



# Investment Themes

## Q4 2022 update: China renewables a bright spot

The US' Inflation Reduction Act is expected to accelerate the transition to a more sustainable economy. In our assessment, the Winds of Climate Change themes stand to benefit from the investment measures proposed in this act.

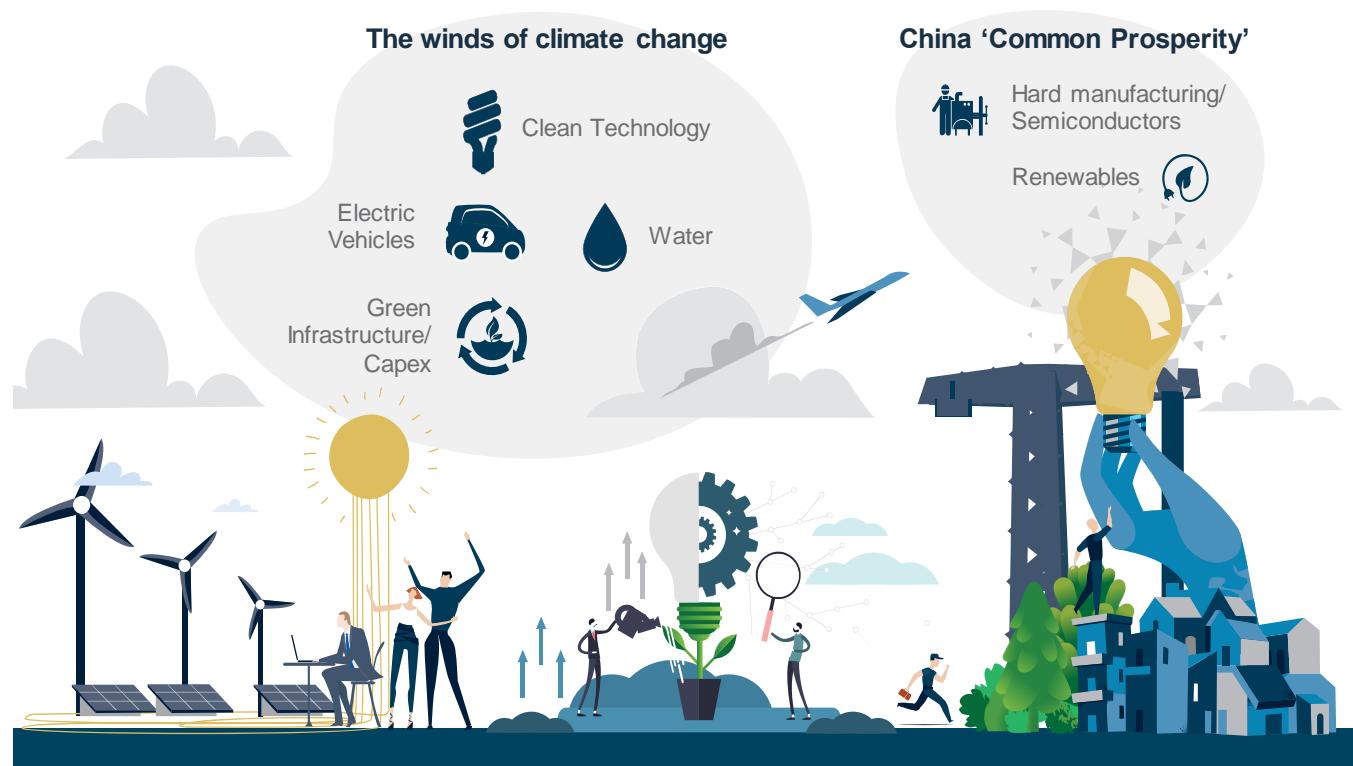
---

Our preferred view on Cybersecurity has been closed, as the Fed's commitment to tighten monetary policy is expected to further weigh on valuations. Nevertheless, we remain on watch for long-term opportunities within this space.

---

China's renewables sector remains a rare bright spot in the Chinese economy given a combination of supportive policies, improving fundamentals and increasingly attractive valuations.

## Overview of our long-term themes



Source: Standard Chartered

It has been a particularly challenging time since we published our Q3 Thematic Update. Amid persistently high inflation, global central banks have continued their largely synchronized monetary and fiscal tightening, with around 90 central banks raising interest rates thus far this year. Consequently, global equities have declined for the third consecutive quarter, the longest streak of losses since the Global Financial Crisis, while global bonds have entered a bear market, the first of its kind seen in available data. Notably, the traditional 60/40 equity/bond portfolio also appears on track to clock its worst annual return on record, with data going back to 1872. In the face of this seemingly relentless bearish pressure, our themes have struggled to perform. However, some of our sub-themes have exhibited remarkable resilience, with Clean Tech and Green Capex in particular comfortably outperforming global equities since the start of the year.

### Winds of Climate Change receives a boost from the US' Inflation Reduction Act (IRA)

While our Winds of Climate Change theme has not been spared the recent downturn in global equities in terms of absolute returns, all sub-themes besides Green Capex have outperformed global equities (the MSCI ACWI index) since the announcement of the IRA in July. More notably, Clean Tech, arguably the largest beneficiary of the IRA, outperformed the MSCI ACWI by 6.4% over this same period.

We continue to see green capex as a multi-year secular theme, which we expect will drive the next wave of infrastructure investments as the world decarbonises. Penetration rate for electric vehicles also continues to grow, with strong adoption in Mainland China and Europe, while US manufacturers stand to benefit from the IRA.

### Preferred view on Cybersecurity closed

We have, however, decided to close our preferred view on Cybersecurity as we expect the Fed's commitment to tighten monetary policy to further weigh on valuations. This closure notwithstanding, we remain on the watch for renewed opportunities in this space given what we see as still-constructive long-term structural drivers in this space.

### China renewables remain a rare bright spot in the Chinese economy

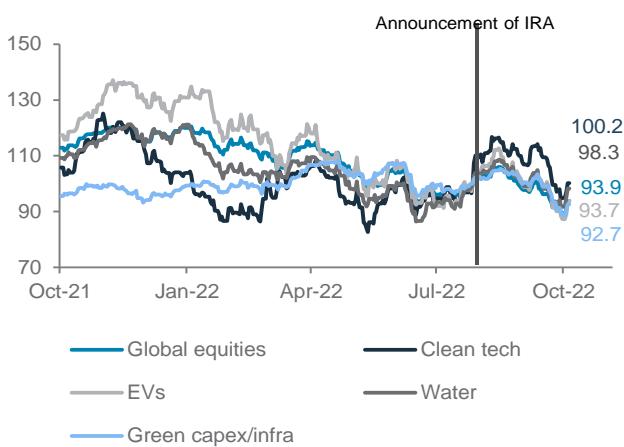
Our China's Common Prosperity sub-themes have struggled amid significantly downbeat sentiment as Mainland Chinese zero-Covid policy persists and the property market remains under pressure. However, China's renewables sector remains a rare bright spot in the economy via a combination of supportive policies, improving fundamentals and increasingly attractive valuations. China's New Energy Vehicle (NEV) sector, in particular, continues to see rising penetration rates, with sales expected to stay robust for the remainder of 2022.

## The winds of climate change

Against the backdrop of rising inflation and tightening financial conditions, the US Congress passed The Inflation Reduction Act (IRA) to strengthen efforts to tame inflation. The law, which aims to curb inflation by reducing the deficit and lowering prescription drugs prices, also serves to direct significant resources toward combatting climate change. In President Biden's words – "this is the largest investment ever in combatting the existential crisis of climate change".

**Fig. 1 Several climate related themes have outperformed global equities since the announcement of the IRA on 27 July 2022**

Performance of relevant indices rebalanced to 100 on 27 July 2022



Source: Bloomberg, Standard Chartered

\* Please refer to our themes monitor on page 8 for the specific indices used

## US Climate Bill to support Net Zero Ambitions

The Act, signed into law by President Biden on 16 August, includes USD 386bn in energy and climate spending. The legislation puts the US on course to reduce approximately 40% of the country's emissions by 2030 and cut climate costs by up to USD 1.9tn by 2050.

USD 265bn of the budget goes towards providing clean energy tax incentives. Businesses are incentivised to invest in and produce clean, renewable energy and low emission fuels, while the rebates make clean technologies affordable for consumers and encourages homeowners to modernise their homes to be more energy efficient. USD 13bn worth of tax credits are intended to be used to support the production of clean nuclear and hydrogen power.

The IRA provides investment opportunities in technologies that reduce industrial emissions, where approximately USD 11.5bn has been allocated to support such programmes. Clean energy stocks, potentially the largest beneficiaries from the act, have generated the largest outperformance, beating

the MSCI ACWI by 6.4% since the agreement on IRA was announced.

**Fig. 2 We believe the IRA can accelerate transition to a more sustainable economy**

Breakdown of IRA climate spending and tax credits

Energy and climate	USD bn
Clean electricity tax credits	161
Air pollution, hazardous materials, transportation and infrastructure	40
Individual clean energy incentives	37
Clean manufacturing tax credits	37
Clean fuel and vehicle tax credits	36
Conservation, rural development, forestry	35
Building efficiency, electrification, transmission, industrial, development of energy grants and loans	27
Other energy and climate spending	14

Source: Committee for a Responsible Federal Budget, Standard Chartered

The bill also aims to decarbonise all sectors of the economy through supporting innovative climate solutions and cleaner production. That, in addition to stimulus in American clean energy manufacturing, allows the US transition to a clean economy which simultaneously supports manufacturing jobs within the country. Stimulus of several key technologies across the Green Capex supply chain can provide long-term investors with opportunities to invest in innovative companies that produce services and tools which are likely to help in the acceleration of the transition.

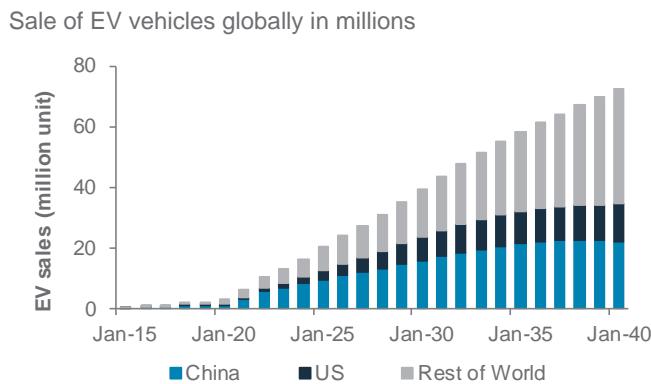
Aside from the IRA, another milestone was the approval of the Kigali Amendment by the US Senate, an international climate treaty that would curb the production and use of hydrofluorocarbons (HFCs), a highly potent greenhouse gas commonly used in refrigerators and air conditioners. The ratification of the treaty, as well as the Infrastructure Investment and Jobs Act involving USD 1.2tn in infrastructure spending, are expected to support growth in the respective sectors as American jobs are created to drive development of HFC alternatives and modernise regional infrastructure.

## Accelerating EV transition

The IRA includes various initiatives aimed at raising the adoption of EVs. This includes tax credits to raise the number of charging stations, incentivise car buyers to purchase EVs as well as lifting of the cap on tax credits per EV manufacturer (provided the EVs meet the domestic content requirements). Additionally, the IRA aims to provide funding to decarbonise heavy transportation, supporting clean trucks and buses, sustainable aviation and zero-emissions equipment and technology.

Currently, the US accounts for just over 20% of global new car sales, with EVs making up only 5% of new car sales in the country. The stimulus package is not only positive for EV sales and market penetration but is also likely to spur the development of related technologies such as autonomous vehicles and vehicle connectivity. We continue to see investment opportunities in this space as companies producing EVs and EV-related technologies are likely to benefit from the legislation.

**Fig. 3 US expected to step up in EV production**



Source: Bloomberg, Standard Chartered

\* Please refer to our themes monitor on page 8 for the specific indices used

### Recognising the urgency for climate solutions

As the catastrophic impacts of climate change become increasingly prevalent, there is a growing urgency to combat this global environmental crisis. In addition to existing efforts by governments to respond to climate change, companies are also attempting to decarbonise operations and supply chains, being motivated by tightening regulations and costs of non-compliance.

Rising commodity prices have driven energy prices higher, fuelling global inflation. Supply chain shocks, on top of the ongoing conflict between Russia-Ukraine has propelled energy costs and security up the priority list for markets that are dependent on external energy sources. In our opinion, the increasing focus to gain energy independence could accelerate investments in renewables. Cost of renewable energy generation has fallen over the past decade and has become cheaper compared to fossil fuel alternatives. Low-cost, green electricity enhances long term energy security and lowers energy bills, which itself is deflationary in nature. We view such positive cost changes and the continued shift in investor preferences for climate solutions as beneficial for our climate-related themes.

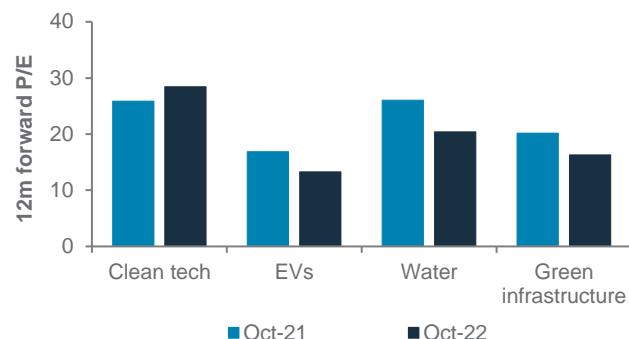
### Valuations still look attractive although earnings remain a near-term challenge

Valuations for the climate-related themes look attractive, after falling meaningfully relative to the previous year, driven by improving earnings expectations. Earnings revisions troughed

earlier in the year and have started to pick up in recent months, likely due to a positive turn in investors' sentiment around the recent announcements of several climate-friendly policies out of the US.

**Fig. 4 Valuations have largely fallen since a year ago and remain attractive**

12-month forward P/E of specific thematic indices\*



Source: Bloomberg, Standard Chartered

\* Please refer to our themes monitor on page 8 for the specific indices used

### Investors remain enthusiastic on climate change investments

Restoring the environment remains a top motivation. This was highlighted in the recently released 2022 Sustainable Banking Report conducted by Standard Chartered Bank. Resultingly climate change was also once again the top ESG priority for investors in growth markets. In fact, 40% of investors ranked climate change as their top ESG priority. This is closely followed by 30% in Food & Water Scarcity and 28% in Pollution & Waste Management.

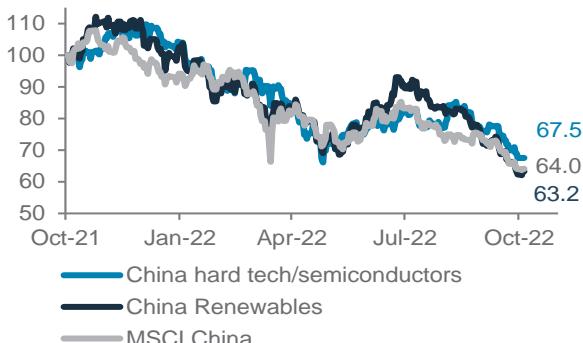
We believe that the momentum for green investing will continue to be driven by investor sentiment and we still see potential for it to become normalized in the financial markets in time to come.

### China “Common Prosperity”

Mainland China markets continue to face several challenges. These include ongoing zero-Covid policies, a sluggish property market and still-weak private sector demand. The external environment has also been less than conducive given headwinds from hawkish central banks elsewhere and a strong US Dollar. This combination has meant the MSCI China index has slipped to levels last seen since late December 2016, while China renewables have all but erased the 36% gains witnessed between early May and late June. The Party Congress in October is the next key event with expectations that it could open the door to further support from both fiscal and monetary policy.

### Fig. 5 China's Common Prosperity themes have underperformed MSCI China this year

Cumulative returns of China related themes and the MSCI China index rebalanced to 100 as of 1 October 2021



Source: Bloomberg, Standard Chartered

### Macro headwinds hold back fundamental progress amid more reasonable valuations

Despite the gloom in risk sentiment, we continue to find reasons to be optimistic on China renewables. The sector is a rare bright spot in the Mainland China economy with solid fundamental progress, supportive policies and improving margins. In our previous quarterly update in June, we cautioned that while structural drivers remained intact, strong gains in May and June had led to stretched valuations. However, with China renewables now back to where it was in early May, we believe valuations have once again begun to look more reasonable.

### China NEV, one of the few bright spots

Given its outsized contribution to GDP and sensitivity to fiscal and monetary stimulus, China's auto sector has historically been a key policy stimulus target for the Chinese government. However, in the wake of tightening regulations in key sectors such as Internet and Property, the sector has taken on added importance as a source of growth and employment. Consequently, we expect policies to remain supportive for the auto sector as regulators look for options to boost growth, especially amid a backdrop of zero-Covid policies. China's NEV sector, in particular, is expected to benefit from ongoing policy support. The sector remains a strategic focus for the government and the purchase tax exemption has now been extended to the end of 2023. This will likely soften the blow of an end to subsidies in 2023.

### Robust NEV sales, driving penetration to 28%

Meanwhile, the NEV sector continues to make fundamental progress. NEV sales continue to be robust, with August sales growing by 107.5% y/y and the penetration rate rising to almost 28%. This comes despite a continued recovery in internal combustion engine vehicle sales on a y/y basis amid purchase tax cuts, which would otherwise be expected to

erode the economic incentive for purchasing NEVs. The growth in charging infrastructure has also kept pace. August installations remain elevated, growing by almost 65%, while power battery installations rose by 121% to 27.8 GWh. With high order backlogs and thin inventories, the momentum in NEV sales is expected to continue for the remainder of 2022.

Beyond 2022, as more tech companies join the NEV space and bring with them tech improvements and greater model variety, sales are likely to remain well supported and offset possible headwinds from the cannibalization of demand stemming from the front-loading of purchases this year.

### Fig. 6 Sales of NEVs have been robust

Sales of NEVs and non-NEVs in Mainland China



Source: China Association of Automobile Manufacturers, Standard Chartered

### Greater efficiency and margin improvements to drive offshore wind farm installation

We also remain positive on the wind energy sector, with structural drivers remaining intact amid local government offshore wind targets and subsidies. Specifically, new offshore installations are expected to drive growth in the coming years, with new installations forecast to reach 16 GW in 2025 and comprise almost 30% of total new installations. Offshore wind farms tend to be more efficient than onshore counterparts, due to higher and more consistent wind speeds from the lack of obstructions. Along with a lower overall investment cost and declining component and commodity prices, profit margins of the sector are expected to improve going forward.

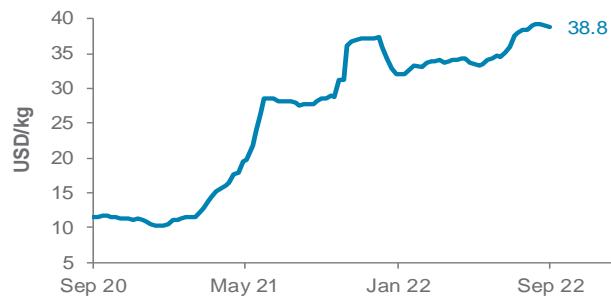
### Covid lock-down and rising input costs still a near-term overhang on the solar energy sector

The solar energy sector likewise benefits from ongoing policy support, non-fossil fuel energy mix targets and ongoing innovation in the supply chain. However, near term headwinds in the form of tight polysilicon supplies remain for now. Supply tightness is the result of a reduction in hydropower generation amid lower than usual rainfall and slowdown in production from major producers due to production capacity overhauls. While supply is expected to remain tight in 4Q22 before easing in 2023 as new production capacities come online, it

appears that polysilicon prices may have already peaked in August. Lower solar module prices would boost project returns and support the sector through in 4Q22 and 1Q23.

**Fig. 7 Polysilicon prices appear to have peaked in August**

Solar-grade polysilicon average prices

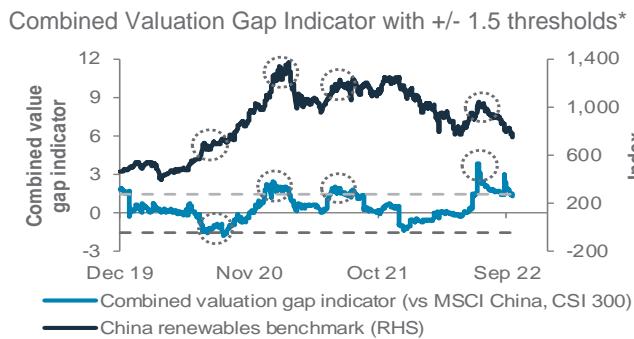


Source: Bloomberg, Standard Chartered

### Valuations are now at more reasonable levels

Valuation for China renewables has fallen sharply from a high of 23.5x 12-mth forward P/E in late June to 17.2x. This has, in turn, led our Combined Valuation Gap Indicator, which looks at the average detrended and standardized valuation gap of ratios such as P/E and P/S against broad market indices like the MSCI China and CSI 300, to fall back below the upper threshold of 1.5. This means that the sector's valuation is now within a historically neutral range, as opposed to being significantly overvalued amid rapid price gains in July.

**Fig. 8 Relative valuation of China renewables has fallen below the upper threshold**



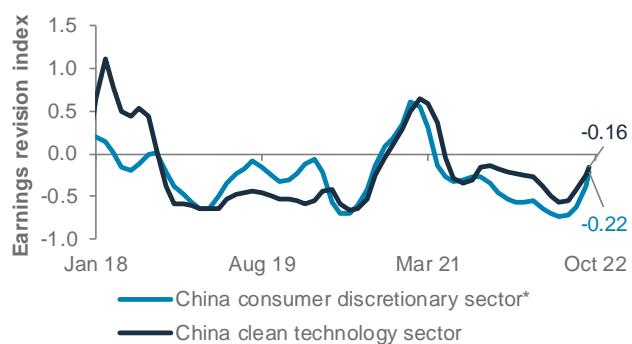
\*Calculation example: (Benchmark P/S – 1y MA) – (Broad market index P/S – 1y MA) / (1y Moving STD); Averaged across for P/S, P/B, P/CF, P/E, Fwd P/E; averaged across different broad market indices; threshold -1.5 and 1.5 STD. Source: Bloomberg, Standard Chartered

Meanwhile, earnings revision has improved while ETF flows have also started to return in recent months, suggesting renewed investor interests after steep outflows in July.

**Fig. 9 Earnings revisions is still negative but have started to improve after hitting a trough in May 2022**

Earnings revision index of China consumer discretionary and clean technology sectors

Renewables



Source: Bloomberg, Standard Chartered

Together, these factors suggest that while macro headwinds continue to be a dominant influence on China equities, strong fundamentals, supportive policies and improving investor sentiment mean that market focus will return to theme's long-term fundamentals once macro headwinds abate, in our assessment.

**Fig. 10 Flows suggest investor interest is returning**

Net flows of China renewables related ETFs



Source: Bloomberg, Standard Chartered

**Audrey Goh, CFA**

Head, Asset Allocation and Thematic Strategy

**Tay Qi Xiu**

Investment Strategist

**Hannah Chew**

Portfolio Strategist

## Appendix

### Overview of themes for Q4 2022

	Themes	Date opened	Date closed
The winds of climate change	Water scarcity	9 December 2021	Open
	Electric Vehicles (EVs)	9 December 2021	Open
	Infrastructure/Green Capex	9 December 2021	Open
	Clean Technology	25 March 2022	Open
Embracing a digital future	5G/Internet of Things (IoT)	9 December 2021	24 June 2022
	Cybersecurity	9 December 2021	29 September 2022
	Blockchain Solutions	9 December 2021	25 March 2022
	Financial Technology (FinTech)	9 December 2021	25 March 2022
China 'Common Prosperity'	Hard Tech/Semiconductors	9 December 2021	Open
	Renewables	9 December 2021	Open
	Chinese Internet	9 December 2021	25 March 2022

Source: Standard Chartered

### Our assessment of drivers and indicators

Thematic investing is multi-faceted across regions, sectors and time horizons. Various drivers can influence a theme, from structural trends, such as demographic shifts, to public policies and regulations. However, as for most investments they also deeply depend on cyclical drivers such as the outlook for economic and earnings growth, valuation and interest rates changes. Below we outline what we see as key drivers and our related views with respect to our open thematic investment ideas.

#### Thematic drivers

Theme	Cyclical Factors				Structural Factors		
	Economic growth	Increase in bond yields	Valuations	Earnings Revisions	Policy support	Trends evolution	Socio-economics
The winds of climate change	=	✗	=	=	✓	✓	✓
China 'Common Prosperity'	=	=	=	=	✓	✓	✓

Source: Standard Chartered, ✓ indicates the driver supports the performance of a theme. ✗ indicates the driver is currently a headwind to the performance of a theme. = indicates a neutral view

### Themes monitor

Name	2022 YTD (%)	Q3 2022 (%)	12m forward P/E
<b>The winds of climate change</b>			
Clean Technology	-9.1	-0.83	27.9
Electric Vehicles (EVs)	-31.9	-6.7	13.1
Water Scarcity	-21.8	2.57	19.7
Infrastructure/Green Capex	-6.4	-7.8	15.9
<b>China 'Common Prosperity'</b>			
Hard Tech/Semiconductors	-37.0	-12.3	20.5
Renewables	-39.9	-30.0	17.1

Source: Bloomberg, Standard Chartered

YTD returns from 9-Dec-2021 to 29-Sep-2022; Q3 2022 returns from 23-Jun-2022 to 29-Sep-2022; 12m forward P/E as of 29-Sep-2022

Themes are represented by the following indices: Clean Tech - S&P Global Clean Energy Index; Electric Vehicles (EVs) - Solactive Autonomous & Electric Vehicles Index; Water - ISE Clean Edge Water Index; Infrastructure/Green CAPEX - S&P Global Infrastructure Index; Hard Tech/Semiconductors - FactSet China Semiconductor Index; Renewables - MSCI China IMI Environment 10/40 Index

## Disclosures

This document is confidential and may also be privileged. If you are not the intended recipient, please destroy all copies and notify the sender immediately. This document is being distributed for general information only and is subject to the relevant disclaimers available at our Standard Chartered website under Regulatory disclosures. It is not and does not constitute research material, independent research, an offer, recommendation or solicitation to enter into any transaction or adopt any hedging, trading or investment strategy, in relation to any securities or other financial instruments. This document is for general evaluation only. It does not take into account the specific investment objectives, financial situation or particular needs of any particular person or class of persons and it has not been prepared for any particular person or class of persons. You should not rely on any contents of this document in making any investment decisions. Before making any investment, you should carefully read the relevant offering documents and seek independent legal, tax and regulatory advice. In particular, we recommend you to seek advice regarding the suitability of the investment product, taking into account your specific investment objectives, financial situation or particular needs, before you make a commitment to purchase the investment product. Opinions, projections and estimates are solely those of SCB at the date of this document and subject to change without notice. Past performance is not indicative of future results and no representation or warranty is made regarding future performance. Any forecast contained herein as to likely future movements in rates or prices or likely future events or occurrences constitutes an opinion only and is not indicative of actual future movements in rates or prices or actual future events or occurrences (as the case may be). This document must not be forwarded or otherwise made available to any other person without the express written consent of the Standard Chartered Group (as defined below). Standard Chartered Bank is incorporated in England with limited liability by Royal Charter 1853 Reference Number ZC18. The Principal Office of the Company is situated in England at 1 Basinghall Avenue, London, EC2V 5DD. Standard Chartered Bank is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and Prudential Regulation Authority. Standard Chartered PLC, the ultimate parent company of Standard Chartered Bank, together with its subsidiaries and affiliates (including each branch or representative office), form the Standard Chartered Group. Standard Chartered Private Bank is the private banking division of Standard Chartered. Private banking activities may be carried out internationally by different legal entities and affiliates within the Standard Chartered Group (each an "SC Group Entity") according to local regulatory requirements. Not all products and services are provided by all branches, subsidiaries and affiliates within the Standard Chartered Group. Some of the SC Group Entities only act as representatives of Standard Chartered Private Bank and may not be able to offer products and services or offer advice to clients. ESG data has been provided by Morningstar and Sustainalytics. Refer to the Morningstar website under Sustainable Investing and the Sustainalytics website under ESG Risk Ratings for more information. The information is as at the date of publication based on data provided and may be subject to change.

Copyright © 2022, Accounting Research & Analytics, LLC d/b/a CFRA (and its affiliates, as applicable). Reproduction of content provided by CFRA in any form is prohibited except with the prior written permission of CFRA. CFRA content is not investment advice and a reference to or observation concerning a security or investment provided in the CFRA SERVICES is not a recommendation to buy, sell or hold such investment or security or make any other investment decisions. The CFRA content contains opinions of CFRA based upon publicly-available information that CFRA believes to be reliable and the opinions are subject to change without notice. This analysis has not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body. While CFRA exercised due care in compiling this analysis, CFRA, ITS THIRD-PARTY SUPPLIERS, AND ALL RELATED ENTITIES SPECIFICALLY DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, to the full extent permitted by law, regarding the accuracy, completeness, or usefulness of this information and assumes no liability with respect to the consequences of relying on this information for investment or other purposes. No content provided by CFRA (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of CFRA, and such content shall not be used for any unlawful or unauthorized purposes. CFRA and any third-party providers, as well as their directors, officers, shareholders, employees or agents do not guarantee the accuracy, completeness, timeliness or availability of such content. In no event shall CFRA, its affiliates, or their third-party suppliers be liable for any direct, indirect, special, or consequential damages, costs, expenses, legal fees, or losses (including lost income or lost profit and opportunity costs) in connection with a subscriber's, subscriber's customer's, or other's use of CFRA's content.

### **Market Abuse Regulation (MAR) Disclaimer**

Banking activities may be carried out internationally by different branches, subsidiaries and affiliates within the Standard Chartered Group according to local regulatory requirements. Opinions may contain outright "buy", "sell", "hold" or other opinions. The time horizon of this opinion is dependent on prevailing market conditions and there is no planned frequency for updates to the opinion. This opinion is not independent of Standard Chartered Group's trading strategies or positions. Standard Chartered Group and/or its affiliates or its respective officers, directors, employee benefit programmes or employees, including persons involved in the preparation or issuance of this document may at any time, to the extent permitted by applicable law and/or regulation, be long or short any securities or financial instruments referred to in this document or have material interest in any such securities or related investments. Therefore, it is possible, and you should assume, that Standard Chartered Group has a material interest in one or more of the financial instruments mentioned herein. Please refer to our Standard Chartered website under Regulatory disclosures for more detailed disclosures, including past opinions/ recommendations in the last 12 months and conflict of interests, as well as disclaimers. A covering strategist may have a financial interest in the debt or equity securities of this company/issuer. This document must not be forwarded or otherwise made available to any other person without the express written consent of Standard Chartered Group.

### **Country/Market Specific Disclosures**

**Botswana:** This document is being distributed in Botswana by, and is attributable to, Standard Chartered Bank Botswana Limited which is a financial institution licensed under the Section 6 of the Banking Act CAP 46.04 and is listed in the Botswana Stock Exchange. **Brunei Darussalam:** This document is being distributed in Brunei Darussalam by, and is attributable to, Standard Chartered Bank (Brunei Branch) | Registration Number RFC/61 and Standard Chartered Securities (B) Sdn Bhd | Registration Number RC20001003. Standard Chartered Bank is incorporated in England with limited liability by Royal Charter 1853 Reference Number ZC18 and Standard Chartered Securities (B) Sdn Bhd, which is a limited liability company registered with the Registry of Companies with Registration Number RC20001003 and licensed by Brunei Darussalam Central Bank as a Capital Markets Service License Holder with License Number AMBD/R/CMU/S3-CL and authorised to conduct Islamic investment business through an Islamic window. **China Mainland:** This document is being distributed in China by, and is attributable to, Standard Chartered Bank (China) Limited which is mainly regulated by China Banking and Insurance Regulatory Commission (CBIRC), State Administration of Foreign Exchange (SAFE), and People's Bank of China (PBOC). **Hong Kong:** In Hong Kong, this document, except for any portion advising on or facilitating any decision on futures contracts trading, is distributed by Standard Chartered Bank (Hong Kong) Limited ("SCBHK"), a subsidiary of Standard Chartered PLC. SCBHK has its registered address at 32/F, Standard Chartered Bank Building, 4-4A Des Voeux Road Central, Hong Kong and is regulated by the Hong Kong Monetary Authority and registered with the Securities and Futures Commission ("SFC") to carry on Type 1 (dealing in securities), Type 4 (advising on securities), Type 6 (advising on corporate finance) and Type 9 (asset management) regulated activity under the Securities and Futures Ordinance (Cap. 571) ("SFO") (CE No. AJI614). The contents of this document have not been reviewed by any regulatory authority in Hong Kong and you are advised to exercise caution in relation to any offer set out herein. If you are in doubt about any of the contents of this document, you should obtain independent professional advice. Any product named herein may not be offered or sold in Hong Kong by means of any document at any time other than to "professional investors" as defined in the SFO and any rules made under that ordinance. In addition, this document may not be issued or possessed for the purposes of issue, whether in Hong Kong or elsewhere, and any interests may not be disposed of, to any person unless such person is outside Hong Kong or is a "professional investor" as defined in the SFO and any rules made under that ordinance, or as otherwise may be permitted by that ordinance. In Hong Kong, Standard Chartered Private Bank is the private banking division of Standard Chartered Bank (Hong Kong) Limited, a subsidiary of Standard Chartered PLC. **Ghana:** Standard Chartered Bank Ghana Limited accepts no liability and will not be liable for any loss or damage arising directly or indirectly (including special, incidental or consequential loss or damage) from your use of these documents. Past performance is not indicative of future results and no representation or warranty is made regarding future performance. You should seek advice from a financial adviser on the suitability of an investment for you, taking into account these factors before making a commitment to invest in an investment. To unsubscribe from receiving further updates, please send an email to feedback . ghana @ sc . com. Please do not reply to this email. Call our Priority Banking on 0302610750 for any questions or service queries. You are advised not to send any confidential and/or important information to the Bank via e-mail, as the Bank makes no representations or warranties as to the security or accuracy of any information transmitted via e-mail. The Bank shall not be responsible for any loss or damage suffered by you arising from your decision to use e-mail to communicate with the Bank. **India:** This document is being distributed in India by Standard Chartered Bank in its capacity as a distributor of mutual

funds and referrer of any other third party financial products. Standard Chartered Bank does not offer any 'Investment Advice' as defined in the Securities and Exchange Board of India (Investment Advisers) Regulations, 2013 or otherwise. Services/products related securities business offered by Standard Chartered Bank are not intended for any person, who is a resident of any jurisdiction, the laws of which imposes prohibition on soliciting the securities business in that jurisdiction without going through the registration requirements and/or prohibit the use of any information contained in this document. **Indonesia:** This document is being distributed in Indonesia by Standard Chartered Bank, Indonesia branch, which is a financial institution licensed, registered and supervised by Otoritas Jasa Keuangan (Financial Service Authority). **Jersey:** In Jersey, Standard Chartered Private Bank is the Registered Business Name of the Jersey Branch of Standard Chartered Bank. The Jersey Branch of Standard Chartered Bank is regulated by the Jersey Financial Services Commission. Copies of the latest audited accounts of Standard Chartered Bank are available from its principal place of business in Jersey: PO Box 80, 15 Castle Street, St Helier, Jersey JE4 8PT. Standard Chartered Bank is incorporated in England with limited liability by Royal Charter in 1853 Reference Number ZC 18. The Principal Office of the Company is situated in England at 1 Basinghall Avenue, London, EC2V 5DD. Standard Chartered Bank is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and Prudential Regulation Authority. The Jersey Branch of Standard Chartered Bank is also an authorised financial services provider under license number 44946 issued by the Financial Sector Conduct Authority of the Republic of South Africa. Jersey is not part of the United Kingdom and all business transacted with Standard Chartered Bank, Jersey Branch and other SC Group Entity outside of the United Kingdom, are not subject to some or any of the investor protection and compensation schemes available under United Kingdom law. **Kenya:** This document is being distributed in Kenya by, and is attributable to Standard Chartered Bank Kenya Limited. Investment Products and Services are distributed by Standard Chartered Investment Services Limited, a wholly owned subsidiary of Standard Chartered Bank Kenya Limited (Standard Chartered Bank/the Bank) that is licensed by the Capital Markets Authority as a Fund Manager. Standard Chartered Bank Kenya Limited is regulated by the Central Bank of Kenya. **Malaysia:** This document is being distributed in Malaysia by Standard Chartered Bank Malaysia Berhad. Recipients in Malaysia should contact Standard Chartered Bank Malaysia Berhad in relation to any matters arising from, or in connection with, this document. **Nigeria:** This document is being distributed in Nigeria by Standard Chartered Bank Nigeria Limited ("the Bank"), a bank duly licensed and regulated by the Central Bank of Nigeria. The Bank accepts no liability for any loss or damage arising directly or indirectly (including special, incidental or consequential loss or damage) from your use of these documents. You should seek advice from a financial adviser on the suitability of an investment for you, taking into account these factors before making a commitment to invest in an investment. To unsubscribe from receiving further updates, please send an email to [clientcare.ng@sc.com](mailto:clientcare.ng@sc.com) requesting to be removed from our mailing list. Please do not reply to this email. Call our Priority Banking on 01-2772514 for any questions or service queries. The Bank shall not be responsible for any loss or damage arising from your decision to send confidential and/or important information to the Bank via e-mail, as the Bank makes no representations or warranties as to the security or accuracy of any information transmitted via e-mail. **Pakistan:** This document is being distributed in Pakistan by, and attributable to Standard Chartered Bank (Pakistan) Limited having its registered office at PO Box 5556, I.I Chundrigar Road Karachi, which is a banking company registered with State Bank of Pakistan under Banking Companies Ordinance 1962 and is also having licensed issued by Securities & Exchange Commission of Pakistan for Security Advisors. Standard Chartered Bank (Pakistan) Limited acts as a distributor of mutual funds and referrer of other third-party financial products. **Singapore:** This document is being distributed in Singapore by, and is attributable to, Standard Chartered Bank (Singapore) Limited (Registration No. 201224747C/ GST Group Registration No. MR-8500053-0, "SCBSL"). Recipients in Singapore should contact SCBSL in relation to any matters arising from, or in connection with, this document. SCBSL is an indirect wholly owned subsidiary of Standard Chartered Bank and is licensed to conduct banking business in Singapore under the Singapore Banking Act, 1970. Standard Chartered Private Bank is the private banking division of SCBSL. **IN RELATION TO ANY SECURITY OR SECURITIES-BASED DERIVATIVES CONTRACT REFERRED TO IN THIS DOCUMENT, THIS DOCUMENT, TOGETHER WITH THE ISSUER DOCUMENTATION, SHALL BE DEEMED AN INFORMATION MEMORANDUM (AS DEFINED IN SECTION 275 OF THE SECURITIES AND FUTURES ACT, 2001 ("SFA")).** THIS DOCUMENT IS INTENDED FOR DISTRIBUTION TO ACCREDITED INVESTORS, AS DEFINED IN SECTION 4A(1)(a) OF THE SFA, OR ON THE BASIS THAT THE SECURITY OR SECURITIES-BASED DERIVATIVES CONTRACT MAY ONLY BE ACQUIRED AT A CONSIDERATION OF NOT LESS THAN S\$200,000 (OR ITS EQUIVALENT IN A FOREIGN CURRENCY) FOR EACH TRANSACTION. Further, in relation to any security or securities-based derivatives contract, neither this document nor the Issuer Documentation has been registered as a prospectus with the Monetary Authority of Singapore under the SFA. Accordingly, this document and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the product may not be circulated or distributed, nor may the product be offered or sold, or be made the subject of an invitation

for subscription or purchase, whether directly or indirectly, to persons other than a relevant person pursuant to section 275(1) of the SFA, or any person pursuant to section 275(1A) of the SFA, and in accordance with the conditions specified in section 275 of the SFA, or pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA. In relation to any collective investment schemes referred to in this document, this document is for general information purposes only and is not an offering document or prospectus (as defined in the SFA). This document is not, nor is it intended to be (i) an offer or solicitation of an offer to buy or sell any capital markets product; or (ii) an advertisement of an offer or intended offer of any capital markets product. **Deposit Insurance Scheme:** Singapore dollar deposits of non-bank depositors are insured by the Singapore Deposit Insurance Corporation, for up to S\$75,000 in aggregate per depositor per Scheme member by law. Foreign currency deposits, dual currency investments, structured deposits and other investment products are not insured. This advertisement has not been reviewed by the Monetary Authority of Singapore. **Taiwan:** Standard Chartered Bank (“SCB”) or Standard Chartered Bank (Taiwan) Limited (“SCB (Taiwan)”) may be involved in the financial instruments contained herein or other related financial instruments. The author of this document may have discussed the information contained herein with other employees or agents of SCB or SCB (Taiwan). The author and the above-mentioned employees of SCB or SCB (Taiwan) may have taken related actions in respect of the information involved (including communication with customers of SCB or SCB (Taiwan) as to the information contained herein). The opinions contained in this document may change, or differ from the opinions of employees of SCB or SCB (Taiwan). SCB and SCB (Taiwan) will not provide any notice of any changes to or differences between the above-mentioned opinions. This document may cover companies with which SCB or SCB (Taiwan) seeks to do business at times and issuers of financial instruments. Therefore, investors should understand that the information contained herein may serve as specific purposes as a result of conflict of interests of SCB or SCB (Taiwan). SCB, SCB (Taiwan), the employees (including those who have discussions with the author) or customers of SCB or SCB (Taiwan) may have an interest in the products, related financial instruments or related derivative financial products contained herein; invest in those products at various prices and on different market conditions; have different or conflicting interests in those products. The potential impacts include market makers’ related activities, such as dealing, investment, acting as agents, or performing financial or consulting services in relation to any of the products referred to in this document. **UAE:** DIFC - Standard Chartered Bank is incorporated in England with limited liability by Royal Charter 1853 Reference Number ZC18. The Principal Office of the Company is situated in England at 1 Basinghall Avenue, London, EC2V 5DD. Standard Chartered Bank is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and Prudential Regulation Authority. Standard Chartered Bank, Dubai International Financial Centre having its offices at Dubai International Financial Centre, Building 1, Gate Precinct, P.O. Box 999, Dubai, UAE is a branch of Standard Chartered Bank and is regulated by the Dubai Financial Services Authority (“DFSA”). This document is intended for use only by Professional Clients and is not directed at Retail Clients as defined by the DFSA Rulebook. In the DIFC we are authorised to provide financial services only to clients who qualify as Professional Clients and Market Counterparties and not to Retail Clients. As a Professional Client you will not be given the higher retail client protection and compensation rights and if you use your right to be classified as a Retail Client we will be unable to provide financial services and products to you as we do not hold the required license to undertake such activities. For Islamic transactions, we are acting under the supervision of our Shariah Supervisory Committee. Relevant information on our Shariah Supervisory Committee is currently available on the Standard Chartered Bank website in the Islamic banking section. For residents of the UAE – Standard Chartered Bank UAE does not provide financial analysis or consultation services in or into the UAE within the meaning of UAE Securities and Commodities Authority Decision No. 48/r of 2008 concerning financial consultation and financial analysis. **Uganda:** Our Investment products and services are distributed by Standard Chartered Bank Uganda Limited, which is licensed by the Capital Markets Authority as an investment adviser. **United Kingdom:** Standard Chartered Bank is incorporated in England with limited liability by Royal Charter 1853 Reference Number ZC18. The Principal Office of the Company is situated in England at 1 Basinghall Avenue, London, EC2V 5DD. Standard Chartered Bank is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and Prudential Regulation Authority. Standard Chartered Bank (trading as Standard Chartered Private Bank) is an authorised financial services provider (license number 45747) in terms of the South African Financial Advisory and Intermediary Services Act, 2002. **Vietnam:** This document is being distributed in Vietnam by, and is attributable to, Standard Chartered Bank (Vietnam) Limited which is mainly regulated by State Bank of Vietnam (SBV). Recipients in Vietnam should contact Standard Chartered Bank (Vietnam) Limited for any queries regarding any content of this document. **Zambia:** This document is distributed by Standard Chartered Bank Zambia Plc, a company incorporated in Zambia and registered as a commercial bank and licensed by the Bank of Zambia under the Banking and Financial Services Act Chapter 387 of the Laws of Zambia.