germany, France and the UK. These governments will therefore push for businesses to become greener.
- They will reduce the risk of 'greenwashing' – claims that a company is more eco-friendly than it really is – creating more confidence in the ability of brown industries to convert to a greener business and in the transition market.
- They will allow green bonds to retain their 'purity' as capital set aside for purely green business activities.

Challenges: The biggest challenge in establishing a solid transition bond market in our view will be issuer transparency capable of gaining investor trust.

Part of the challenge faced by the sustainable bond market has been the lack of globally-accepted definitions or verification, and transition bonds potentially face the same issues. The three transition issues seen to date had varying degrees of success with investors.

However, we think the need and desire of brown firms to lower their GHG emissions and, specifically, their desire to be compliant with future regulation, such as the EU Taxonomy, which will be rolled out from 2022, means transparency will have to be built into the transition bond market as it grows.

The EU taxonomy is a common standard between investors, issuers and policymakers that shows investments are meeting environmental standards and policy commitments in line with the Paris Agreement on climate change.

As such it delivers a blueprint for brown business to map its shift to a lower carbon footprint. For an activity to be eligible, it needs to demonstrate that it makes a substantial contribution to one of the EU's six environmental goals without having a detrimental impact on any of the other five (see box opposite on EU taxonomy criteria).

EU taxonomy criteria

1. Climate change mitigation
2. Climate change adaptation
3. Sustainable use of water and marine resources
4. Transition to a circular economy, waste prevention and recycling
5. Pollution prevention and control
6. Protection of healthy ecosystems

While the EU taxonomy will not be enforced until the beginning of 2022, the trend being set is for companies to consider the impact on the environment of the full product life cycle of their business activities, and for investors to consider this same product life cycle when making investment decisions.

In our view, the Use of Proceeds (UoP) statement that accompanies green issuance is not necessarily the best way to prove transparency for transition bonds, as it is typically best suited to well-defined, specific projects that evidently provide green credentials.

Firms could instead effectively demonstrate the impact of their transition bonds using a two factor approach:

1. **Policy goals.** Demonstrable lower GHG targets would be a key way for companies to disclose these ambitions to investors during a roadshow to showcase the attributes of the transition bond issuance.
2. **Science-based targets (SBT) and Key Performance Indicators (KPI).** These are encouraged by EU regulators to demonstrate concrete adherence to the EU taxonomy. They would allow issuers to show the achievement of precise milestones and objectives, which would in turn provide investors with clarity on how the ambitions of a company match its ambitions as an investor.

   For example, investors may have a target to follow the EU taxonomy, looking for investments that achieve a max emissions rate of 100 gCO_2/KWh, while the KPI set by a utility company for the transition bond seeks to achieve a goal of 95 gCO_2/KWh. In this case the transition bond would represent a good fit for the investor, but note that the proof is based in a specific measurable metric, adding validity to the ambitions of the issuer.

   Long-term duration bonds (10y+), could include specific SBTs built in as milestones, with the inclusion of step up coupons if the targets are not met.

   For example, a utility company may state it will reduce its carbon emissions per kilowatt per hour of power generated from 190gCO2/Kwh today, to 95gCO2/KWh in 15 years.

The benefits and the challenges ahead

The future of transition bonds is likely to become more nuanced, as data become more accurate and readily available for SBTs and KPIs, and the acute effects from climate change are further felt.

It is important to consider the duration of the transition bond and to ensure it aligns to the achievement of the goal. For example, a transition bond with a duration of five years with a KPI that is to be achieved in ten years is a clear mismatch.

Similarly, as governments face more pressure at the annual Conference of Parties (COP) sessions on climate change, transition bonds can start to be aligned towards country goals.

Countries set their own Nationally Determined Contributions (NDC), to reduce GHG emissions, typically set in five-year increments. In the future, companies could look to issue transition bonds, raising capital to fund projects that will help them align to their local country's NDCs.

In this way, companies can start to use SBTs and NDCs to demonstrate their alignment to a 2°C scenario, or preferably a 1.5°C scenario.

For example, energy projects that replace coal fire powered generation with natural gas powered generation and utilising carbon capture storage (CCS), could be one example of how of a company transitioning to a low carbon economy, with the goal to become greener over time.

Further, transition bonds could be used to help companies with poor social standards and weak governance to begin improving these parts of their business activities.

For example, companies could look to improve working conditions in their supply chain, or companies could look to evaluate improved governance metrics to attract a more diversified pool of investors.

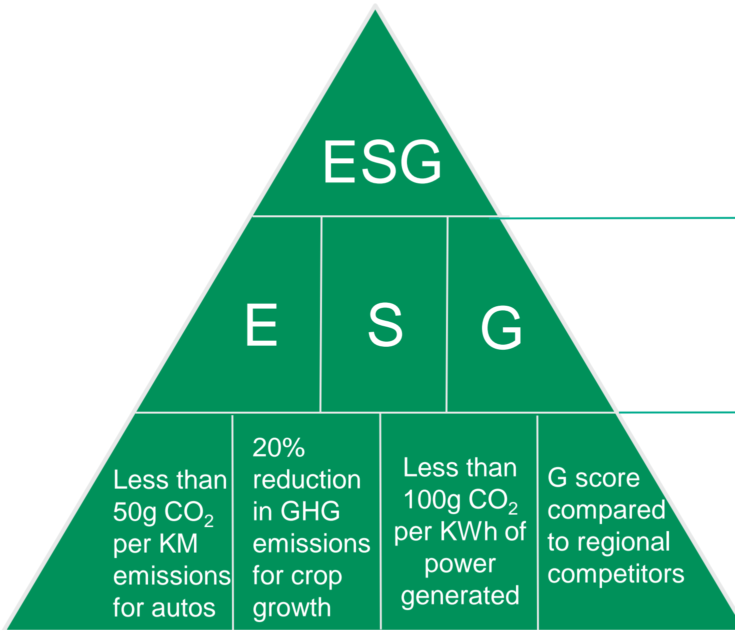
In brief: How companies can ensure the success of the transition bond market:

- **Future vision:** Companies need to state their policy objectives and how the company intends to evolve its business and lower its GHG emissions.
- **Project identification:** Companies need to select the GHG-intensive parts of their business that they will begin to transform with capital infusions.
- **Goal setting:** Firms need to define SBTs that can be tracked as milestones to help them demonstrate their commitment to a low-carbon economy.
- **Chart pathway:** Overlaying milestones showing how the new GHG emissions output will help the company align to the Paris Accord.
- ***Estimating* the value of transition:** Companies can use financial models and adopt new metrics, such as natural and social capital models, to assess the potential value of the transition, both in monetary terms and in terms of impact avoidance.
- **Report annually:** Transparency is key for investors to maintain trust that the issuer will achieve its targets.
- ***Final* value of transition –** companies can use financial models and adopt new metrics, to assess the true value of the transition and reconcile this to the original estimates, providing value feedback on the efficacy of the transition.

Trevor Allen, Sustainability Analyst | BNP Paribas London Branch

The context

Fig. 3: A hierarchy for incorporating SBTs into transition bonds



Total ESG score – total ESG score at company level. For example, if you are investing only in a subsidiary, the ESG score should be at the subsidiary level. If you are investing at the group level then the ESG score should be at the group level.

Individual environmental, social and governance scores can help differentiate investment strategies and identify areas of risk. Total ESG scores can sometimes mask a particularly low individual E, S, or G score.

Key performance indicators can provide granular detail around how a company is changing its business activities. This is where SBTs can help identify how a company can align to a low-carbon economy, or contribute towards the fulfilment of the UN's sustainable development goals. The three examples here that include emissions are examples from the EU taxonomy.

Source: BNP Paribas

The context: Scenarios for climate change impact, based on a rise in the earth's temperature, are essential in providing context for the current trajectory to which the economy is aligned.

This alignment is the blueprint that will help us understand how far business will need to transform itself to align the planet to a trajectory that will mitigate climate change impact.

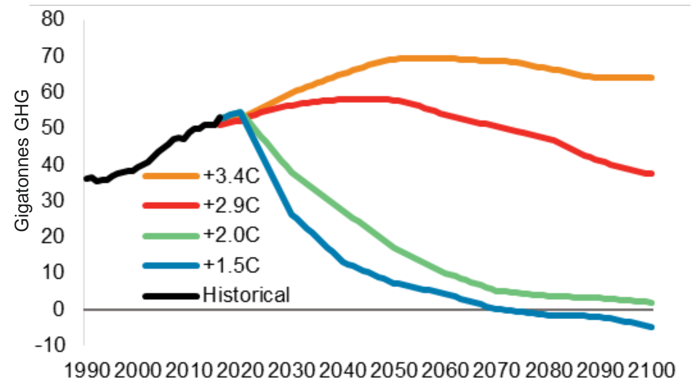
Figure 4 shows four key scenarios. The 1.5°C scenario shows a very steep decline in GHG emissions during the 2020s, and a continued decline, reaching carbon neutrality around 2050.

While this scenario will provide the most protection against climate impacts, it also is the scenario that will need the most coordination across the globe, and will need to be implemented almost immediately to achieve the 1.5°C target.

Figure 5 shows the potential effects if the transition is significantly delayed. Not only will the trajectory to decarbonise steepen, but GHG levels will need to go below neutral and stay negative for the foreseeable future.

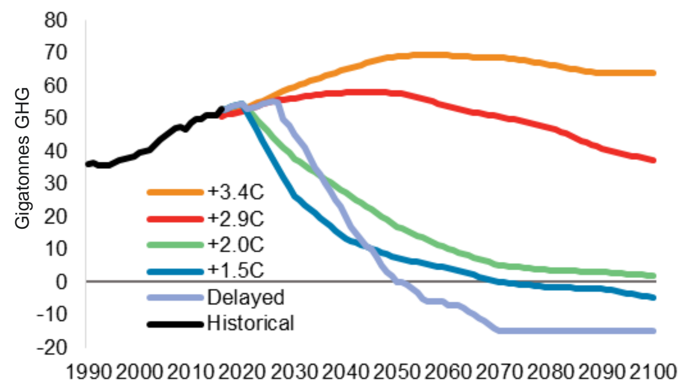
Transparency is key to ensure objectives are met, and using SBTs to align with the Paris Accord goals will show how much action is needed within a given timeframe.

Fig. 4: A sample of likely earth-warming scenarios compared to GHG levels



Sources: Climate Action Tracker, BNP Paribas

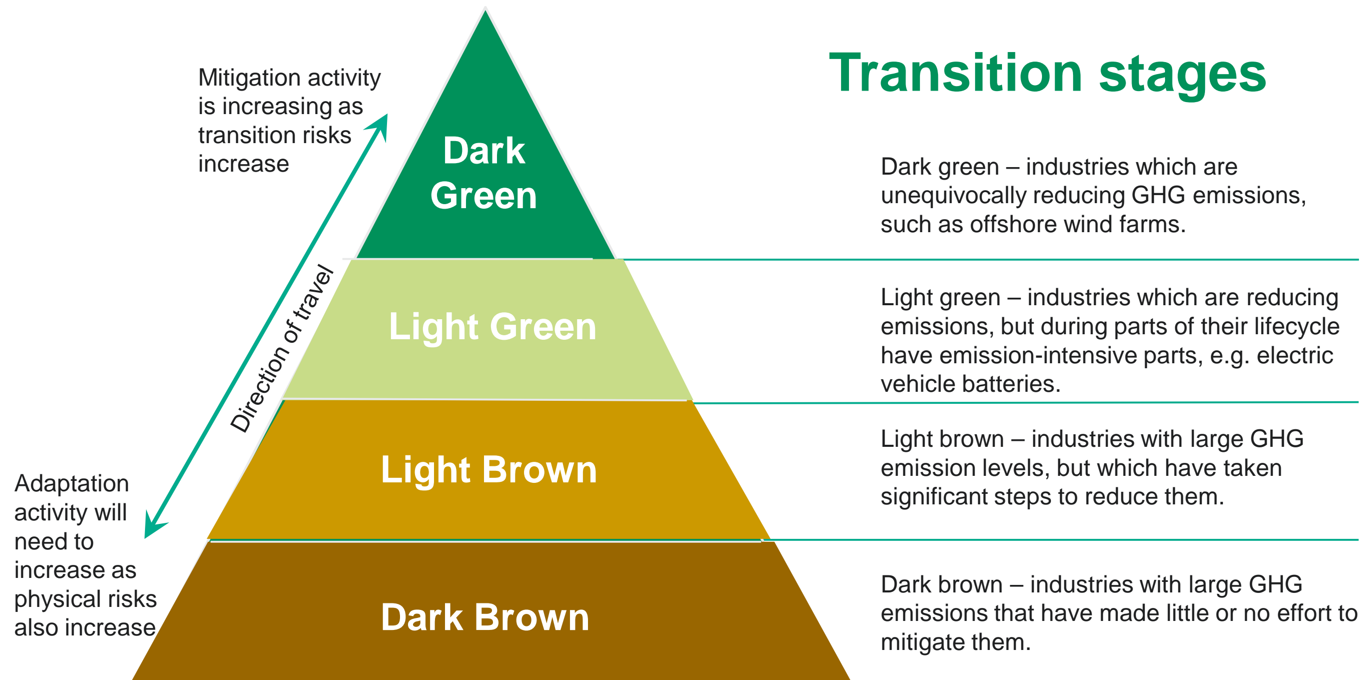
Fig. 5: Delaying transition requires more action later



Sources: Climate Action Tracker, BNP Paribas

The risks

Fig. 6: The risks for companies change as they become greener



Sources: TCFD, Cicero, EU Taxonomy, BNP Paribas

The risks: We expect transition bonds to be one of the key instruments helping to reduce GHG emissions over the next decade. However, we note that dark brown companies bear greater risk than their greener counterparts (Figure 6 ranks companies and their potential transition toward being a low-carbon firm, dark green in the pyramid).

According to the task force on climate-related financial disclosures (TCFD), led by Michael Bloomberg, two of the key risks for our economies and societies stemming from climate change are transition risk, and physical risk (see knowledge bar opposite).

Brown companies that resist transitioning will need to increase their efforts and allocate more capital to adapting to climate change, coupled with government efforts, to help society become more resilient to physical risks such as extreme weather, flooding, poor crop yields, disease, and glacier and coral reef destruction.

However, as more and more companies move up the pyramid, the physical risk for society as a whole, and the need for their individual adaptation will diminish.

Instead we will see a shift towards mitigation. This shift will accompany a pivot towards transition risk, with transition risk being much more manageable than its counterpart, physical risk.

It is also important to note that there is greater reputational and litigation risk for dark brown companies. Investors will want to identify these, as the reputational risks of companies can taint investors as well.

Knowledge bar:

Mitigation – actively reducing the amount of GHG emissions, drastically reducing the need for adaptation. Mitigation is closely linked with transition risk.

Adaptation – the need to ensure the economy and society are able to withstand the effects of climate change as much as possible. Adaptation is closely linked to physical risk.

Transition risk – the potential downside a company faces when trying to change its operations in order to lower its GHG emissions. The higher the GHG emission levels, the greater the need for the company to transition to lower carbon activities, but also the greater the potential for the company to struggle to change.

Physical risk – the increased likelihood of catastrophic weather events, caused by increasing emission levels, having a catastrophic impact on the economy, the environment and social welfare. The cost of physical risks are often absorbed by governments and insurance companies, and not borne by industry.

Sources: TCFD, EU Taxonomy, BNP Paribas

Trevor Allen, Sustainability Analyst | BNP Paribas London Branch

This document has been written by our Strategist and Economist teams within the BNP Paribas group of companies (collectively "BNPP"); it does not purport to be an exhaustive analysis, and may be subject to conflicts of interest resulting from their interaction with sales and trading which could affect the objectivity of this report. This document is non-independent research for the purpose of the UK Financial Conduct Authority rules. For the purposes of the recast Markets in Financial Instruments Directive (2014/65/EU) (MiFID II), non-independent research constitutes a marketing communication. This document is not investment research for the purposes of MiFID II. It has not been prepared in accordance with legal requirements designed to provide the independence of investment research, and is not subject to any prohibition on dealing ahead of the dissemination of investment research.

The content in this document/communication may also contain "Research" as defined under the MiFID II unbundling rules. If the document/communication contains Research, it is intended for those firms who are either in scope of the MiFID II unbundling rules and have signed up to one of the BNPP Global Markets Research packages, or firms that are out of scope of the MiFID II unbundling rules and therefore not required to pay for Research under MiFID II. Please note that it is your firm's responsibility to ensure that you do not view or use the Research content in this document if your firm has not signed up to one of the BNPP Global Markets Research packages, except where your firm is out of scope of the MiFID II unbundling rules.

STEER™ is a trade mark of BNPP.

MARKETS 360 is a trade mark of BNP Paribas

This document constitutes a marketing communication and has been prepared by BNPP for, and is directed at, (a) Professional Clients and Eligible Counterparties as defined by the recast Markets in Financial Instruments Directive (2014/65/EU) (MiFID II), and (b) where relevant, persons who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, and at other persons to whom it may lawfully be communicated (together "Relevant Persons") under the regulations of any relevant jurisdiction. Any investment or investment activity to which this document relates is available only to and will be engaged in only with Relevant Persons. Any person who is not a Relevant Person should not act or rely on this document or its content.

Securities described herein may not be eligible for sale in all jurisdictions or to certain categories of investors.

The information and opinions contained in this document have been obtained from, or are based on, public sources believed to be reliable, but there is no guarantee of the accuracy, completeness or fitness for any particular purpose of such information and such information may not have been independently verified by BNPP or by any person. None of BNPP, any of its subsidiary undertakings or affiliates or its members, directors, officers, agents or employees accepts any responsibility or liability whatsoever or makes any representation or warranty, express or implied, as to the accuracy and completeness of the information or any opinions based thereon and contained in this document and it should not be relied upon as such.

This document does not constitute or form any part of any offer to sell or issue and is not a solicitation of any offer to purchase any financial instrument, nor shall it or any part of it nor the fact of its distribution form the basis of, or be relied on, in connection with any contract or investment decision. To the extent that any transaction is subsequently entered into between the recipient and BNPP, such transaction will be entered into upon such terms as may be agreed by the parties in the relevant documentation.

Information and opinions contained in this document are published for the information of recipients, but are not to be relied upon as authoritative or taken in substitution for the exercise of judgment by any recipient, are subject to change without notice and not intended to provide the sole basis of any evaluation of the instruments discussed herein. In providing this document, BNPP does not offer investment, financial, legal, tax or any other type of advice to, nor has any fiduciary duties towards, recipients. Any reference to past performance is not indicative of future performance, which may be better or worse than prior results. Any hypothetical, past performance simulations are the result of estimates made by BNPP, as of a given moment, on the basis of parameters, market conditions, and historical data selected by BNPP, and should not be used as guidance, in any way, of future performance. To the fullest extent permitted by law, no BNPP group company accepts any liability whatsoever (including in negligence) for any direct or consequential loss arising from any use of or reliance on material contained in this document even where advised of the possibility of such losses. All estimates and opinions included in this document are made as of the date of this document. Unless otherwise indicated in this document there is no intention to update this document.

BNPP may make a market in, or may, as principal or agent, buy or sell securities of any issuer or person mentioned in this document or derivatives thereon. Prices, yields and other similar information included in this document are included for information purposes however numerous factors will affect market pricing at any particular time, such information may be subject to rapid change and there is no certainty that transactions could be executed at any specified price.

BNPP may have a financial interest in any issuer or person mentioned in this document, including a long or short position in their securities and/or options, futures or other derivative instruments based thereon, or vice versa. BNPP, including its officers and employees may serve or have served as an officer, director or in an advisory capacity for any person mentioned in this document. BNPP may, from time to time, solicit, perform or have performed investment banking, underwriting or other services (including acting as adviser, manager, underwriter or lender) within the last 12 months for any person referred to in this document. BNPP may be a party to an agreement with any person relating to the production of this document. BNPP may to the extent permitted by law, have acted upon or used the information contained herein, or the analysis on which it was based, before the document was published. BNPP may receive or intend to seek compensation for investment banking services in the next three months from or in relation to any person mentioned in this document. Any person mentioned in this document may have been provided with relevant sections of this document prior to its publication in order to verify its factual accuracy.

This document is for information purposes only and there is no assurance that a transaction(s) will be entered into on such indicative terms. Any indicative price(s) contained herein have been prepared in good faith in accordance with BNPP's own internal models and calculation methods and/or are based on or use available price sources where considered relevant. Indicative price(s) based on different models or assumptions may yield different results. Numerous factors may affect the price(s), which may or may not be taken into account. Therefore, these indicative price(s) may vary significantly from indicative price(s) obtained from other sources or market participants. BNPP expressly disclaims any responsibility for the accuracy or completeness of its own internal models or calculation methods, the accuracy or reliability of any price sources used, any errors or omissions in computing or disseminating these indicative price(s), and for any use you make of the price(s) provided. The indicative price(s) do not represent (i) the actual terms on which a new transaction could be entered into, (ii) the actual terms on which any existing transactions could be unwound, (iii) the calculation or estimate of an amount that would be payable following an early termination of the transactions or (iv) the price(s) given to the transactions by BNPP in its own books of account for financial reporting, credit or risk management purposes. As an investment bank with a wide range of activities, BNPP may face conflicts of interest, which are resolved under applicable legal provisions and internal guidelines. You should be aware, however, that BNPP may engage in transactions in a manner inconsistent with the views expressed in this document, either for its own account or for the account of its clients.

This document may contain certain performance data based on back-testing, i.e. simulations of performance of a strategy, index or assets as if it had actually existed during a defined period of time. To the extent any such performance data is included, the scenarios, simulations, development expectations and forecasts contained in this document are for illustrative purposes only. All estimates and opinions included in this document constitute the judgment of BNPP and its affiliates as of the date of the document and may be subject to change without notice. This type of information has inherent limitations which recipients must consider carefully. While the information has been prepared in good faith in accordance with BNPP's own internal models and other relevant sources, an analysis based on different models or assumptions may yield different results. Unlike actual performance records, simulated performance returns or scenarios may not necessarily reflect certain market factors such as liquidity constraints, fees and transactions costs. Actual historical or back tested past performance does not constitute an indication of future results or performance.

This document is only intended to generate discussion regarding particular products and investments and is subject to change or may be discontinued. We are willing to discuss it with you on the understanding that you have sufficient knowledge, experience and professional advice to understand and make your own independent evaluation of the merits and risk of the information and any proposed structures. The information contained herein is not and under no circumstances is to be construed as, a prospectus, an advertisement, a public offering, an offer to sell securities described herein, or solicitation of an offer to buy securities described herein, in Canada, the U.S. or any other province or territory nor shall it be deemed to provide investment, tax, accounting or other advice. Transactions involving the product(s) described in this document may involve a high degree of risk and the value of such transactions may be highly volatile. Such risks include, without limitation, risk of adverse or unanticipated market developments, risk of counterparty or issuer default, risk of adverse events involving any underlying reference obligation or entity and risk of illiquidity. In certain transactions, counterparties may lose their entire investment or incur an unlimited loss. The information relating to performance contained in this document is illustrative and no assurance is given that any indicated returns, performance or results will be achieved. Moreover, past performance is not indicative of future results. Information herein is believed reliable but BNPP and its affiliates do not warrant or guarantee its completeness or accuracy. All information, terms and pricing set forth herein reflect our judgment at the date and time hereof and are subject to change without notice. In the event that we were to enter into a transaction with you, we will do so as principal (and not as agent or in any other capacity, including, without limitation, as your fiduciary, advisor or otherwise). Only in the event of a potential transaction will an offering document be prepared, in which case, you should refer to the prospectus or offering document relating to the above potential transaction which includes important information, including risk factors that relate to an investment in the product(s) described herein.

Prior to transacting, you should ensure that you fully understand (either on your own or through the use of independent expert advisors) the terms of the transaction and any legal, tax and accounting considerations applicable to them. You should also consult with independent advisors and consultants (including, without limitation, legal counsel) to determine whether entering into any securities transactions contemplated herein would be contrary to local laws. The information contained herein is provided to you on a strictly confidential basis and you agree that it may not be copied, reproduced or otherwise distributed by you, whether in whole or in part (other than to your professional advisers), without our prior written consent.. Neither we, nor any of our affiliates, nor any of their respective directors, partners, officers, employees or representatives accepts any liability whatsoever for any direct or consequential loss arising from any use of this document or their content; and any of the foregoing may from time to time act as manager, co-manager or underwriter of a public offering or otherwise, in the capacity of principal or agent, deal in, hold or act as market makers or advisors, brokers or commercial and/or investment bankers in relation to the securities or related derivatives that are discussed herein. BNPP and its affiliates may (or may in the future) hold a position or act as a market maker in the financial instruments discussed, or act as an advisor, manager, underwriter or lender to such issuer. In no circumstances shall BNPP or its affiliates be obliged to disclose any information that it has received on a confidential basis or to disclose the existence thereof.

The information presented herein does not comprise a prospectus of securities for the purposes of EU Directive 2003/71/EC (as amended from time to time).

This document was produced by a BNPP group company. This document is for the use of intended recipients and may not be reproduced (in whole or in part) or delivered or transmitted to any other person without the prior written consent of BNPP. By accepting this document you agree to this.

United States Disclosures:

Important Option Disclosures: Options are complex instruments that are not suitable for every investor, may involve a high degree of risk, and may be appropriate investments only for sophisticated investors who are capable of understanding and assuming the risks involved. Supporting documentation for any claims, comparisons, recommendations, statistics or other technical data will be supplied upon request. Any trade information is preliminary and not intended as an official transaction confirmation. If the information contained herein regards options related content, such information is available only to persons who have received the proper option risk disclosure documents. For a copy of the Option Clearing Corporation's Characteristics and Risks of Standardized Options, please contact your BNPP sales representative or visit the OCC's website at http://www.theocc.com/about/publications/character-risks.jsp

Important ETF Disclosures: For any ETFs discussed in this document, you should consider the investment objectives, risks, and charges and expenses of the investment company carefully before investing. The prospectus, and if available, the summary prospectus, contains this and other important information about the ETF. You may obtain a prospectus and, if available, a summary prospectus by calling +1 212 841-3099. The prospectus if available, and summary prospectus should be read carefully before investing. As with any investment, ETFs have risks. These include the general risks associated with investing in the underlying assets, potential tracking error, and the possibility that particular indices may lag other market segments or active managers. In addition, ETFs investing in international markets may include currency and geopolitical risks, while fixed income ETF risks also include credit and interest rate risk. BNPP and its affiliates may hold a position or act as a market maker in the financial instruments discussed, or act as an advisor, manager, underwriter, or lender to such issuer. As a result, BNPP may have potential conflicts of interest relating to the ETFs that are discussed in this material. In particular, BNPP may act as an Authorized Participant in the purchase or sale of shares from an ETF and participate in the creation and redemption of the securities covered in this material. In connection with these activities, BNPP may receive a fee, may be deemed to be an underwriter of the ETF shares, and may receive information about pending creations or redemptions of large blocks of ETF shares. Under no circumstances shall BNPP or its affiliates be obliged to disclose any information that it has received on a confidential basis or to disclose the existence of such information. BNPP also may act as a market maker or block positioner in the ETF shares discussed in this material, or financial instruments that are held by the ETF and/or are part of the index whose performance the ETF seeks to track. As a result, BNPP may be buying or selling ETF shares (or the instruments underlying the ETF shares) for other customers or for its own account while you are selling or buying ETF shares. BNPP may have multiple advisory, transactional, financial and other interests in the companies whose securities or other instruments may be purchased or sold by an ETF discussed in this material. BNPP may from time to time engage in business with these companies, including extending loans to, making equity investments in or providing advisory services to the companies, including merger and acquisition advisory services. In the course of those activities, certain BNPP personnel may acquire non-public information about the companies. Such information could potentially affect the prices at which the ETF shares trade. BNPP will maintain the confidentiality of such information and not disclose it to the ETF, ETF holders, or other unauthorized personnel.

Important Disclosures for Convertibles Securities or other Securities not registered under US Securities Laws: Certain securities discussed herein may not be registered under the Securities Act of 1933, as amended, and therefore are considered “restricted securities” pursuant to Rule 144(a)(3). Only Qualified Institutional Buyers (“QIBs”) as defined under Rule 144A or non-US persons (as defined in Regulation S under the Securities Act) may be eligible to purchase such instruments.

This report may be distributed (i) by BNPP Securities Corp. (“BNPPSC”) to U.S. persons who qualify as “institutional investors” under FINRA Rule 2210(a)(4), or (ii) by a subsidiary or affiliate of BNPP that is not registered as a U.S. broker-dealer only to U.S. persons who are considered “major U.S. institutional investors” (as such term is defined in Rule 15a-6 under the Securities Exchange Act of 1934, as amended). BNPPSC accepts responsibility for the content of a report prepared by another non-U.S. affiliate only when distributed to U.S. persons by BNPPSC. U.S. persons who wish to effect transactions in securities based on the information provided herein must do so through BNPPSC unless otherwise authorized by law to transact through a non-U.S. affiliate of BNPP. BNPPSC, a subsidiary of BNPP, is a broker dealer and futures commission merchant registered with the Securities and Exchange Commission (SEC), Commodity Futures Trading Commission (CFTC), Financial Industry Regulatory Authority (FINRA), and National Futures Association (NFA) and is a member of the New York Stock Exchange (NYSE), other principal exchanges, and the Securities Investor Protection Corporation (SIPC). Some of the securities mentioned in this document have not been registered under the U.S. Securities Act of 1933, as amended, and may not be offered or sold in the U.S. or to a U.S. person absent registration or an applicable exemption from the U.S. registration requirements.

UK: In the UK, this document is being communicated by BNPP London Branch. 10 Harewood Avenue, London NW1 6AA; tel: +44 20 7595 2000; fax: +44 20 7595 2555- www.bnpparibas.com. Incorporated in France with Limited Liability. Registered Office: 16 boulevard des Italiens, 75009 Paris, France. 662 042 449 RCS Paris. BNPP London Branch is lead supervised by the European Central Bank (ECB) and the Autorité de Contrôle Prudentiel et de Résolution (ACPR). BNPP London Branch is authorised by the ECB, the ACPR and the Prudential Regulation Authority and subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority. Details about the extent of our authorisation and regulation by the Prudential Regulation Authority, and regulation by the Financial Conduct Authority are available from us on request. BNPP London Branch is registered in England and Wales under no. FC13447.

France: This report is produced and/or is distributed in France by BNPP SA and/or BNPP Arbitrage. BNPP SA is incorporated in France with Limited Liability (Registered Office: 16 boulevard des Italiens, 75009 Paris, France, 662 042 449 RCS Paris, www.bnpparibas.com) is authorized and supervised by European Central Bank (ECB) and by Autorité de Contrôle Prudentiel et de Résolution (ACPR) in respect of supervisions for which the competence remains at national level, in terms of Council Regulation n° 1024/2013 of 15 October 2013 conferring specific tasks on the ECB concerning policies relating to the prudential supervision of credit institutions. BNPP Arbitrage is an unlimited liability company, whose registered office is 160/162 boulevard Mac Donald 75019 Paris, registered with the Paris Trade and Companies Registry under number 394 895 833. It is authorised and supervised by the Autorité de Contrôle Prudentiel et de Résolution and the Autorité des Marchés Financiers in France.

Germany: This report is being distributed in Germany by BNPP S.A. Niederlassung Deutschland, a branch of BNPP S.A. whose head office is in Paris, France. 662 042 449 RCS Paris, www.bnpparibas.com). BNPP Niederlassung Deutschland is authorized and lead supervised by the European Central Bank (ECB) and by Autorité de Contrôle Prudentiel et de Résolution (ACPR) and is subject to limited supervision and regulation by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) in respect of supervisions for which the competence remains at national level, in terms of Council Regulation n° 2013/1024 of 15 October 2013 conferring specific tasks on the ECB concerning policies relating to the prudential supervision of credit institutions as well as Council Directive n° 2013/36/EU of 26 June, 2013 and Section 53b German Banking Act (Kreditwesengesetz - KWG) providing for the principles of shared supervision between the national competent authorities in case of branches and applicable national rules and regulations. BNPP Niederlassung Deutschland is registered with locations at Europa Allee 12, 60327 Frankfurt (commercial register HRB Frankfurt am Main 40950) and Bahnhofstrasse 55, 90429 Nuremberg (commercial register Nuremberg HRB Nürnberg 31129).

Belgium: BNPP Fortis SA/NV is authorized and supervised by European Central Bank (ECB) and by the National Bank of Belgium, boulevard de Berlaimont 14, 1000 Brussels, and is also under the supervision on investor and consumer protection of the Financial Services and Markets Authority (FSMA), rue du congrès 12-14, 1000 Brussels and is authorized as insurance agent under FSMA number 25789 A.

Ireland: This report is being distributed in Ireland by BNPP S.A., Dublin Branch. BNPP is incorporated in France as a Société Anonyme and regulated in France by the European Central Bank and by the Autorité de Contrôle Prudentiel et de Résolution.

Italy: This report is being distributed by BNPP Italian Branch (Succursale Italia) which is authorised and lead supervised by the European Central Bank (ECB) and the Autorité de Contrôle Prudentiel et de Résolution and regulated by the Autorité des Marchés Financiers, and this authorisation has been notified to the Bank of Italy. BNPP Succursale Italia is the Italian branch of a company incorporated under the laws of France having its registered office at 16, Boulevard des Italiens, 75009, Paris, whose offices are located in Piazza Lina Bo Bardi 3, Milan, tax code and registration number at the Companies Registry of Milan No. 04449690157, is enrolled in the register of the banks held by Bank of Italy under No. 5482, duly authorised to provide in Italy banking and investment services according the principle of the mutual recognition. The branch is subject to limited regulation by the Bank of Italy and the CONSOB respectively.

Netherlands: This report is being distributed in the Netherlands by BNPP Fortis SA/NV, Netherlands Branch, a branch of BNPP SA/NV whose head office is in Brussels, Belgium. BNPP Fortis SA/NV, Netherlands Branch, Herengracht 595, 1017 CE Amsterdam, is authorised and supervised by the European Central Bank (ECB) and the National Bank of Belgium and is also supervised by the Belgian Financial Services and Markets Authority (FSMA) and it is subject to limited regulation by the Netherlands Authority for the Financial Markets (AFM) and the Dutch Central Bank (De Nederlandsche Bank).

Portugal: BNPP – Sucursal em Portugal Avenida 5 de Outubro, 206, 1050-065 Lisboa, Portugal. www.bnpparibas.com. Incorporated in France with Limited Liability. Registered Office: 16 boulevard des Italiens, 75009 Paris, France. 662 042 449 RCS Paris. BNPP – Sucursal em Portugal is lead supervised by the European Central Bank (ECB) and the Autorité de Contrôle Prudentiel et de Résolution (ACPR). BNPP - Sucursal em Portugal is authorized by the ECB, the ACPR and Resolution and it is authorized and subject to limited regulation by Banco de Portugal and Comissão do Mercado de Valores Mobiliários. BNPP - Sucursal em Portugal is registered in C.R.C. of Lisbon under no. NIPC 980000416. VAT Number PT 980 000 416.”

Spain: This report is being distributed in Spain by BNP Paribas S.A. Branch in Spain, a branch of BNP Paribas S.A. whose head office is in Paris, France, (Registered Office: 16 Boulevard des Italiens, 75009, París, France). BNP Paribas S.A. Branch in Spain, C/ Emilio Vargas 4, 28043 Madrid is authorized and supervised by the European Central Bank (EC), and Authorité de Contrôle Prudentiel et de Résolution (ACPR) and local to the Bank of Spain and the Spanish Stock Exchange Commission (CNMV).

Switzerland: This report is intended solely for customers who are “Qualified Investors” as defined in article 10 paragraphs 3 and 4 of the Federal Act on Collective Investment Schemes of 23 June 2006 (CISA) and the relevant provisions of the Federal Ordinance on Collective Investment Schemes of 22 November 2006 (CISO). “Qualified Investors” includes, among others, regulated financial intermediaries such as banks, securities traders, fund management companies and asset managers of collective investment schemes, regulated insurance institutions as well as pension funds and companies with professional treasury operations. This document may not be suitable for customers who are not Qualified Investors and should only be used and passed on to Qualified Investors. For specification purposes, a “Swiss Corporate Customer” is a Client which is a corporate entity, incorporated and existing under the laws of Switzerland and which qualifies as “Qualified Investor” as defined above." BNPP (Suisse) SA is authorised as bank and as securities dealer by the Swiss Financial Market Supervisory Authority FINMA. BNPP (Suisse) SA is registered at the Geneva commercial register under No. CHE-102.922.193. BNPP (Suisse) SA is incorporated in Switzerland with limited liability. Registered Office: 2, place de Hollande, 1204 Geneva, Switzerland.

Canada: This particular section applies to recipients who are located within or otherwise represent or are connected to and doing business within Canada. In the event of a direct conflict or inconsistency between the above and this section, this section will prevail to supplement the above as it applies to Canada, and shall be interpreted to supplement and not restrict the application of the above to the fullest extent possible. BNP Paribas operates in Canada as a Schedule III Bank, and equally under International Dealer Exemption as applicable in various Canadian provinces, having a Quebec office located at 1981 MCGILL COLLEGE AVE, 4th floor, MONTREAL, Quebec, H3A 2W8, and an Ontario office located at 155 Wellington Street West, Suite 3110, Toronto, Ontario, M5V 3H1, Canada (“BNP Paribas”). For recipients located in Québec, upon receipt of this document, each recipient hereby confirms that it has expressly requested that it be drawn up in the English language only. Pour les résidents du Québec, par la réception de ce document, chaque destinataire confirme par les présentes qu’il a expressément exigé que celui-ci soit rédigé en anglais seulement. THIS DOCUMENT IS CONFIDENTIAL AND IS BEING SUBMITTED TO SELECTED RECIPIENTS ONLY WHO QUALIFY, AS REQUIRED UNDER APPLICABLE LAW IN CANADA, AS CANADIAN “PERMITTED CLIENTS” [as defined in Section 1.1 of National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations, "NI 31-103")], as a “QUALIFIED PARTY” (as defined in the Alberta Securities Commission BLANKET ORDER 91-507, or its successive blanket order or its equivalent as applicable to another Canadian province in which the recipient is resident), as an “ACCREDITED INVESTORS” [as defined in Section 1.1 of National Instrument 45-106 Prospectus and Registration Exemptions, or, if resident in Ontario, Section 73.3(1) of the Securities Act (Ontario)] or as an “ACCREDITED COUNTERPARTY” (if resident in Quebec as defined in Section 3 of the Quebec Derivatives Act, chapter I-14.01 or its equivalent as applicable to another Canadian province in which the recipient is resident) (all the above National instruments, Blanket Order and Acts specified in this paragraph collectively, the "Specific Canadian Texts"). The information contained herein is not, and under no circumstances is to be construed as, a prospectus, an advertisement, a public offering, an offer to sell Securities (as defined in the Specific Canadian Texts) described herein, or solicitation of an offer to buy Securities described herein, in Canada or any province or territory thereof. Any offer or sale of any Securities described herein in Canada will be made only under an exemption from the requirements to file a prospectus with the relevant Canadian securities regulators, or, alternatively, pursuant to an exemption from dealer registration requirements in the relevant province or territory of Canada in which such offer or sale is made, as per the provisions of the above Specific Canadian Texts. The information contained herein is under no circumstances to be construed as investment advice in any province or territory of Canada and is not tailored to the needs of the recipient. To the extent that the information contained herein references Securities of an issuer incorporated, formed or created under the laws of Canada or a province or territory of Canada, any trades in such securities must be conducted through an investment dealer (as defined in Section 1.1 of NI 31-103) registered in Canada. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed judgment upon these materials, the information contained herein or the merits of the Securities described herein, and any representation to the contrary is an offence.

Canada: BNP Paribas (Canada) Securities Inc./ Bnp Paribas (Canada) Valeurs Mobilières Inc. Is a corporation governed by the Canada Business Corporations Act, and owned by BNP Paribas. It is headquartered at 1981 MCGILL COLLEGE AVE, 4th floor, MONTREAL, Quebec, H3A 2W8, and is registered in Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, PEI and Saskatchewan as an Investment Dealer, and in Quebec as both an Investment Dealer and Derivatives Dealer. It is equally registered as an IIROC Dealer Member. Any offer or sale of any Securities described herein in Canada will be made only under an exemption from the requirements to file a prospectus with the relevant Canadian securities regulators, or, alternatively, pursuant to an exemption from dealer registration requirements in the relevant province or territory of Canada in which such offer or sale is made, as per the provisions of the above Specific Canadian Texts. The information contained herein is under no circumstances to be construed as investment advice in any province or territory of Canada and is not tailored to the needs of the recipient. To the extent that the information contained herein references Securities of an issuer incorporated, formed or created under the laws of Canada or a province or territory of Canada, any trades in such securities must be conducted through an investment dealer (as defined in Section 1.1 of NI 31-103) registered in Canada. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed judgment upon these materials, the information contained herein or the merits of the Securities described herein, and any representation to the contrary is an offence. Financial instruments of the type described herein may involve a high degree of risk and their value may be highly volatile. Such risks may include, without limitation: (i) variations in interest rates, exchange rates, correlation, prices or levels of securities, commodities, funds and/or indices, indicators of creditworthiness or perceived creditworthiness of one or more underlying entities; (ii) default or insolvency of one or more underlying entities; (iii) adverse or unanticipated market events or developments, political developments or adverse corporate events involving an underlying security or entity; (iv) risk of illiquidity; (v) sovereign risk; and (vi) legal risk. In addition, where the Transaction involves leverage, it must be recognized that whilst leverage presents opportunities to increase profit, it also has the effect of potentially increasing losses and doing so in a relatively short period of time. Such losses may significantly diminish the performance of the Transaction or result in loss for you. You may be required to post margin or collateral at levels consistent with the internal policies of BNP Paribas. The risk of loss in trading derivatives can be substantial and, accordingly, derivatives are not suitable for every person.

Brazil: This report was prepared by Banco BNPP Brasil S.A. or by its subsidiaries, affiliates and controlled companies, together referred to as "BNPP", for information purposes only and do not represent an offer or request for investment or divestment of assets. Banco BNPP Brasil S.A. is a financial institution duly incorporated in Brazil and duly authorized by the Central Bank of Brazil and by the Brazilian Securities Commission to manage investment funds. Notwithstanding the caution to obtain and manage the information herein presented, BNPP shall not be responsible for the accidental publication of incorrect information, nor for investment decisions taken based on the information contained herein, which can be modified without prior notice. Banco BNPP Brasil S.A. shall not be responsible to update or revise any information contained herein. Banco BNPP Brasil S.A. shall not be responsible for any loss caused by the use of any information contained herein.

Turkey: This report is being distributed in Turkey by TEB Investment (TEB YATIRIM MENKUL DEĞERLER A.Ş., TEB Kampüs D Blok Saray Mahallesi, Küçüksu Cadddesi Sokullu Sokak, No:7 34768 Ümraniye, İstanbul, Turkey, trade register number: 358354, www.tebyatirim.com.tr) and TEB (TÜRK EKONOMİ BANKASI A.Ş., TEB Kampüs C ve D Blok, Saray Mahallesi Küçüksu Caddesi Sokullu Sokak No:7 34768 Ümraniye, İstanbul, Turkey, Trade register number 189356, www.teb.com.tr). Notice Published in accordance with “Communique on Principles Regarding Investment Services, Activities and Ancillary Services” No: III-37.1 issued by the Capital Markets Board of Turkey. The investment related information, commentary and recommendations contained herein do not constitute investment advisory services. Investment advisory services are provided in accordance with investment advisory agreements executed between investors and brokerage companies or portfolio management companies or non-deposit accepting banks. The commentary and recommendations contained herein are based on the personal views of the persons who have made such commentary and recommendations. These views may not conform to your financial standing or to your risk and return preferences. Therefore, investment decisions based solely on the information provided herein may fail to produce results in accordance with your expectations.

Israel: BNPP does not hold a licence under the Investment Advice and Marketing Law of Israel, to offer investment advice of any type, including, but not limited to, investment advice relating to any financial products.

Bahrain: This document is being distributed in Bahrain by BNPP Wholesale Bank Bahrain, a branch of BNPP S.A. whose head office is in Paris, France (Registered Office: 16 boulevard des Italiens, 75009 Paris, France). BNPP Wholesale Bank Bahrain is licensed and regulated as a Registered Institution by the Central Bank of Bahrain – CBB. This document does not, nor is it intended to, constitute an offer to issue, sell or acquire, or solicit an offer to sell or acquire any securities or to enter into any transaction.

South Africa: BNPP is a bank incorporated in France with a local branch registered with the South African Reserve Bank and registered as an external company in terms of the South African Companies Act, 2008 . BNPP is an authorised Financial Services Provider (FSP 44610) and subject to regulation by the Financial Services Board and South African Reserve Bank. It is also a licensed member of the Johannesburg Stock Exchange. BNPP does not expressly or by implication represent, recommend or propose that the information and/or financial products referred to in this report are appropriate to the particular investment objectives, financial situation or particular needs of the recipient. This document further does not constitute advice (whether financial, legal, tax or otherwise) as contemplated in the Financial Advisory and Intermediary Services Act, 2002.

Australia: This material, and any information in related marketing presentations (the Material), is being distributed in Australia by BNP Paribas ABN 23 000 000 117, a branch of BNPP 662 042 449 R.C.S., a licensed bank whose head office is in Paris, France. BNP Paribas is licensed in Australia as a Foreign Approved Deposit-taking Institution by the Australian Prudential Regulation Authority (APRA) and delivers financial services to Wholesale clients under its Australian Financial Services Licence (AFSL) No. 238043 which is regulated by the Australian Securities & Investments Commission (ASIC).The Material is directed to Wholesale clients only and is not intended for Retail clients (as both terms are defined by the Corporations Act 2001, sections 761G and 761GA). The Material is subject to change without notice and BNP Paribas is under no obligation to update the information or correct any inaccuracy that may appear at a later date.

China: This document is being distributed in the People's Republic of China ("PRC", excluding the Hong Kong or Macau Special Administrative Regions or Taiwan) by BNPP (China) Limited ("BNPP China"), a subsidiary of BNP Paribas. BNPP China is a commercial bank regulated by the China Banking and Insurance Regulatory Commission.
中国：本文件为法国巴黎银行的子公司法国巴黎银行（中国）有限公司（"法巴中国"）在中华人民共和国（简称"中国"，且不包括香港特别行政区、澳门特别行政区及台湾）境内印发。法巴中国是受中国银行保险监督管理委员会监管的商业银行。

Hong Kong - Branch: This document is prepared and/or distributed by BNP Paribas Hong Kong Branch, a branch of BNP Paribas whose head office is in Paris, France. BNP Paribas Hong Kong Branch is registered as a Licensed Bank under the Banking Ordinance and regulated by the Hong Kong Monetary Authority. BNP Paribas Hong Kong Branch is also a Registered Institution regulated by the Securities and Futures Commission for the conduct of Regulated Activity Types 1, 4, 6 and 9 under the Securities and Futures Ordinance. Furthermore, where the content relates to regulated products/activities, this document is directed at "professional investors" as defined in the Securities and Futures Ordinance.

Hong Kong - Securities: This document is prepared and/or distributed by BNP Paribas Securities (Asia) Limited. BNP Paribas Securities (Asia) Limited is a Licensed Corporation regulated by the Securities and Futures Commission for the conduct of Regulated Activity Types 1, 2, 4, and 6 under the Securities and Futures Ordinance. This document is intended only for the Professional Investors in Hong Kong Some products or transactions described in this document may not be authorised in Hong Kong and may not be available to Hong Kong investors.

India - Branch: BNP Paribas India branch is licensed by Reserve Bank of India to carry on banking business in India and is regulated by the Banking Regulation Act 1949, Securities & Exchange Board of India Act 1992, and other related regulations issued by Government of India and regulatory bodies such as Reserve Bank of India, Securities and Exchange Board of India etc. from time to time. For the purpose of distribution in India this document is directed at counterparties who have fair knowledge of risk associated with foreign exchange market, Institutional Investors & Counterparties, Expert Investors and for those clients and investors whose risk management policies are in place and is qualified in its entirety to the products and services as permitted under the extant regulations.

India - Securities: In India, this document is being distributed by BNPP Securities India Pvt.. Ltd. ("BNPPSIPL"), having its registered office at 8th floor, BNP Paribas House, 1 North Avenue, Maker Maxity, Bandra Kurla Complex, Bandra (East), Mumbai 400 051, INDIA (Tel. no. +91 22 3370 4000 / 6196 4000, Fax no. +91 22 6196 4363). BNPPSIPL is registered with the Securities and Exchange Board of India ("SEBI") as a research analyst and as a stockbroker in the Equities and the Futures & Options segments of National Stock Exchange of India Ltd. ("NSE") and BSE Ltd. and in the Currency Derivatives segment of NSE (SEBI Regn. Nos.: INZ000161834, INH000000792; CIN: U74920MH2008FTC182807; Website: www.bnpparibas.co.in).

Indonesia: PT Bank BNP Paribas Indonesia is regulated and supervised by Otoritas Jasa Keuangan as a commercial bank. The products or transactions described in this document may not be authorised in Indonesia and may not be available to the Indonesian investors of PT Bank BNP Paribas Indonesia. The information in this document is not intended for distribution to, or use by, or does not constitute any offer to, any person or entity in any jurisdiction where (a) the distribution or use or offer of such information would be contrary to law or regulations, or (b) PT Bank BNP Paribas Indonesia would become subject to the applicable legal or regulatory requirements.

Japan - Branch: Where this document refers to Banking business, including FX and related activities, this document is being distributed to Japanese based firms by BNP Paribas, Tokyo Branch, or by a subsidiary or affiliate of BNP Paribas not registered as a financial instruments firm in Japan, only to Japan-based Institutional Investors and Professional Investors as defined by the Financial Instruments and Exchange Act of Japan. BNP Paribas Tokyo Branch is a Registered Financial Institution, Kanto Finance Bureau-Kinsho-#98, and a member of the Japanese Bankers Association (JBA), the Japan Securities Dealers Association and the Financial Futures Association of Japan. BNP Paribas Tokyo Branch accepts responsibility for the content of a report prepared by another non-Japan affiliate only when distributed to Japan-based firms by BNPP Tokyo Branch.

Japan - Securities: This document is being distributed to Japanese based firms by BNP Paribas Securities (Japan) Limited or by a subsidiary or affiliate of BNPP not registered as a financial instruments firm in Japan, to certain financial institutions defined by article 17-3, item 1 of the Financial Instruments and Exchange Act Enforcement Order. BNP Paribas Securities (Japan) Limited is a financial instruments firm registered according to the Financial Instruments and Exchange Act of Japan and a member of the Japan Securities Dealers Association, Type Ⅱ Financial Instruments Firms Association and the Financial Futures Association of Japan. BNP Paribas Securities (Japan) Limited accepts responsibility for the content of a report prepared by another non-Japan affiliate only when distributed to Japan based firms by BNP Paribas Securities (Japan) Limited. Some foreign securities stated on this report are not disclosed according to the Financial Instruments and Exchange Act of Japan. If there is any mention of credit ratings in the document, it is a Japanese regulatory requirement to include a prescribed "explanatory note on non-registered credit rating". The full text is contained in the separate document titled "Additional Disclaimer for Japan" (for both Branch and Securities).

Malaysia – This document is distributed in Malaysia by BNP Paribas Malaysia Berhad (Company No. 918091-T) which is incorporated in Malaysia under the Companies Act of Malaysia, 2016 (first enacted1965) and a subsidiary of BNP Paribas. It is a licensed institution under the Financial Services Act 2013 and is regulated by Bank Negara Malaysia. This document is directed only to accredited investors and high net-worth entities as defined under Schedules 6 and 7 of the Capital Markets Services Act 2007.

Singapore - Branch: This document is distributed in Singapore by BNP Paribas, Singapore Branch, a licensed bank regulated by the Monetary Authority of Singapore. This document is directed at Institutional Investors and Accredited Investors within the meaning of the Securities and Futures Act, Chapter 289 of Singapore. Some products or transactions described in this document may not be authorised in Singapore and may not be available to Singapore investors. This document may constitute a product advertisement within the meaning of the Financial Advisers Regulations or the Securities and Futures (Licensing and Conduct of Business) Regulations of Singapore, in which case this advertisement has not been reviewed by the Monetary Authority of Singapore.

South Korea - Branch: This document is being distributed by BNP Paribas Seoul Branch who is regulated by the Financial Services Commission and Financial Supervisory Service for the conduct of its financial investment business in the Republic of Korea.

South Korea - Securities: BNP Paribas Securities Korea is registered as a Licensed Financial Investment Business Entity under the Financial Investment Business and Capital Markets Act and regulated by the Financial Supervisory Service and Financial Services Commission. This document is distributed by BNP Paribas Securities Korea Co., Ltd. in the Republic of Korea to Professional Investors only and is not intended for investors in Korea who are not Professional Investor within the meaning of the Article 9 (5) (professional investor) of the Financial Investment Business and Capital Markets Act and should not be passed on to any such persons. Some products or transactions described in this document may not be authorised in Korea and may not be available to Korean investors.

Taiwan - Branch: This document is being distributed in Taiwan by BNP Paribas Taipei Branch, Taichung Branch, Kaohsiung Branch and/or Offshore Banking Unit, branches of BNP Paribas and are regulated by the Financial Supervisory Commission, R.O.C under the Banking Act and Offshore Banking Act. This document is directed only at Taiwanese counterparties who are licensed or who have the capacities to purchase or transact in such products. Some products or transactions described in this document may not be authorised in Taiwan and may not be available to Taiwan investors.

Taiwan - Securities: This document is being distributed in Taiwan by BNP Paribas Securities (Taiwan) Co. Ltd who is regulated by the Financial Supervisory Commission, R.O.C. This document is directed at professional investors only.

Thailand: BNP Paribas Bangkok branch is regulated in Thailand by the Bank of Thailand and the Securities and Exchange Commission. This document does not constitute an offer to sell to or solicitation of an offer to buy from any person any financial products where it is unlawful to make the offer or solicitation in Thailand.

Vietnam: This document is distributed in Vietnam by BNP Paribas Ho Chi Minh City Branch, registered in Vietnam under No. 05/NH-GP and BNP Paribas Hanoi Branch registered under No. 05/GP-NHNN. This publication is directed at investors who have legal standing and is not intended for Private Customers in the territory of Vietnam and should not be passed on to any such persons. It is directed only at Vietnamese counterparties who have the capacity and licence authorised by SBV to purchase from or transact with offshore counterparties.
Tài liệu này được phân phát bởi chi nhánh ngân hàng BNP Paribas tại Thành phố Hồ Chí Minh, giấy phép số 05/NH-GP và chi nhánh ngân hàng BNP Paribas Chi nhánh Hà nội, giấp phép số 05/GP- NHNN . Ấn bản này dành cho những đối tác có tư cách pháp nhân, không có ý định dành cho những nhà đầu tư cá nhân trên lãnh thổ Việt nam và không được đưa tới những người này . Tài liệu này chỉ dành cho đối tác Việt nam có khả năng và có giấy phép của Ngân hàng Nhà nước giao dịch với đối tác nước ngoài.

Some or all of the information contained in this document may already have been published on https://globalmarkets.bnpparibas.com

© BNPP (2019). All rights reserved.

IMPORTANT DISCLOSURES by producers and disseminators of investment recommendations for the purposes of the Market Abuse Regulation:

Although the disclosures provided herein have been prepared on the basis of information we believe to be accurate, we do not guarantee the accuracy, completeness or reasonableness of any such disclosures. The disclosures provided herein have been prepared in good faith and are based on internal calculations, which may include, without limitation, rounding and approximations.

BNPP and/or its affiliates may be a market maker or liquidity provider in financial instruments of the issuer mentioned in the recommendation.
BNPP and/or its affiliates may provide such services as described in Sections A and B of Annex I of MiFID II (Directive 2014/65/EU), to the Issuer to which this investment recommendation relates. However, BNPP is unable to disclose specific relationships/agreements due to client confidentiality obligations.

Section A and B services include A. Investment services and activities: (1) Reception and transmission of orders in relation to one or more financial instruments; (2) Execution of orders on behalf of clients; (3) Dealing on own account; (4) Portfolio management; (5) Investment advice; (6) Underwriting of financial instruments and/or placing of financial instruments on a firm commitment basis; (7) Placing of financial instruments without a firm commitment basis; (8) Operation of an MTF; and (9) Operation of an OTF. B. Ancillary services: (1) Safekeeping and administration of financial instruments for the account of clients, including custodianship and related services such as cash/collateral management and excluding maintaining securities accounts at the top tier level; (2) Granting credits or loans to an investor to allow him to carry out a transaction in one or more financial instruments, where the firm granting the credit or loan is involved in the transaction; (3) Advice to undertakings on capital structure, industrial strategy and related matters and advice and services relating to mergers and the purchase of undertakings; (4) Foreign exchange services where these are connected to the provision of investment services; (5) Investment research and financial analysis or other forms of general recommendation relating to transactions in financial instruments; (6) Services related to underwriting; and (7) Investment services and activities as well as ancillary services of the type included under Section A or B of Annex 1 related to the underlying of the derivatives included under points (5), (6), (7) and (10) of Section C (detailing the MiFID II Financial Instruments) where these are connected to the provision of investment or ancillary services.

BNPP and/or its affiliates do not, as a matter of policy, permit pre-arrangements with issuers to produce recommendations. BNPP and/or its affiliates as a matter of policy do not permit issuers to review or see unpublished recommendations. BNPP and/or its affiliates acknowledge the importance of conflicts of interest prevention and have established robust policies and procedures and maintain effective organisational structure to prevent and avoid conflicts of interest that could impair the objectivity of this recommendation including, but not limited to, information barriers, personal account dealing restrictions and management of inside information.

BNPP and/or its affiliates understand the importance of protecting confidential information and maintain a “need to know” approach when dealing with any confidential information. Information barriers are a key arrangement we have in place in this regard. Such arrangements, along with embedded policies and procedures, provide that information held in the course of carrying on one part of its business to be withheld from and not to be used in the course of carrying on another part of its business. It is a way of managing conflicts of interest whereby the business of the bank is separated by physical and non-physical information barriers. The Control Room manages this information flow between different areas of the bank where confidential information including inside information and proprietary information is safeguarded. There is also a conflict clearance process before getting involved in a deal or transaction.

In addition, there is a mitigation measure to manage conflicts of interest for each transaction with controls put in place to restrict the information flow, involvement of personnel and handling of client relations between each transaction in such a way that the different interests are appropriately protected. Gifts and Entertainment policy is to monitor physical gifts, benefits and invitation to events that is in line with the firm policy and Anti-Bribery regulations. BNPP maintains several policies with respect to conflicts of interest including our Personal Account Dealing and Outside Business Interests policies which sit alongside our general Conflicts of Interest Policy, along with several policies that the firm has in place to prevent and avoid conflicts of interest.

The remuneration of the individual producer of the investment recommendation may be linked to trading or any other fees in relation to their global business line received by BNPP and/or affiliates.

IMPORTANT DISCLOSURES by disseminators of investment recommendations for the purposes of the Market Abuse Regulation:

The BNPP disseminator of the investment recommendation is identified above including information regarding the relevant competent authorities which regulate the disseminator. The name of the individual producer within BNPP or an affiliate and the legal entity the individual producer is associated with is identified above in this document. The date and time of the first dissemination of this investment recommendation by BNPP or an affiliate is addressed above. Where this investment recommendation is communicated by Bloomberg chat or by email by an individual within BNPP or an affiliate, the date and time of the dissemination by the relevant individual is contained in the communication by that individual disseminator.

The disseminator and producer of the investment recommendations are part of the same group, i.e. the BNPP group. The relevant Market Abuse Regulation disclosures required to be made by producers and disseminators of investment recommendations are provided by the producer for and on behalf of the BNPP Group legal entities disseminating those recommendations and the same disclosures also apply to the disseminator.

If an investment recommendation is disseminated by an individual within BNPP or an affiliate via Bloomberg chat or email, the disseminator’s job title is available in their Bloomberg profile or bio. If an investment recommendation is disseminated by an individual within BNPP or an affiliate via email, the individual disseminator’s job title is available in their email signature.

For further details on the basis of recommendation specific disclosures available at this link (e.g. valuations or methodologies, and the underlying assumptions, used to evaluate financial instruments or issuers, interests or conflicts that could impair objectivity recommendations or to 12 month history of recommendations history) are available at https://globalmarkets.bnpparibas.com/gmportal/private/globalTradeIdea. If you are unable to access the website please contact your BNPP representative for a copy of this document.

BNP PARIBAS

The bank
for a changing
world