28 January 2022

China green investment

Carbon pricing an accelerator

Free to View
Economics - China

- Green investment set to take off, to both stabilise the economy in the short term and drive growth in the long term
- Public investment will take the lead, but then it's critical to mobilise private participation. Carbon pricing is the key
- The transition to emission double controls, combined with the ETS enhancement, should accelerate the process

Jump-start green investment. All eyes are on China's economic growth now: the new year has brought new challenges, with sporadic outbreaks of Omicron further weighing on the already slowing economy. We see green investment as a key growth driver. We discuss how quickly it could pick up steam and to what extent it can help fill in the gap left by the cooling property sector.

Not just talks. Green projects are being deployed, following the Five-year Plan (FYP). As we expected, power and industrial sectors are taking the lead. State Grid recently announced its plan to launch 38 ultra-high voltage transmission lines with a total of RMB380bn new investment during the 14th FYP. State-owned power producers are investing more to gear towards renewables. Capex in industrial firms is also poised to surge in order to comply with the new efficiency benchmarks.

Carbon pricing an effective tool to catalyse private investment. State-owned enterprises (SOEs) have led most of the green projects, similar to the state infrastructure programmes deployed as a countercyclical tool. But other than regulations and incentives, we believe that carbon pricing - the most cost-effective lever to reduce carbon emissions – should be utilised to mobilise private investment. A price on carbon internalises the environmental cost for producers, and sends a financial signal to investors. China established its national emission trading system (ETS) in July 2021, yet the effect remains limited. Indeed, experience from other carbon-trading market highlights the importance of the mechanism design, including scope of coverage, allocation of emission allowance, carbon price levels, supervision and penalties.

Central Economic Work Conference encouraged the transition from energy to emission double controls. The existing double controls focus on energy consumption and intensity, but do not restrict process emissions (e.g. from chemical reactions of cement production). Emission controls directly relate to China's 30/60 goal and we believe they can better guide China's green transformation and low-carbon growth. But the transition will take time to implement, after the fundamental regulatory framework, such as disclosure rules and emission verifications, is set up.

This is an abridged version of a report by the same title published on 28-Jan-22. Please contact your HSBC representative or email AskResearch@hsbc.com for more information.

Jing Liu
Senior Economist, Greater China
The Hongkong and Shanghai Banking Corporation Limited

Qu Hongbin
Co-Head Asian Econ Research, Chief China Economist
The Hongkong and Shanghai Banking Corporation Limited

Vipul Jindal*
Associate
Bangalore

** Employed by a non-US affiliate of HSBC Securities (USA) Inc, and is not registered/ qualified pursuant to FINRA regulations*

Issuer of report: The Hongkong and Shanghai Banking Corporation Limited

View HSBC Global Research at:
https://www.research.hsbc.com

Carbon pricing

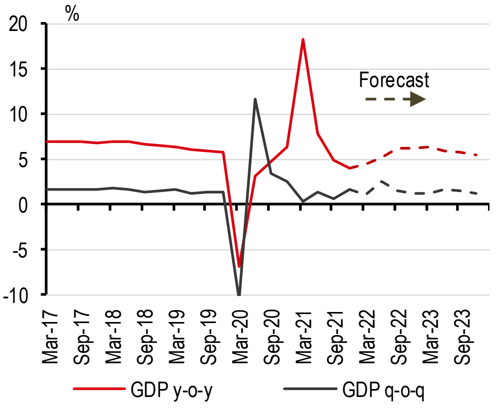
- Green is the new game, supplementing infrastructure investment as a counter-cyclical tool
- Large green projects have kicked off – including renewable energy and ultra-high voltage lines, but private participation remains lacklustre
- Carbon pricing, if designed properly, could make it cheaper for enterprises to invest in green tech than to continue their emissions

Green investment is picking up steam in China

Slowing economy calls for new growth drivers
Headwinds are mounting as the growth outlook is overshadowed by the triple pressures of demand contraction, supply shocks, and weakening economic expectations in official government language.

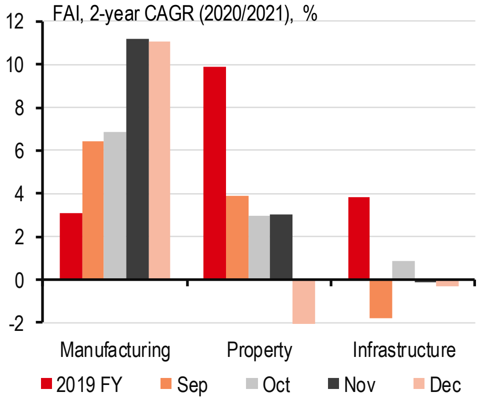
Indeed, despite the upside surprise in headline GDP growth in Q4, the December activity data shows challenges from the recent outbreak of Delta and Omicron cases in multiple regions, a sharper slowdown in the property sector and yet-to-rebound infrastructure investment. So far the easing, including the surprise rate cuts in December and January, liquidity injection via old and new re-lending schemes, fine-tuning of property policies, and front-loading of RMB1.5trn local government special bonds, has only marginally buffered the slowdown. Although the effect of these policies is likely to have a lag, we still believe China needs other growth drivers to stabilise the economy.

Chart 1: Mounting pressure on the economic growth …



Source: CEIC, HSBC

Chart 2: … amid slowing property sector and sluggish infrastructure investment



Source: CEIC, HSBC

Green investment as a counter-cyclical tool

Beijing is pushing through the structural change that it hopes will transition China from a construction-led growth model to one relying on capex and consumption. Among the three new engines: 1) investment in higher-end manufacturing has already geared up – manufacturing investment has registered double-digit growth over the past several months, with the higher-end manufacturing capex even stronger; 2) consumption growth will likely be a longer-term story after the current bumpy recovery amid COVID-19 flare-ups, and when the share of the middle income group increases meaningfully; and 3) green investment is taking off and has the potential to grow faster.

Catalysing private participation is critical

Longer-term green investment calls for private participation

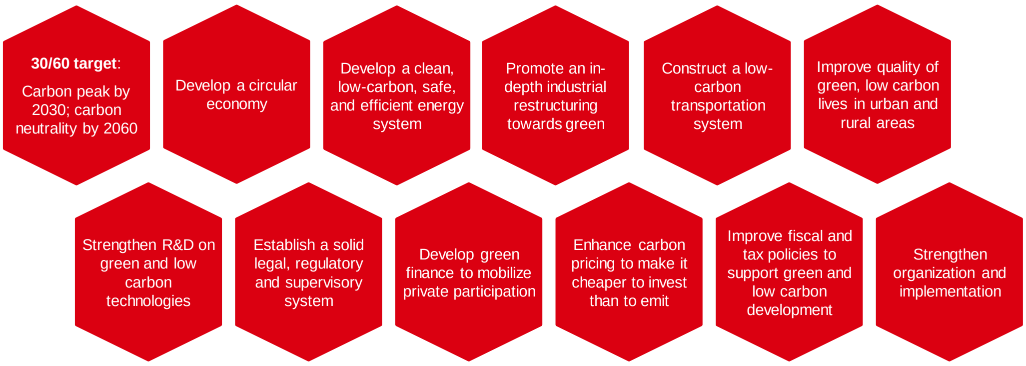
In the short term, public-led green investment is supplementing the traditional infrastructure investment as a counter-cyclical tool. In the longer term, however, the green transition requires private participation. In China's case, hundreds of trillions of renminbi will be needed in the next 30-40 years (International Energy Agency estimated cRMB200trn from now to 2060, and China Green Finance Committee estimated RMB487trn in the next 30 years), which we believe cannot be sourced solely from public finance, due to budget constraints and efficiency considerations. For the latter, the rationale is the same as why a market economy usually better allocates resources.

Mobilising finance, particularly private capital, to achieve net zero is a critical task globally. It requires governments, regulators, financial institutions, etc to join forces. The utmost issue is to make green projects appealing to private capital, and in some cases, mandatory.

China has announced a "1+N" policy framework detailing its climate strategy and set an official road map to meet the 30/60 target. The "Working guidance for carbon peaking and carbon neutrality" (working guidance) released by NDRC in October 2021 is the "1" template for core guidance to achieve carbon peak and neutrality. "N" includes the peak carbon action plan by 2030, as well as policy measures and actions in key areas and industries.

Incentives and penalties are both integrated in the framework. The former includes renewable energy subsidies, tax rebates for green technology, to name just two. The latter involves energy or emission standard benchmarks, and the companion policies (fines, sanctions, etc.). The mechanism is complicated, and has engaged private capital.

Chart 3: China's climate strategy



Source: State Council, National Development and Reform Commission

Carbon pricing to play a bigger role

More can and needs to be done by leveraging the powerful tool of carbon pricing. The way it works is to make it less expensive for companies to invest in decarbonising technologies than to continue emitting carbon. It is widely recognised as the most cost-effective lever to reduce carbon emissions at the scale and speed that is necessary. In economics jargon, carbon emission is a typical example of an externality. Emitters do not necessarily have the incentives to reduce their emissions if costs are nil or low compared with the investment needed to 'green' their production. This is how negative externalities occur. This is a problem a free market cannot solve by itself. Governments need to step in to establish a proper regulatory framework to internalise emission costs. Carbon pricing works to internalise the externalities by sending a price signal to emitters and letting them decide whether to pay to transform or pay to emit. A successful carbon pricing scheme, which effectively reduces GHG emissions, requires a comprehensive design and implementation. In the case of emissions trading schemes (ETS), experience from other economies suggests key considerations include allocations of emission allowance, management of surplus quotas, carbon prices, liquidity, windfall profits for enterprises with too many free emission allowances that can be sold for a profit in the market, and offset arbitrage, as well as issues relating to environmental integrity and domestic low-carbon transformation, etc.[1]

China's national and regional ETS

So far China has one national ETS and eight pilot regional ETS running concurrently, while a ninth regional trading scheme (Shenyang) is in the trial stage. This is in line with the prediction by HSBC analysts Wai-shin Chan et al in 2017: at the initial stages, the higher threshold of the national scheme only covers large emitters (first stage only power generators); the regional schemes continue to cover medium to large emitters; and the smallest emitters will likely be covered by a carbon tax.

The system targets reductions in carbon intensity, in line with the national climate change mitigation goals, which are stated in terms of CO_2 emissions intensity in the five-year plans. This is largely referred to as a "rate-based" tradable standard, which has strong support among those concerned about the burden of the ETS on covered firms, and more broadly, the potential conflict between the climate and growth targets. A recent study by Cui et al. (2021) shows clear evidence that, despite low carbon prices and infrequent trading, China's ETS leads to a reduction in carbon emissions – a 16.7% reduction in total emissions and a 9.7% reduction in emission intensity.[2]

We expect China's national ETS to be one of the key policy instruments to realise its climate ambition. The working guidance pledges to "accelerate the development of the national market for trading carbon emission permits by gradually expanding its coverage, diversifying trading types and means, and improving the allocation and management of allowances." At the current stage, allocation of quota is free, coverage is narrow (power sector only), verification of GHG reports is reliant on document reviews, and fines are minimal. Not surprisingly, the carbon price was trading flat in H2 2021 (below RMB45/tonne) and only surged as the compliance deadline in December was approached (peak at RMB54.6/tonne).

The launch of ETS is only a start, with enhancement and amendment necessary to meaningfully change firms' emission behaviours. Various governments have tried to put a price on emissions with varying success, and the experience of EU, the longest-running ETS market, is of particular interest.

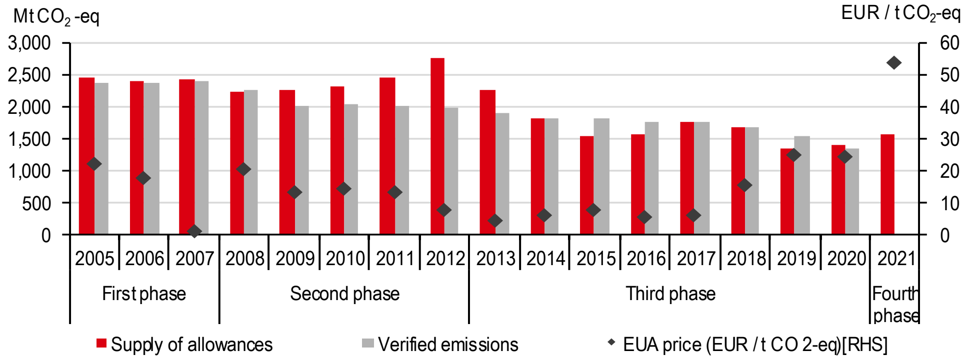
---

[1] Asian Development Bank, "Emissions trading schemes and their linking - challenges and opportunities in Asia and the Pacific", 2016.

[2] Cui, J., C. Wang, J. Zhang, and Y. Zheng (2021), "The effectiveness of China's regional carbon market pilots in reducing firm emissions," *Proceedings of the National Academy of Sciences of the USA 118(52)*, December 28.

EU ETS

Chart 4: Emissions, allowances, surplus and prices in the EU ETS, 2005-2021



Source: European Commission, European Environment Agency, Refinitv.
Note: Figures from 2005-2020 cover EU27, Norway, Iceland, Liechtenstein and the UK, 2021 figures are for just the EU27 countries. For 2021, verified emissions haven't been released.

Launched in 2005, the EU ETS is currently in its fourth stage (2021-2030). This scheme is a cornerstone of the EU's policy to combat climate change and a key mechanism for reducing GHGs in a cost-effective way. It is essentially a "*cap* (the emissions) and *trade* (the emission permits)" system of carbon pricing, with the overall cap decreased slowly each year. It has got off the ground slowly, and gone through several rounds of reforms. In January 2019, the market stability reserve (MSR) came into operation to address and improve the system's resilience to major shocks, as observed during the global financial crisis, can be avoided.

In July 2021, the European Commission released its "Fit for 55" package, including a comprehensive set of changes to the EU ETS, such as accelerated reduction of emission allowance, phasing out free allocation of allowance, and introduction of a cross border adjustment mechanism (CBAM). CBAM aims to prevent the so-called carbon leakage, where businesses move their operations outside of the EU to jurisdictions with less-strict emissions requirements. It is essentially the world's first carbon tariff. If the "Fit for 55" package can be fully implemented, we believe the reform will not only deepen and broaden the decarbonisation of Europe's economy, but also accelerate multilateral decarbonisation and initiate the international race on climate ambitions with its carbon tariff.

So what are the key takeaways from the EU ETS development? First, enhancement of China's ETS is necessary, especially in terms of allocation of allowances, and relatedly the carbon price levels; second, a wider coverage and declining overall cap is preferable to facilitate China's green transition. Last but not the least, the changes should be introduced sooner than later, otherwise a hefty amount of tariff will be surrendered to EU once its CBAM is in place.

ETS enhancement and emission double controls important to watch

The EU ETS sets a good example on the direction of enhancement China could consider following. Reportedly, China's national ETS may expand its coverage to emissions-intensive industries other than power, such as steel and cement (*Bloomberg*, 20 January 2021). Gradual migration from free to auction-based allowance is also a target. Another major change could be from a rate-based system to a mass-based system (cap and trade, with declining cap ideally).

With China's 30/60 climate goal firmly set, Beijing has suggested upgrading to double controls based on carbon emissions, rather than energy consumption (Central Economic Work Conference, December 2021). Emission controls directly relate to the climate goal, and can better guide the country towards its green ambition. On the other hand, the existing energy controls can at best restrict fuel emissions, but not process emissions. Transition to emission controls is a must for China to achieve its climate ambition, we believe, but the successful implementation not only hinges on regulations, but also more importantly, on technology development.

To summarise, carbon pricing will be core to China's green ambition. By making it cheaper to invest than emit, a properly designed carbon pricing system could incentivise voluntary participation. After all, the multi-hundred trillion renminbi green investment requires not only the government's lead, but also private participation.

Disclosure appendix

Analyst Certification

The following analyst(s), economist(s), or strategist(s) who is(are) primarily responsible for this report, including any analyst(s) whose name(s) appear(s) as author of an individual section or sections of the report and any analyst(s) named as the covering analyst(s) of a subsidiary company in a sum-of-the-parts valuation certifies(y) that the opinion(s) on the subject security(ies) or issuer(s), any views or forecasts expressed in the section(s) of which such individual(s) is(are) named as author(s), and any other views or forecasts expressed herein, including any views expressed on the back page of the research report, accurately reflect their personal view(s) and that no part of their compensation was, is or will be directly or indirectly related to the specific recommendation(s) or views contained in this research report: Jing Liu and Qu Hongbin

Important disclosures

This document has been prepared and is being distributed by the Research Department of HSBC and is not for publication to other persons, whether through the press or by other means.

This document is for information purposes only and it should not be regarded as an offer to sell or as a solicitation of an offer to buy the securities or other investment products mentioned in it and/or to participate in any trading strategy. Advice in this document is general and should not be construed as personal advice, given it has been prepared without taking account of the objectives, financial situation or needs of any particular investor. Accordingly, investors should, before acting on the advice, consider the appropriateness of the advice, having regard to their objectives, financial situation and needs. If necessary, seek professional investment and tax advice.

Certain investment products mentioned in this document may not be eligible for sale in some states or countries, and they may not be suitable for all types of investors. Investors should consult with their HSBC representative regarding the suitability of the investment products mentioned in this document and take into account their specific investment objectives, financial situation or particular needs before making a commitment to purchase investment products.

The value of and the income produced by the investment products mentioned in this document may fluctuate, so that an investor may get back less than originally invested. Certain high-volatility investments can be subject to sudden and large falls in value that could equal or exceed the amount invested. Value and income from investment products may be adversely affected by exchange rates, interest rates, or other factors. Past performance of a particular investment product is not indicative of future results.

HSBC and its affiliates will from time to time sell to and buy from customers the securities/instruments, both equity and debt (including derivatives) of companies covered in HSBC Research on a principal or agency basis or act as a market maker or liquidity provider in the securities/instruments mentioned in this report.

Analysts, economists, and strategists are paid in part by reference to the profitability of HSBC which includes investment banking, sales & trading, and principal trading revenues.

Whether, or in what time frame, an update of this analysis will be published is not determined in advance.

For disclosures in respect of any company mentioned in this report, please see the most recently published report on that company available at www.hsbcnet.com/research. HSBC Private Banking clients should contact their Relationship Manager for queries regarding other research reports. In order to find out more about the proprietary models used to produce this report, please contact the authoring analyst.

Additional disclosures

1 This report is dated as at 28 January 2022.

2 All market data included in this report are dated as at close 27 January 2022, unless a different date and/or a specific time of day is indicated in the report.

3 HSBC has procedures in place to identify and manage any potential conflicts of interest that arise in connection with its Research business. HSBC's analysts and its other staff who are involved in the preparation and dissemination of Research operate and have a management reporting line independent of HSBC's Investment Banking business. Information Barrier procedures are in place between the Investment Banking, Principal Trading, and Research businesses to ensure that any confidential and/or price sensitive information is handled in an appropriate manner.

4 You are not permitted to use, for reference, any data in this document for the purpose of (i) determining the interest payable, or other sums due, under loan agreements or under other financial contracts or instruments, (ii) determining the price at which a financial instrument may be bought or sold or traded or redeemed, or the value of a financial instrument, and/or (iii) measuring the performance of a financial instrument or of an investment fund.

Disclaimer

Legal entities as at 1 December 2020

'UAE' HSBC Bank Middle East Limited, DIFC; HSBC Bank Middle East Limited, Dubai; 'HK' The Hongkong and Shanghai Banking Corporation Limited, Hong Kong; 'TW' HSBC Securities (Taiwan) Corporation Limited; 'CA' HSBC Securities (Canada) Inc.; 'France' HSBC Continental Europe; 'Spain' HSBC Continental Europe, Sucursal en España; 'Italy' HSBC Continental Europe, Italy; 'Sweden' HSBC Continental Europe Bank, Sweden Filial; 'DE' HSBC Trinkaus & Burkhardt AG, Düsseldorf; 000 HSBC Bank (RR), Moscow; 'IN' HSBC Securities and Capital Markets (India) Private Limited, Mumbai; 'JP' HSBC Securities (Japan) Limited, Tokyo; 'EG' HSBC Securities Egypt SAE, Cairo; 'CN' HSBC Investment Bank Asia Limited, Beijing Representative Office; The Hongkong and Shanghai Banking Corporation Limited, Singapore Branch; The Hongkong and Shanghai Banking Corporation Limited, Seoul Securities Branch; The Hongkong and Shanghai Banking Corporation Limited, Seoul Branch; HSBC Securities (South Africa) (Pty) Ltd, Johannesburg; HSBC Bank plc, London, Tel Aviv; 'US' HSBC Securities (USA) Inc, New York; HSBC Yatirim Menkul Degerler AS, Istanbul; HSBC México, SA, Institución de Banca Múltiple, Grupo Financiero HSBC; HSBC Bank Australia Limited; HSBC Bank Argentina SA; HSBC Saudi Arabia Limited; The Hongkong and Shanghai Banking Corporation Limited, New Zealand Branch incorporated in Hong Kong SAR; The Hongkong and Shanghai Banking Corporation Limited, Bangkok Branch; PT Bank HSBC Indonesia; HSBC Qianhai Securities Limited; Banco HSBC S.A.

Issuer of report

The Hongkong and Shanghai Banking Corporation Limited
Level 19, 1 Queen's Road Central
Hong Kong SAR
Telephone: +852 2843 9111
Fax: +852 2801 4138
Website: www.research.hsbc.com

The Hongkong and Shanghai Banking Corporation Limited ("HSBC") has issued this research material. The Hongkong and Shanghai Banking Corporation Limited is regulated by the Hong Kong Monetary Authority. If it is received by a customer of an affiliate of HSBC, its provision to the recipient is subject to the terms of business in place between the recipient and such affiliate.

In the UK, this publication is distributed by HSBC Bank plc for the information of its Clients (as defined in the Rules of FCA) and those of its affiliates only. Nothing herein excludes or restricts any duty or liability to a customer which HSBC Bank plc has under the Financial Services and Markets Act 2000 or under the Rules of FCA and PRA. A recipient who chooses to deal with any person who is not a representative of HSBC Bank plc in the UK will not enjoy the protections afforded by the UK regulatory regime. HSBC Bank plc is regulated by the Financial Conduct Authority and the Prudential Regulation Authority. In Australia, this publication has been distributed by The Hongkong and Shanghai Banking Corporation Limited (ABN 65 117 925 970, AFSL 301737) for the general information of its "wholesale" customers (as defined in the Corporations Act 2001). Where distributed to retail customers, this research is distributed by HSBC Bank Australia Limited (ABN 48 006 434 162, AFSL No. 232595). These respective entities make no representations that the products or services mentioned in this document are available to persons in Australia or are necessarily suitable for any particular person or appropriate in accordance with local law. No consideration has been given to the particular investment objectives, financial situation or particular needs of any recipient. This publication is distributed in New Zealand by The Hongkong and Shanghai Banking Corporation Limited, New Zealand Branch incorporated in Hong Kong SAR.

In the European Economic Area, this publication has been distributed by HSBC Continental Europe or by such other HSBC affiliate from which the recipient receives relevant services

This material is distributed in Japan by HSBC Securities (Japan) Limited. HSBC Securities (USA) Inc. accepts responsibility for the content of this research report prepared by its non-US foreign affiliate. The information contained herein is under no circumstances to be construed as investment advice and is not tailored to the needs of the recipient. All US persons receiving and/or accessing this report and intending to effect transactions in any security discussed herein should do so with HSBC Securities (USA) Inc. in the United States and not with its non-US foreign affiliate, the issuer of this report. In Korea, this publication is distributed by either The Hongkong and Shanghai Banking Corporation Limited, Seoul Securities Branch ("HBAP SLS") or The Hongkong and Shanghai Banking Corporation Limited, Seoul Branch ("HBAP SEL") for the general information of professional investors specified in Article 9 of the Financial Investment Services and Capital Markets Act ("FSCMA"). This publication is not a prospectus as defined in the FSCMA. It may not be further distributed in whole or in part for any purpose. Both HBAP SLS and HBAP SEL are regulated by the Financial Services Commission and the Financial Supervisory Service of Korea. In Singapore, this publication is distributed by The Hongkong and Shanghai Banking Corporation Limited, Singapore Branch for the general information of institutional investors or other persons specified in Sections 274 and 304 of the Securities and Futures Act (Chapter 289) ("SFA") and accredited investors and other persons in accordance with the conditions specified in Sections 275 and 305 of the SFA. Only Economics or Currencies reports are intended for distribution to a person who is not an Accredited Investor, Expert Investor or Institutional Investor as defined in SFA. The Hongkong and Shanghai Banking Corporation Limited, Singapore Branch accepts legal responsibility for the contents of reports pursuant to Regulation 32C(1)(d) of the Financial Advisers Regulations. This publication is not a prospectus as defined in the SFA. This publication is not a prospectus as defined in the SFA. It may not be further distributed in whole or in part for any purpose. The Hongkong and Shanghai Banking Corporation Limited Singapore Branch is regulated by the Monetary Authority of Singapore. Recipients in Singapore should contact a "Hongkong and Shanghai Banking Corporation Limited, Singapore Branch" representative in respect of any matters arising from, or in connection with this report. Please refer to The Hongkong and Shanghai Banking Corporation Limited Singapore Branch's website at www.business.hsbc.com.sg for contact details. HSBC México, S.A., Institución de Banca Múltiple, Grupo Financiero HSBC is authorized and regulated by Secretaría de Hacienda y Crédito Público and Comisión Nacional Bancaria y de Valores (CNBV).

In Canada, this document has been distributed by HSBC Securities (Canada) Inc. (member IIROC), and/or its affiliates. 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. 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 offense. In Brazil, this document has been distributed by Banco HSBC S.A. ("HSBC Brazil"), and/or its affiliates. As required by Instruction No. 598/18 of the Securities and Exchange Commission of Brazil (Comissão de Valores Mobiliários), potential conflicts of interest concerning (i) HSBC Brazil and/or its affiliates; and (ii) the analyst(s) responsible for authoring this report are stated on the chart above labelled "HSBC & Analyst Disclosures".

Any recommendations contained in it are intended for the professional investors to whom it is distributed. This material is not and should not be construed as an offer to sell or the solicitation of an offer to purchase or subscribe for any investment. HSBC has based this document on information obtained from sources it believes to be reliable but which it has not independently verified; HSBC makes no guarantee, representation or warranty and accepts no responsibility or liability as to its accuracy or completeness. Expressions of opinion are those of HSBC only and are subject to change without notice. From time to time research analysts conduct site visits of covered issuers. HSBC policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits. The decision and responsibility on whether or not to invest must be taken by the reader. HSBC and its affiliates and/or their officers, directors and employees may have positions in any securities mentioned in this document (or in any related investment) and may from time to time add to or dispose of any such securities (or investment). HSBC and its affiliates may act as market maker or have assumed an underwriting commitment in the securities of any companies discussed in this document (or in related investments), may sell them to or buy them from customers on a principal basis and may also perform or seek to perform banking or underwriting services for or relating to those companies. This material may not be further distributed in whole or in part for any purpose. No consideration has been given to the particular investment objectives, financial situation or particular needs of any recipient. (070905)

If you are an HSBC Private Banking ("PB") customer with approval for receipt of relevant research publications by an applicable HSBC legal entity, you are eligible to receive this publication. To be eligible to receive such publications, you must have agreed to the applicable HSBC entity's terms and conditions for accessing research and the terms and conditions of any other internet banking service offered by that HSBC entity through which you will access research publications ("the Terms"). Distribution of this publication is the sole responsibility of the HSBC entity with whom you have agreed the Terms. If you do not meet the aforementioned eligibility requirements please disregard this publication and, if you are a customer of PB, please notify your Relationship Manager. Receipt of research publications is strictly subject to the Terms and any other conditions or disclaimers applicable to the provision of the publications that may be advised by PB.

[1185871]