WINDS OF CHANGE: LOW CARBON INVESTING IN ASIA

ASIA INVESTOR GROUP ON CLIMATE CHANGE

About AIGCC

The goal of the Asia Investor Group on Climate Change (AIGCC) is to engage and cooperate with Asia based asset owners, investors and the global investment community around climate finance and investment. The group is a private forum of regional investors with the aim of peer to peer collaboration and learning about the impacts of the risks and opportunities climate change presents to their portfolios.

Projects the group undertakes aim to assist in facilitating dialogue and engagement with other Asian investors, companies and regulators in the transition to a low carbon global economy. Investors in the region are invited from China, Japan, India, South Korea, Singapore, Hong Kong, Taiwan, Indonesia, Malaysia, Thailand, Philippines, Vietnam and the Pacific. As of November 2019, AIGCC has 34 members with over USD4.5trn of assets under management.

Acknowledgements

AIGCC would like to thank the members of the AIGCC Low Carbon Survey sub-working group who developed this guide. In particular, we would like to thank Cathay Financial Holdings, The Government Pension Investment Fund of Japan, Resonance and Temasek for providing us with case studies which form an integral part of the report. We would also like to thank Brawn Capital and Armstrong Asset Management for providing project photos used in this report. Much appreciation also goes to AIGCC members and broader stakeholder group who responded to the survey and provided additional input over the course of developing the final report.

November 2019

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Executive Summary

Transitioning to a resilient, net-zero emissions economy by 2050 will require unprecedented levels of capital investment, and Asia has a significant role to play. There are massive market signals from all levels demanding the urgent need to transition and global investors are responding to the challenge. While global momentum and investment activity continue to accelerate, deploying capital into deals with the right risk/return profile remains challenging.

By investing across the economy for the long-term, institutional investors are exposed to the growing impact of climate change across all asset classes on the companies, industries, property and infrastructure assets they own. Markets in Asia will bear the most physical impacts of climate change due to their location. However, Asia also stands to benefit the most from opportunities for the necessary technology adaptation to a lower-carbon economy.[1]

Over recent years, Asian investors have increased their integration of climate change into investment portfolios and are taking steady steps towards the transition to a low carbon economy. For example, over 200 Japanese investors and companies signed up as official supporters to the Taskforce on Climate-related Financial Disclosures (TCFD) Recommendations, contributing to almost a quarter of its global supporter base, and the highest number from a single market globally. Regulators from China and Singapore are also sending strong, positive signals to steer markets towards low carbon technology and have incentivized markets towards green bonds issuance.

Electricity demand in Asia will continue to grow, offering the opportunity for huge growth of the renewable sector. This will be highly significant in the global energy transition given its expected scale.

To assess the trends and appetite for low carbon investing in Asia, the Asia Investor Group on Climate Change (AIGCC) has undertaken its first study to gather investor insights on how the market is defining and investing in green or climate aligned opportunities, and what barriers to investment they continue to face.

The report provides the collective views of Asian investors with funds representing over US$1.9trn in assets under management surveyed over July - August 2019. These investors include asset owners (insurance firms, government pension and sovereign wealth funds) and asset managers.

The insights presented in this report provide a snapshot of current investor sentiment, highlighting some of the factors driving investor thinking and behaviour as they seek to respond to climate change risks and pursue emerging low carbon investment opportunities.

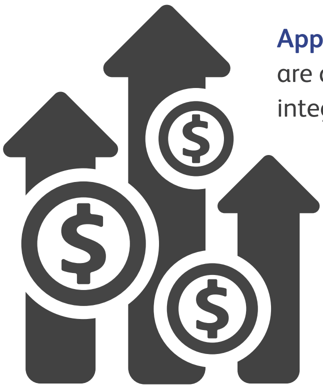
It finds that investor appetite for climate aligned investment is increasing, with huge potential to grow and activity is accelerating.

The global trend towards more sustainable finance is playing out in Asian markets, and the push to integrate climate change into the investment mainstream continues. However, it is worth noting that the diverse nature of Asian markets create nuanced drivers of change.

So where are we today? How are Asian investors thinking about the opportunities and challenges of accelerating the deployment of capital into climate aligned investment? What are the emerging trends and priorities? This report sets out investor insights into these questions and related issues on climate investment in Asia.

This is the first time AIGCC has undertaken this survey and will look to repeat it in future years.

HOW ASIAN INVESTORS ARE THINKING ABOUT CLIMATE CHANGE INVESTMENT OPPORTUNITIES AND CHALLENGES



Appetite for climate investments is strong and growing: Investors are actively looking for opportunities to support climate solutions and integrating climate risk into whole of portfolio management.

Asian investors are more actively engaging with companies: Investors are increasingly taking advantage of their position to engage with companies on climate-related issues. Constructive dialogue with companies on low transition pathways are generally preferred over direct divestment.

Enhanced disclosure expectations are impacting investment practice: With the mainstreaming of TCFD, its' Asian supporter base is growing and the framework has drawn the attention of most Asian regulators. This further drives target setting and public commitments which are much needed in the region.

Investors are looking for appropriate tools to map climate risks: In particular, physical risk mapping and assessment is starting to pick up, particularly in the real estate sector.

Growth in investment appetite and activity can be used to amplify the investor voice in policy developments: There is strong demand for regulations driving climate integration and policy guidance on issues such as carbon pricing. Some investors seek to engage directly with regulators and policymakers, whereas some prefer to collaborate and work through AIGCC.

Methodology

AIGCC undertook its first survey with members and a broader group of investors in Asia on their attitudes and practices around low carbon investment to better understand how we can support investors through the work at AIGCC. This survey was modeled and adapted from similar surveys from our IGCC (Australia/New Zealand) and IIGCC (Europe) peer networks.

During July - August 2019, AIGCC undertook a quantitative survey of institutional investors regarding current and future appetite for climate-aligned investments.

This survey seeks to capture the evolution of investor thinking on low carbon investment opportunities; how and where institutional investors are deploying capital, what solutions are emerging across asset classes and what the challenges are.

A total of 20 participants representing over USD1.9 trillion responded to the survey, with insights gathered from asset owners and asset managers. Additional qualitative information was also sought through consultation to enable participants to provide further depth to their responses.

The questions focused on a range of topics including the methodology and definitions used to define climate-aligned investments, current implementation of low carbon investment strategies across both markets and asset classes, targets, measurements and monitoring of impacts and barriers to green investment.

KEY MARKET SIGNALS DRIVING THE TRANSITION TO LOW CARBON ECONOMIES IN ASIA

The take-up of low carbon transition planning by companies is expected to be driven by a variety of factors not only from a climate specific standpoint but also from a commercial perspective. Positive signals from regulators, investors, and other market influencers through developing green taxonomies, support for green bonds, supporting TCFD disclosure frameworks and the emergence of green finance networks are important drivers for the transition to a low carbon economy. Asia has been seeing a rapid increase in such market signals over the last two years.

ASIA INVESTOR GROUP ON CLIMATE CHANGE

Table 1. Developments shaping Asian markets in the transition into low carbon economy

Driver	Action	Market	Example
Financial Institutions	Coal phase-out	Japan Singapore	- Japanese insurers including Nippon Life, Dai-Ichi and Sumitomo Mitsui Banking Trust announced restrictions on new coal lending. - OCBC Bank, DBS, and UOB announced an end to their funding of new coal power projects.
Investors	Company engagement	Global	Climate Action 100+ has over 370 investors with USD35 trn AUM engaging with 161 systemically important carbon emitters globally, including 32 companies in Asia.
Investors	Investor Action - 4 Pillars	Global	The Investor Agenda is a collaborative initiative elevating the profile of existing investor actions and initiatives on climate change in areas of Policy Advocacy, Corporate Engagement, Investor Disclosure and Investment.
Policy makers	Policy development	China	Establishment of the China Green Finance Committee, following on from the China-UK Climate and Environmental disclosure pilot
Policy makers	Green taxonomies	China Europe	- China Green Industry Guidance Catalogue - EU Sustainable Finance Taxonomy development
Policy makers	Guidance Documents	Japan China Hong Kong	- Establishment of the TCFD Consortium, supported by Ministry of Energy Trade and Industry (METI), Financial Services Agency (FSA) and Ministry of Environment. - Green Investment Guidance issued - Asset Management Association of China(AMAC) issued Green Investment Guidelines - Securities and Futures Commission launched a Strategy Framework for Green Finance - Hong Kong Stock Exchange revised the ESG Reporting Guide, to include climate change and recommendations for companies to refer to the TCFD
Policy makers	Nation-wide consultations / NDCs	Singapore Hong Kong	- Consultation for "Developing Singapore's Long-Term Low Emissions Strategy" by Singapore's National Climate Change Secretariat (NCCS) - Consultation for "Long-Term Decarbonisation Strategy" by the Hong Kong Sustainable Development Council
Policy makers	Green investments	Hong Kong	- Hong Kong Monetary Authority set up the Centre for Green Finance. Development of a common framework to assess the "Greenness Baseline" of individual banks, and giving priority to Green and ESG investments.
Central Banks	Green bond issuance	China Hong Kong Singapore	- China offers lower central bank borrowing costs and subsidized interest payments on green bonds of up to 12 percent of the interest rate[2] - China's Industrial Bank was the second-largest global green bond issuer in 2018[2] - In May 2019, Hong Kong raised HK$100 billion ($12.74 billion) via its green bond program [3] - Singapore announced a green bond grant scheme in November 2017 to subsidise external reviews of green bonds
Regulator	Climate risk impact evaluation	Japan	- Financial Services Agency partners with 2dii to conduct an impact evaluation of climate-related risks to Japan's financial stability
Regulator	National commitments	Indonesia	- Low carbon Development Initiative (LCDI) 2019 has been developed by the Ministry of National Development Planning (BAPPENAS)[4]. - Sustainable Finance Roadmap 2015-2019 with commitment to cut greenhouse gas emission by 26% independently and 41% with international support realized into National Action Plan on Reducing Greenhouse Gas Emission (RAN-GRK)

Defining Climate-Aligned Investment

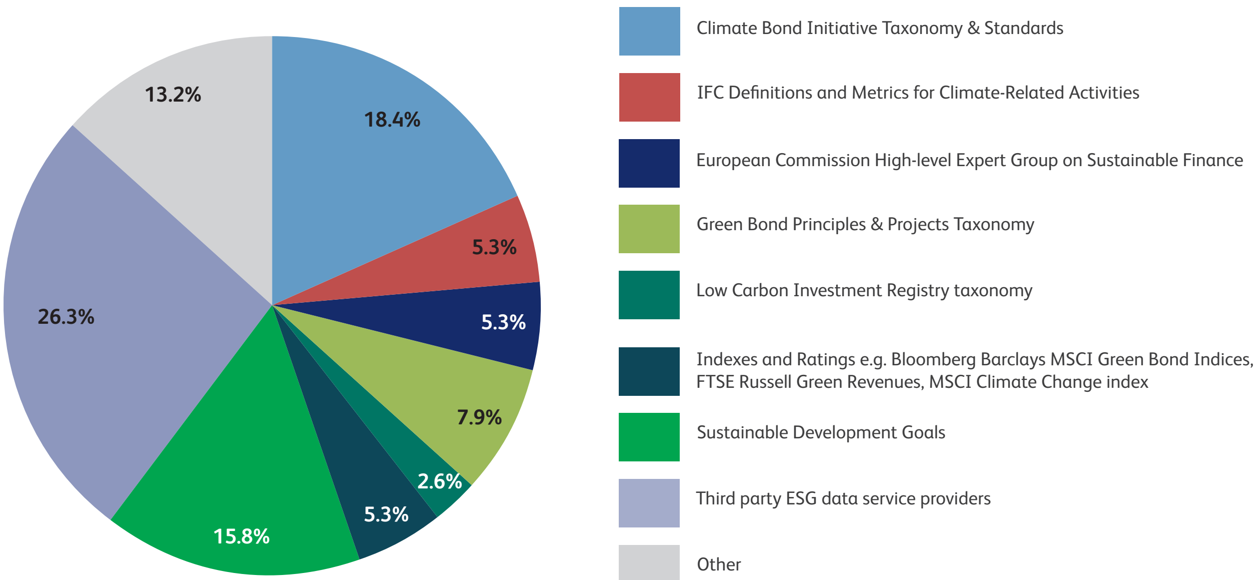
METHODOLOGIES

Investors look for credible ways to define and measure investment in climate solutions. A broad range of methodologies continues to be used to define green or climate-aligned investments depending on the asset class. However, in Asia, there is an increasing trend towards proprietary methodologies used in conjunction with references made to mainstream data service providers. It is noted that the applicability and availability of tools vary for different asset classes.

While sophisticated investors integrate climate-considerations by referencing third-party ESG data to inform further analyses, a careful eye is needed to use the results with an understanding of assumptions behind the data.

The UN Sustainable Development Goals (SDGs) are providing another framework for consideration. SDGs officially came into force in 2016 and have soon gathered much interest in the region, with Asia having the highest early application of SDGs globally. Despite not being developed for investors, it soon became adopted by many as a high-level framework for Asian investors starting on their ESG journey. While there has not been a mechanism for detailed application of SDGs in the full investment process, some investors have started to use this from a risk perspective.

Figure 1. Methodologies used by investors to define green or climate aligned investment



What remains clear and consistent across the survey is the ongoing importance of using a credible methodology to define green or climate-aligned investments. Despite the current absence of a clear winner, the future may see a coalescing around new sustainable taxonomies.

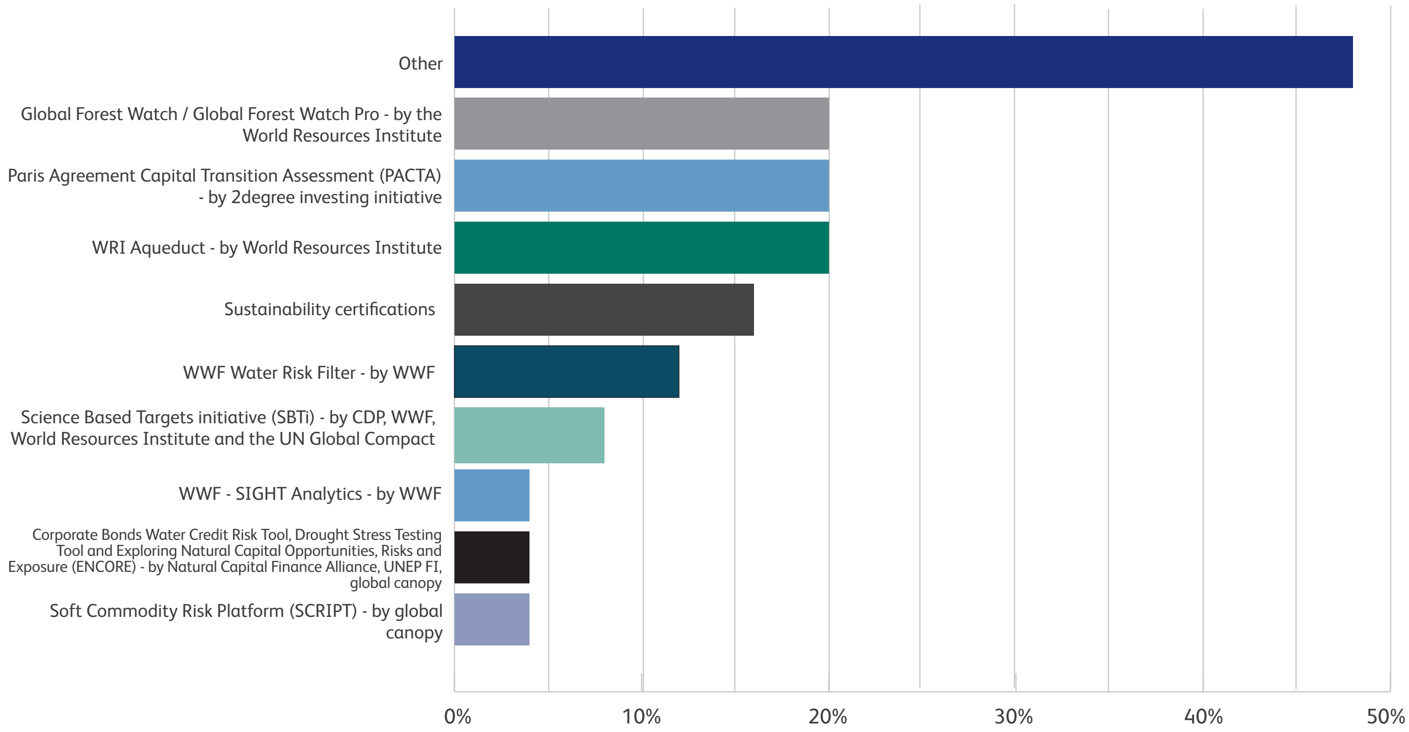
The development of the EU Taxonomy may provide the basis for future regulation and is inspiring regional interpretations. Harmonization efforts between China and Europe are important in sending positive signals to the market. Markets in the region will take reference from the China's Green Industry Guidance Catalogue, which is considered to be more representative of emerging markets even if not fully representative of certain sectors. To price climate risks and opportunities across different markets, transparency on the harmonisation efforts and various 'shades of green' in the process is considered necessary.

TOOLS

We asked investors which tools they have been using to implement their climate or low carbon-related strategies. A majority of investors 48%. (as identified by 'Other' in the chart) are in the process of identifying appropriate tools or using internal or proprietary methodologies. However, there is a broad range of tools being used, suggesting that investors in Asia are currently in a trial phase of finding suitable ones for themselves.

Education is important to help investors navigate which tools are suitable for them. As investors test these tools, they are sharing valuable feedback with peers which helps accelerate understanding and implementation into portfolios. This collaborative approach will continue to be valuable as more tools are released into the market.

Figure 2. Tools investors use to implement climate or low-carbon strategies

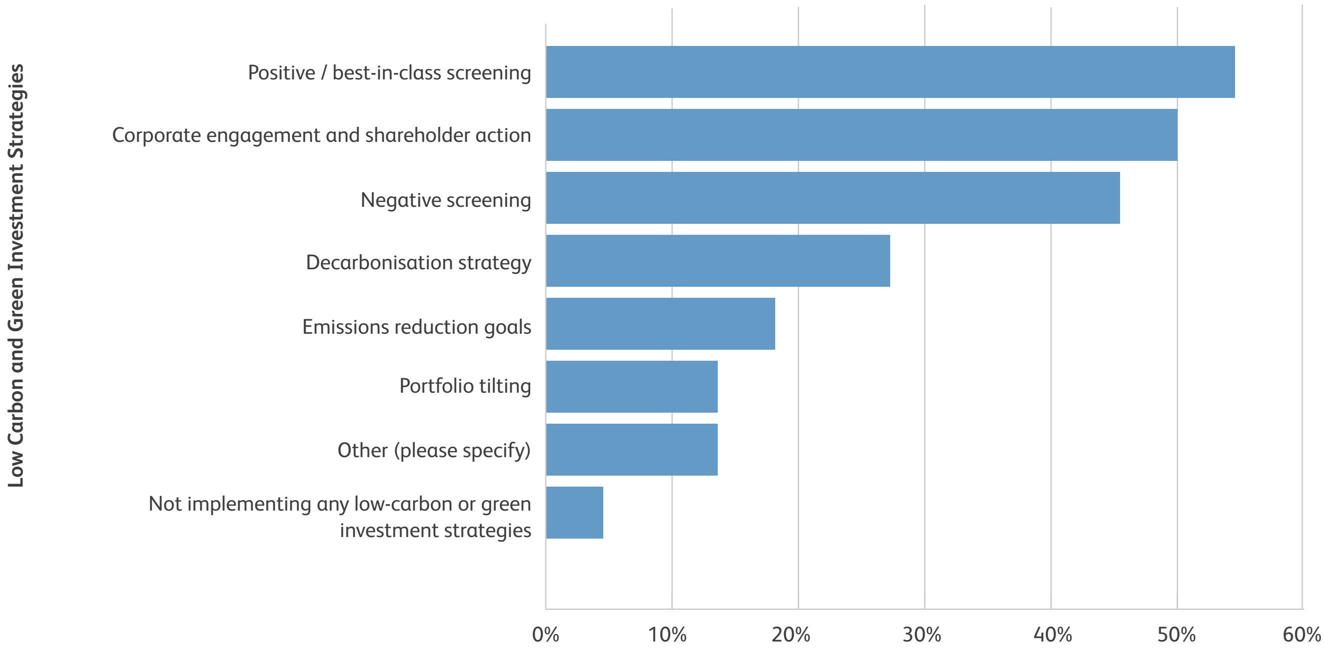


INVESTMENT STRATEGIES FOR LOW CARBON OR GREEN INVESTMENT

We continue to see investors using climate risk reduction strategies alongside investing in climate-related opportunities, particularly across passive and some factor strategies. There are common methods used amongst investors to implement low carbon strategies through portfolio screening and corporate engagement, while strategies such as decarbonisation, setting emissions reduction goals and portfolio tilting are less common but gradually on the rise.

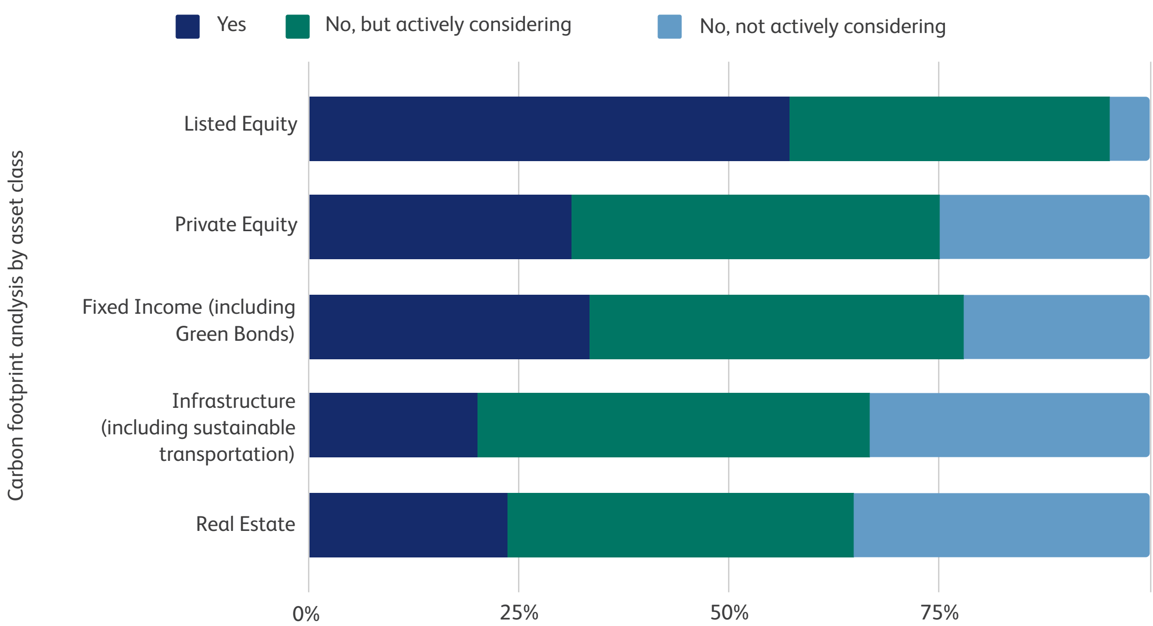
The various low carbon strategies implemented by investors tend to vary across different asset classes and investors tend to create their own bespoke strategies for their investments.

Figure 3. Low carbon or green investment strategies



Listed equities have been the easiest asset class for investors to assess and analyze their carbon footprints. There is also a strong interest to measure other asset classes such as fixed income, private equity and infrastructure. However, transparency of data from non-listed companies remains an issue.

Figure 4. Carbon footprint by asset class



Cathay Financial Holdings: Insights on Climate-Aligned investing

Cathay Financial Holding Co., Ltd. ("Cathay FHC") is the largest financial conglomerate in Taiwan with USD302 billion AUM as of the end of 2018.

Climate change is exacerbating physical impacts in Taiwan such as frequent typhoons, drought, heavy rains causing landslides as well as sea-level rise and more volatile temperatures. These all bring risks to investments. These impacts increase the future risks for business operations, investment and credit lending risks as well as other indirect risks. As a result, climate action has been one of Cathay FHC's key focus areas as part of sustainability for several years.

ESG integration is critical to safeguarding long-term value for all stakeholders, and climate change is considered to be one of the most important factors in the risk review process.

Cathay FHC sets goals for low-carbon transformation to enable the implementation into business strategies. The following are three key areas of development:

1. **Green operations** aim to increase energy efficiency and renewable energy use. Carbon reduction goals are set in alignment with the methodology of the Science-based Targets initiative(SBTi). Using a 2016 baseline, the goal is to reduce GHG emissions by 5-10% in 2021. To achieve this goal, the ISO14001 and ISO50001 systems were used to align GHG emission reduction goals and manage energy systems. Solar panels with the capacity of 3,500 kW were also installed in 2018 to increase renewable energy use.

2. **Green financial services:** Four pillars of operations were established, including renewable energy industry financing, promotion of green transportation and agricultural insurance products, promotion of green bonds and sustainability private equity fund bonds, and guidance for green enterprise IPOs. Digital finance is utilized effectively for Cathay FHC Group's low carbon transformation.

3. **Responsible investment strategies** include low-carbon investments, a robust ESG review process, and investment engagement strategies, which include the participation in engagement activities such as Climate Action 100+ to increase Cathay's long-term value.

Governance oversight of climate and ESG development is via the Corporate Sustainability Committee, chaired by the President. There are six working groups within the committee reporting to the Board of Directors semi-annually. Additionally, a TCFD Taskforce is overseen and led by the Chief Risk Officer to review assets and liabilities for climate-related risks and opportunities. The Taskforce periodically reports progress to the Board of Directors.

A ROBUST ESG REVIEW PROCESS IN CATHAY FHC:

Cathay Life has established an ESG risk review procedure considering 37 ESG key issues based on external ESG databases. Four of those 37 are related to climate change.

In addition to integrating climate change into the investment analysis process, Cathay FHC developed the definition of low-carbon industries in 2017. The low carbon investment and lending amounted to USD4.9 billion (NT$151.1billion) as of the end of 2018.

Cathay FHC has identified climate-related risks on assets and liabilities and is moving towards an emphasis on comprehensive quantitative analysis and scenario analysis to further inform and improve management processes. In addition, low carbon products are being developed to facilitate their value chain to transition to a low-carbon economy.

For example, Cathay United Bank has adopted Intended Nationally Determined Contributions (INDCs) as climate-related scenario analysis to estimate the impact of carbon costs on corporate loans. Going forward, Cathay FHC plans to expand scenario analysis to other asset classes in the coming years.

Investment Activity

UNDERSTANDING THE IMPACTS OF PHYSICAL RISKS

Physical risk assessment is currently more widely adopted for real estate among other asset classes, followed by infrastructure and private equity. It is interesting to observe, that for the fixed income asset class, despite scoring lower on the current implementation of physical risk assessment, there is a significant appetite from investors to consider this in the future. Investors reflected that separate products for physical risk assessment of different asset classes tend to be very costly. Given gaps in data, the proportion of investors committed to a portfolio-level response to increase resilience is also lower.

Figure 5. Physical risk assessment by asset class

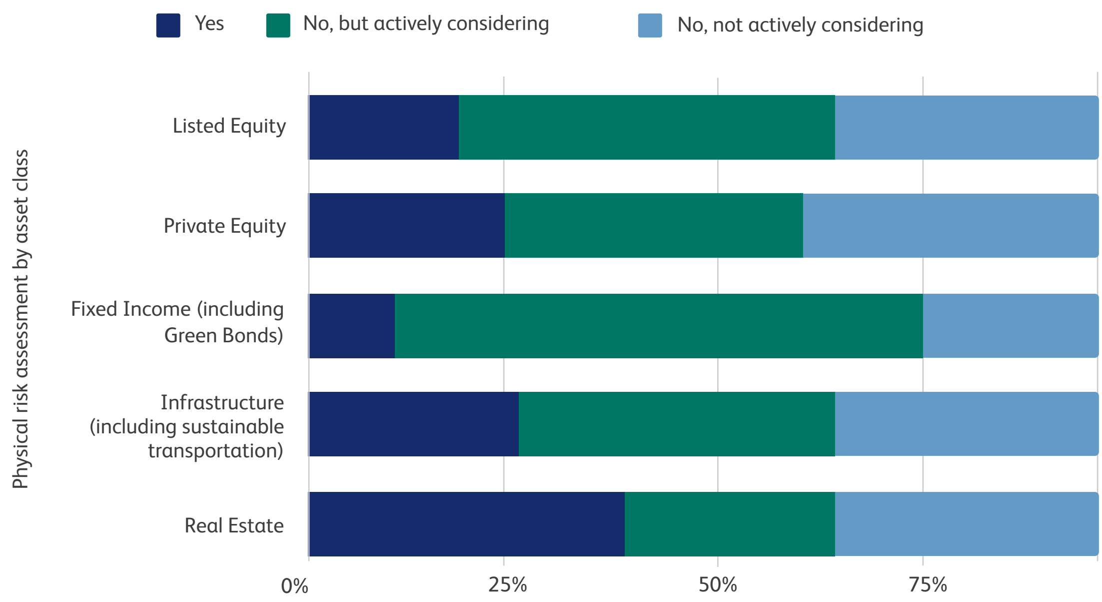
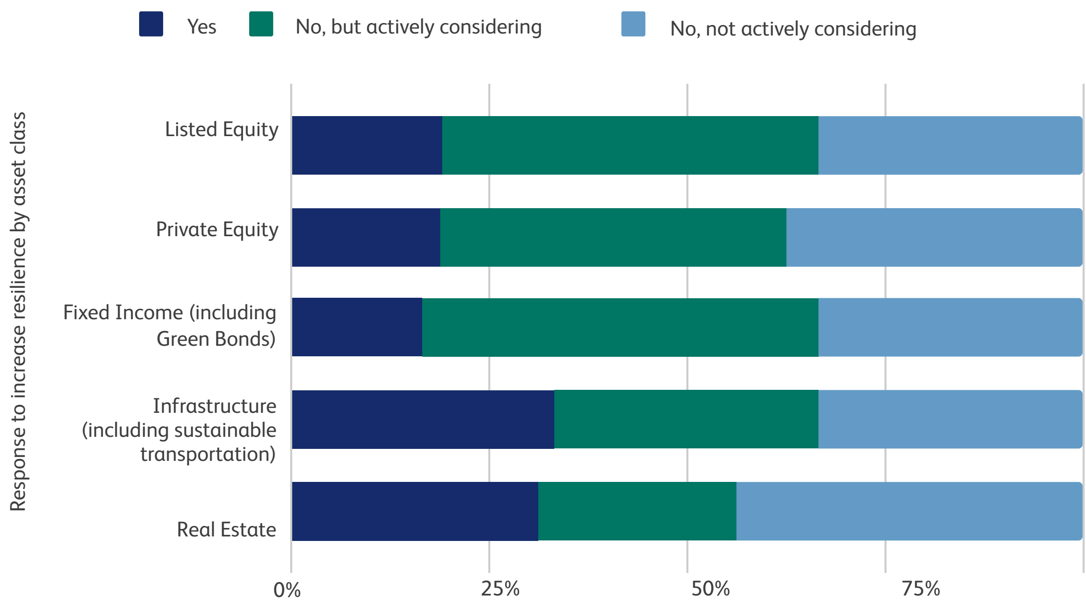


Figure 6. Portfolio level response to increase physical risk resilience



Philippines - Navigating the realities of a climate constrained economy

Recent trends in the Philippine energy industry indicate an increasing openness and readiness among the largest homegrown investors and asset owners to embrace their role in driving an "energy transition" in the country and the broader Southeast Asia region. Notwithstanding the predominance of coal (which as of 2018 was at an estimated 50% of the Philippines' generation mix), and the government's prevailing position in adopting a "technology neutral" approach to approving new power plants, disclosures from the largest business conglomerates in the country point to an unprecedented optimism towards renewable energy investments, particularly solar, wind, and storage, with scaled applications now in construction and in near-term pipelines.

One can argue that the "energy transition" underway in the Philippines is not singularly focused on decarbonization—instead, it features an equal emphasis on energy decentralization and digitization as well. This emphasis varies across the major energy players in the country, which in the case of the Philippines, are composed of a number of family-led conglomerates with diversified interests and aspirations within and beyond the energy industry.

To cite a few examples, the Aboitiz family, while still carrying significant fossil fuel assets, is well-known to be heavily investing in new technologies including floating solar applications, virtual power plants, digital generation and distribution systems. The Ayala family, a relatively new player in the industry, has recently started to decarbonize its portfolio and have begun aggressively investing in large renewable energy projects in Southeast Asia. The Lopez family, a staunch advocate for a low carbon energy transition continues to focus on maintaining its leadership in the geothermal and natural gas space while expanding its renewables portfolio.

Across these examples, regional investors have been key in unlocking opportunities for these families to take bold leaps in support of what is arguably the makings of an industry-led energy transition. But as this momentum further builds, a compelling case is often cited by these large industry players that, leading or participating in this transition is key to securing their future success—as doing so presents opportunities for portfolio diversification and reduced dependence on coal and oil imports, improving resource efficiency and resilience across their supply chains, innovating new products and services, and building legacies away from sunset industries and into sunrise ones.

Much of this transition is happening against a backdrop of intensifying extreme weather events directly and indirectly affecting the operations of various players in and outside the energy industry. Recent droughts have placed immense pressure on hydropower plants resulting in water scarcity and rotating blackouts during 2019. Severe typhoons are a constant threat not only to grid infrastructure but also to numerous supply chains which on their own are constantly having to deal with shifting trade and policy regimes that affect the competitiveness of myriad products and services. While there is certainly an uptick in incorporating business continuity planning and climate-proofing strategies, including climate-focused insurance, among the country's leading conglomerates, it remains to be seen if and when such approaches will be mainstreamed alongside a low carbon energy transition.

Ultimately, industry leadership in channeling investments towards an energy transition is likely to shine as a unique feature in the Philippine setting while policymakers and legislators continue ongoing deliberations towards developing robust frameworks and updating public and private roles towards future energy development. It is becoming increasingly clear, however, that as a result of the country's recent political, social and environmental experiences as they relate to climate change and the country's commitment to the Paris Agreement, that a meaningful dialogue between the public and private sector would be crucial to help the Philippines navigate the realities of its climate constrained economy while taking advantage of the global momentum towards a low carbon transition.

A MISMATCH IS EVIDENT BETWEEN ASSET OWNER AND MANAGER VIEWS ON CLIMATE INVESTMENT MANDATES

Over 50% of asset owners indicated they have explicit climate-related or green investment mandates with fund managers of varying degrees. However, over 70% of asset managers indicated only 0-25% of their clients have climate-related obligations integrated into their investment mandates. The disparity in results does not help to resolve contradiction on climate change investment mandates between asset owners and fund managers, but also suggests that communication efforts are needed in this space to better align low carbon investment expectations.

However, we should not overlook the growth of expectations for asset managers to report against and align with the TCFD framework, especially in Asia where the framework has picked up significant attention in several markets. We are optimistic that publication of TCFD reports by asset managers in the upcoming reporting cycle will increase the flow of information available in Asian markets, thereby creating a space for discussion. With more opportunities to engage asset owners, we will be able to foster an environment for discussion on how climate-related risks should be considered and low carbon investment goals could be integrated into portfolios with an Asian skew.

Figure 7. Asset owners with integrated climate-related goals or low carbon / green investment factors into investment mandates with fund managers

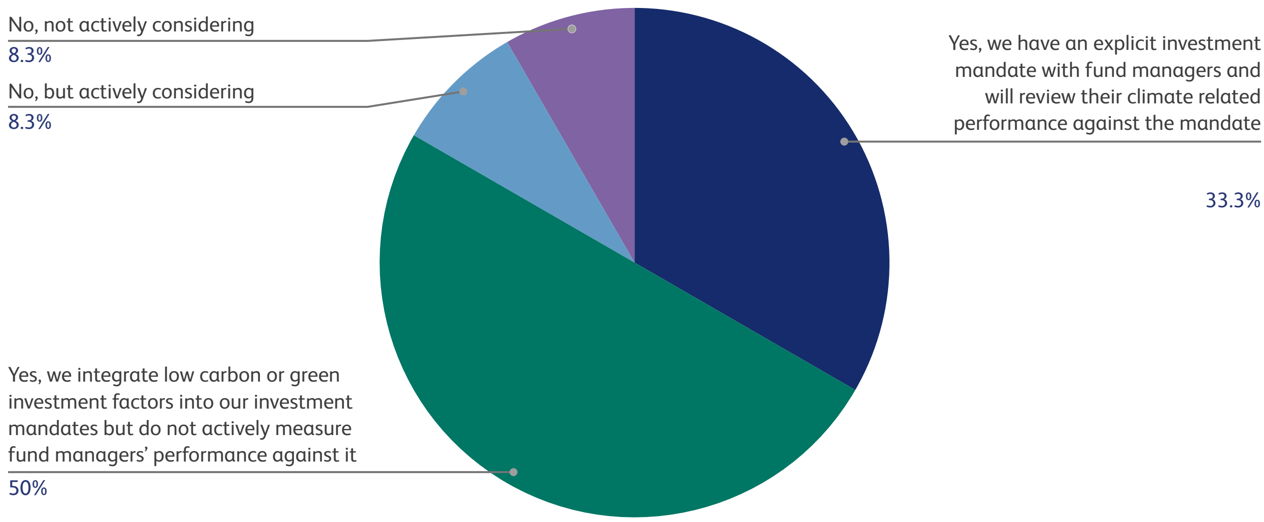
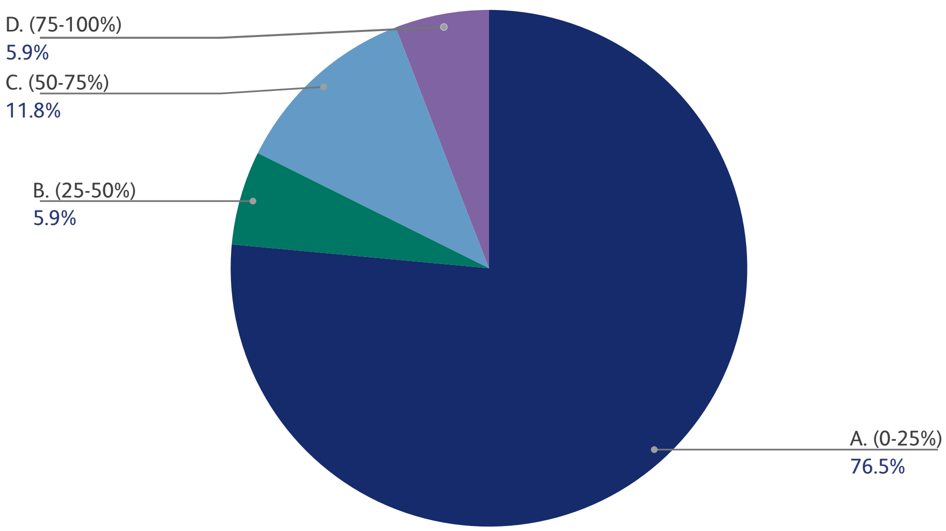


Figure 8. Asset managers' clients with climate related obligations integrated into investment mandates



INVESTORS HAVE SHOWN APPETITE FOR CLIMATE SOLUTIONS

Both public and private markets across a broad range of asset classes are seen as favorable areas for low carbon investment. The strong appetite from institutional investors for ongoing investment in climate-aligned or green solutions is a key feature of the survey results, with the majority of respondents indicating the intention to increase low carbon investments across all asset classes. The intent for investors to set portfolio or asset class specific targets was also clear, with real estate and infrastructure taking the lead in targets being set or intentions for targets to be set.

It is noted that 70% of the targets being set are currently internal targets resulting from investment mandates. With the adoption of TCFD reporting standards, we expect to see an increase in public reporting of targets in the near future.

Figure 9. Future increase in low carbon or green investments by asset class

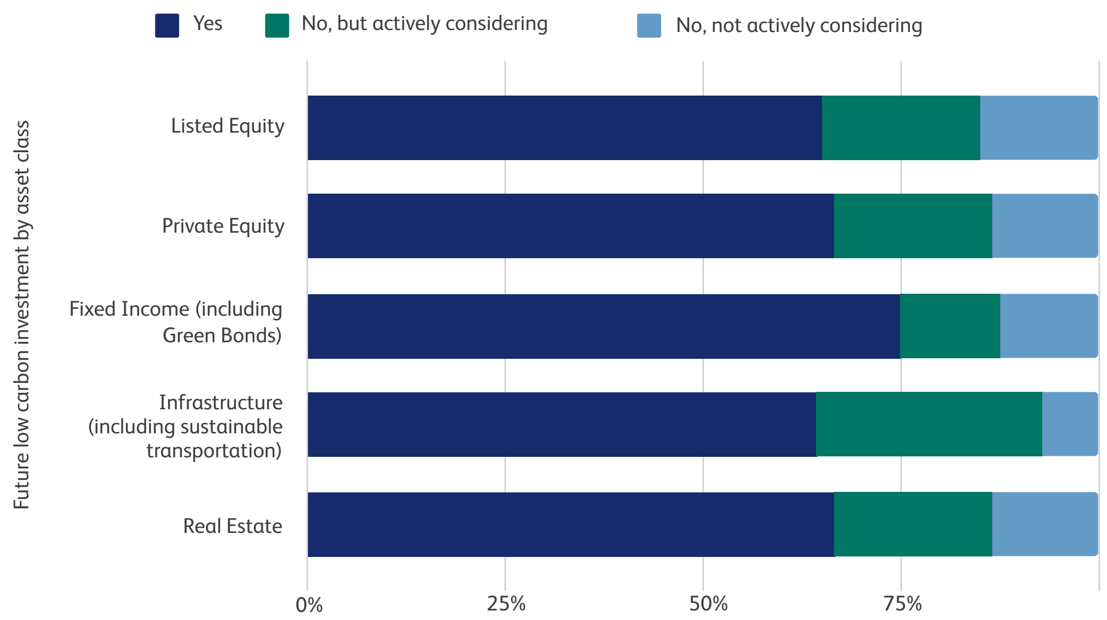
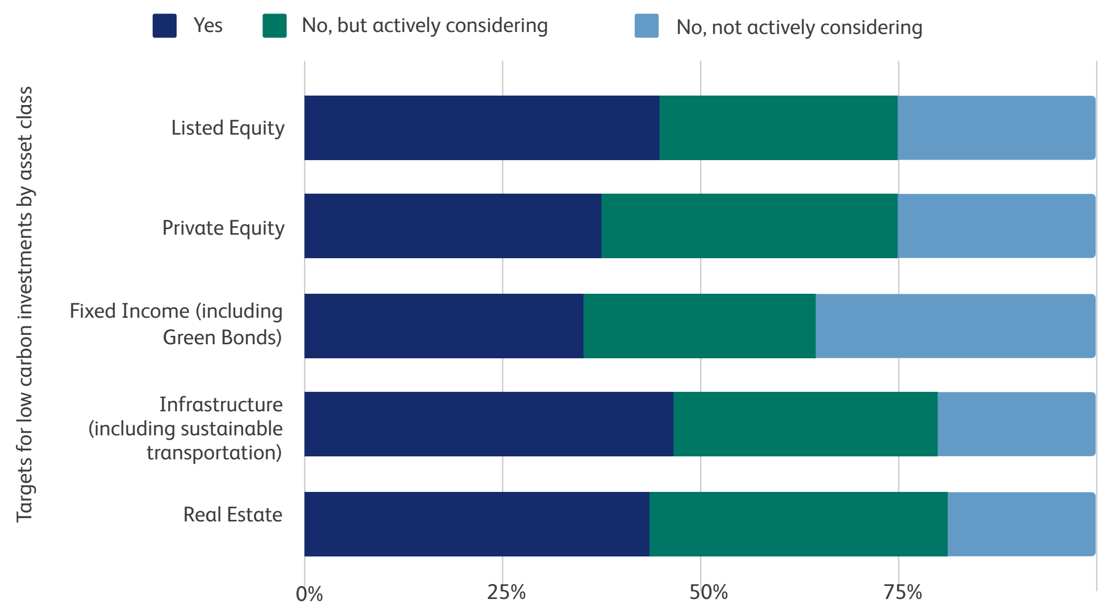


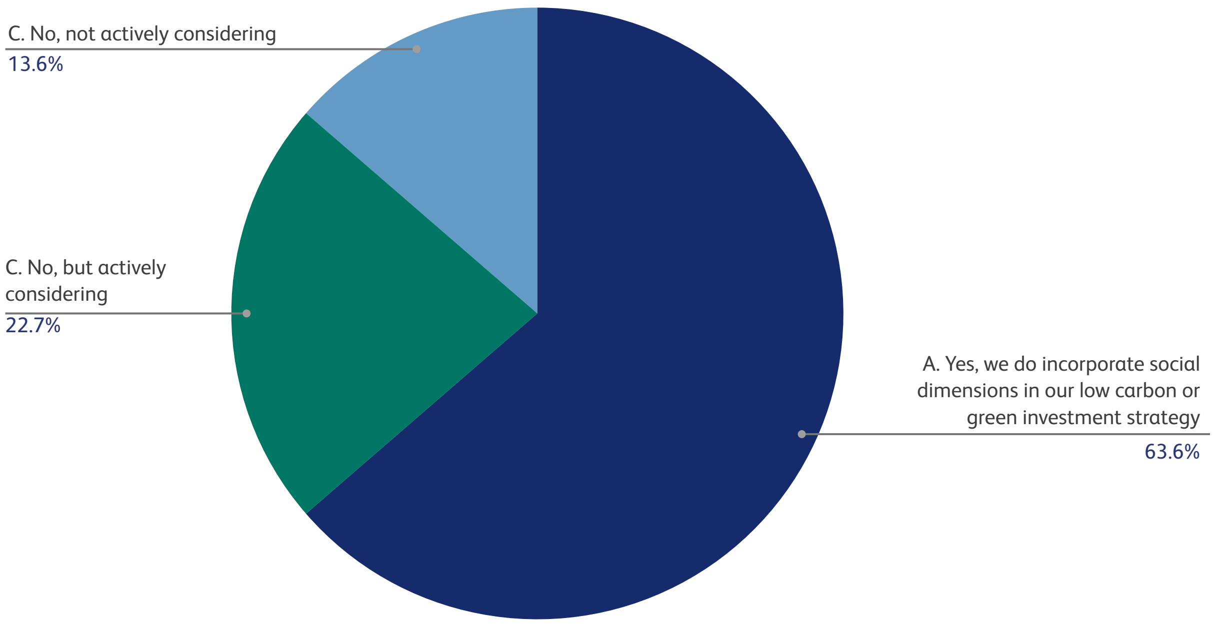
Figure 10. Portfolio or asset class specific targets



THE SOCIAL DIMENSION

It is essential in the transition to a modern climate economy, that the climate agenda is responsive to the burden of climate change vulnerability on the disadvantaged. The integration of societal impacts on climate investment decisions is also an area of focus for Asian investors. The high proportion of investors currently incorporating social dimensions or actively considering to do so indicates the importance of this dimension.

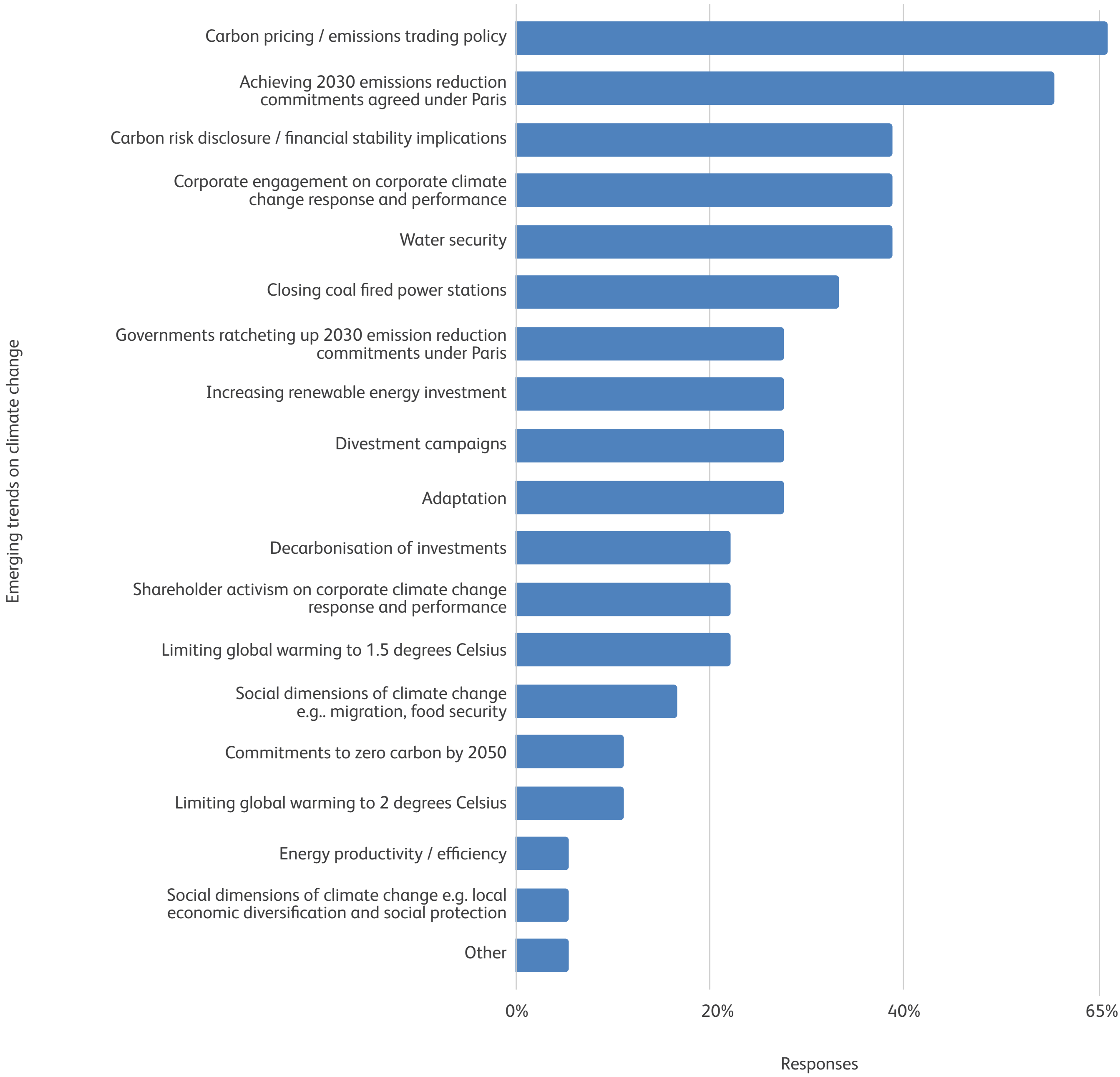
Figure 11. Proportion of investors incorporating social dimensions into low carbon or green investments



EMERGING TRENDS AND ORGANISATIONAL PRIORITIES

With a range of responses to investors' perception of key climate change issues and organisational priorities, we were able to identify some common concerns and recurring themes around policy engagement, target setting for portfolio management purposes, emerging concerns on physical risk and corporate engagement. The following chart outlines the key trends identified by investors.

Figure 12. Emerging trends on climate change as perceived by investors



POLICY ENGAGEMENT

Investors have shown interest in amplifying their voice in policy development. Carbon pricing and emissions trading policy was considered to be one of the most material issues to arise, given the expected impact to investments. Consequently, policy work sits high on investors' organisational priorities, with investors expected to step up either individually or collaboratively on policy engagement in regional and international policy work.

TARGET SETTING AND PORTFOLIO MANAGEMENT

Carbon and climate risk is at the top of investors' agenda when it comes to managing portfolios. Slightly lower but following closely were investors' expectations of governments to ratchet up their 2030 emission reduction commitments under Paris. These commitments will have an impact on how portfolios are managed, as investors were also conscious of emerging trends on carbon risk disclosure and the associated implications for financial stability.

Issues investors will be monitoring include: portfolio management measures such as measurement of carbon intensity and footprinting of portfolios; strategic asset allocation; portfolio decarbonisation and divestment. Portfolio tilting, green and climate bonds as well as renewable energy investment were also listed. The breadth of options considered suggests that investors are implementing bespoke strategies fit for portfolios managed under different mandates across different asset classes.

EMERGING CONCERNS ON PHYSICAL RISKS

Understanding physical risks and potential financial impacts is a key area of emerging concern. Using similar portfolio management strategies mentioned above, investors have shown interest in understanding how adaptation can be factored into their decision making. Water security is a critical issue for the region and of high concern for investors, but more research is required to better understand the portfolio impacts of other types of physical risks.

CORPORATE ENGAGEMENT

Many investors are now devoting more time and resources into engagement on corporate climate change response and performance especially through global collaborative engagement initiatives such as Climate Action 100+. A small sample of respondents have started to steer towards shareholder activism as part of their organisational priorities. The key issue is how best to effectively translate engagement conversations into corporate action and what kind of escalation tactics investors will consider.

Image courtesy of Armstrong Asset Management

Temasek: Climate Change is an existential issue for sovereign wealth funds

Temasek Holdings is a Singaporean holding company owned by the Government of Singapore. With strong national awareness and support to build resilience for climate change, the recent Temasek Annual Review was heavily focused on sustainability, and started with a call for action with the following[5]:

"Look at the melting polar ice caps, weather extremes, floods and droughts.

Think what it means if we let our planet go past the tipping point of 1.5 degrees Celsius – we are already one degree warmer, and will soon hit half a degree more if we do nothing.

Act boldly and purposefully to reduce pollution and waste, and halve our carbon emissions by 2030."

The commitment to 'act boldly and purposefully' resonates with national priorities as outlined by Prime Minister Lee Hsien Loong in August 2019, where the government will use a combination of sources to fund the S$100 billion for sea-level adaptation measures needed over the coming decades. The prime minister acknowledged "for us, climate change is existential... and that Singapore will do its full part to mitigate rising sea levels caused by climate change."[6]

As a response, Temasek has publically announced its aim to halve greenhouse gas emissions of its entire portfolio by 2030, and conduct a study on how they can shape a carbon neutral portfolio.[7]

With two-thirds of Temasek's underlying exposure in Asia, Temasek is acutely aware of the impact of climate change on its portfolio. Through engagement, perspectives are being shared with portfolio companies and stakeholders. By catalysing solutions to overcome food, energy, waste and water challenges, Temasek identifies key areas of issues that are exacerbated by climate change.

The investment approach for Temasek is to create sustainable value over the long term. As part of the investment analysis, the impact of sustainability-related factors to a company's long term ability to generate sustainable returns is reviewed. Temasek employs a broad-based research approach to assess company-level ESG information and carry out ESG due diligence determined by sector-specific and company-specific factors. Relevant data sources and tools will be used to enable robust ESG analysis and decision-making.

Integration efforts are expected to continually evolve across the investment process and the firm will also look at how investments can serve as a catalyst for change.

Image courtesy of Brawn Capital

Government Pension Investment Fund (Japan)

The Government Pension Investment Fund ("GPIF") identifies itself as a "Universal Owner" - an investor with a very large fund size, a widely diversified portfolio and a "Cross-generational Investor" that is designed as a part of a 100-year sustainable public pension scheme[8]. With its commitment to promoting sustainable development of the whole capital market, by minimizing negative externalities, including environmental and social issues, GPIF has been a strong market advocate to invest for the transition to a low carbon economy and is committed to ESG integration for all asset classes, including bonds and alternative assets.

The criteria for its global environmental index selection is to firstly focus on Positive Screening to minimise exclusions. Secondly, index providers should disclose evaluation results and methodologies. Thirdly, it requires index providers to have an appropriate governance structure. Finally, larger universes are selected to the extent possible, to provide small-cap stocks with opportunities to improve its sustainability performance.

In September 2018, GPIF started to benchmark approximately ¥1.2trn (over USD10 bn) of foreign and domestic equity portfolio against two newly-selected low carbon ESG indices, the S&P/JPX Carbon Efficient Index, and S&P Global Ex-Japan Large Mid Carbon Efficient Index. The indices are designed to increase index weights of the companies with lower carbon to revenue ratios within the industry. Moreover, mechanisms were introduced to encourage companies to actively disclose information on their carbon emissions.

In mid-2019, GPIF disclosed an estimated temperature of its overall portfolio to be >3˚C in an industry-leading analysis of their Portfolio Greenhouse Gas Emissions. This provided an update on how they are measuring their portfolio carbon profile through their investee companies in an innovative and powerful way.

Among the major listed companies analysed, a high proportion of the greenhouse gas emissions are emitted from public utilities, material, and energy industries. With an understanding that other companies' businesses may utilize the energy and materials made from these industries, GPIF articulates its policy in addressing climate change by engaging in efforts to promote improvement at investee companies rather than divesting. With a view that there will be a limitation to the total amount of GHG caused by the entire supply chain that can be captured and understood, GPIF encourages constructive dialogue within the investment chain to reduce climate change risks through competition within each industry. GPIF is a signatory to the Climate Action 100+ and participates via the Asia Advisory Group.

Barriers to Investment

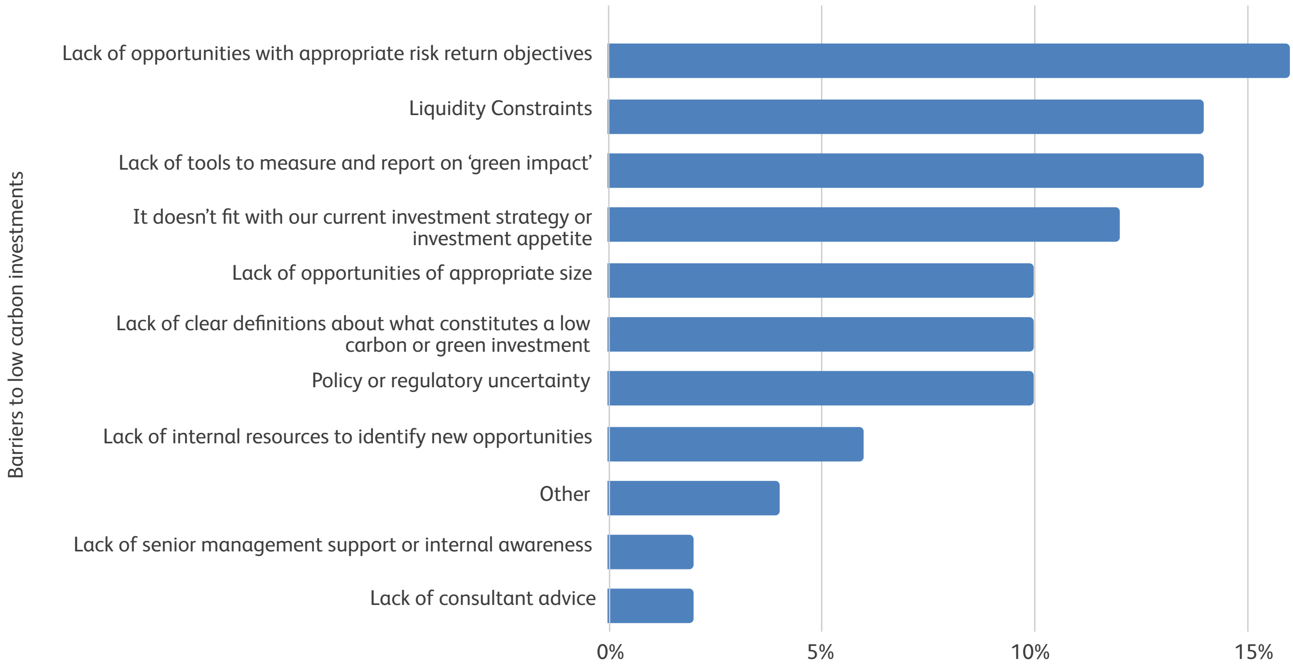
WHAT ARE THE MAIN BARRIERS TO INCREASING YOUR EXPOSURE TO LOW CARBON OR GREEN INVESTMENTS?

With investment activity occurring across a wider range of asset classes, barriers are more evenly spread across the practical challenges of execution. Market-specific nuances across pan-Asian markets pose various challenges for investors. To address these issues, and encourage greater investment in low carbon opportunities, a nuanced market-level understanding of each Asian market is required. In addition, organisations such as the Green Climate Fund, multilateral development banks and investment houses able to develop platforms to aggregate and scale up investments across the region and de-risk these investments for institutional investment must play a role.

However, there are certain broad views on commonly experienced barriers to investment, applicable to Asian markets.

Similar to views captured in the Australian survey, the perceived lack of opportunities with the right risk-return parameters is seen as one of the dominant barriers to increasing investment in green or climate-aligned opportunities.

Figure 13. Main barriers to increasing exposure to low carbon or green investments



Following closely are barriers owing to liquidity constraints and the lack of tools to measure and report on 'green impact'. This could be a result of imperfect market information and availability of sizable low-carbon opportunities which are not easily transferable to less liquid investments in traditional industries currently held by investors. However, taking the example from the energy sector, there is stranded asset risk due to the rapidly changing nature of the energy market as it decentralises and decarbonises.

More broadly, other issues identified included lack of opportunities of appropriate size, lack of clear definitions about what constitutes a low carbon or green investment and policy or regulatory uncertainty. There were also comments on the limited universe for green investments from emerging markets. On these last two points, harmonisation efforts of green taxonomies across regions would be immensely beneficial to Asian markets and is an area for policymakers to consider.

In addition, a recent report from the Climate Finance Leadership Initiative, "Financing the Low Carbon Future" [9] highlights these barriers and identifies opportunities and solutions to be found from them by mobilising private climate finance at the scale and speed needed to support an orderly transition to a low-carbon economy.

Conclusion

In summary, green and climate aligned investment activity in Asia is continuing to accelerate, innovating and diversifying across a broader range of markets and asset classes. Investors are actively looking for opportunities to support climate solutions and integrating climate risk into whole of portfolio management.

Investors have started to develop bespoke or proprietary frameworks in addition to the use of third party offerings for defining and measuring green[9] or climate aligned investment. Despite the lack of a harmonised or industry-standard taxonomy for defining climate investment at present, investors are monitoring existing efforts in China, EU and emerging work being done in Japan.

Mark Carney, Governor of the Bank of England, recently expressed that ‘mainstreaming sustainable investing will require a richer taxonomy - 50 shades of green’[10], that does not take a binary approach of only brown or green. This is in line with the increasing discussions over the notion of transition. The process of integrating climate into mainstream investor practice is a trend to watch.

The search for climate opportunities is moving into additional asset classes. Diversification is a key theme with investors allocating capital across a broad range of asset classes, including listed equities, private equity, fixed income, infrastructure and real estate.

The widespread adoption of the final recommendations of the TCFD by investors is impacting investor practice, through increased target setting and public commitments.

Investors are increasingly integrating the social dimensions of climate change into investment practice, alongside the environmental. In particular, the rise of social or impact investing, alignment with the UN Sustainable Development Goals and the importance of recognising a Just Transition are all significant factors for investors integrating social issues into climate investment.

Barriers to green investment are mainly due to the lack of a sufficient number of opportunities with the appropriate risk-return parameters, liquidity constraints and the lack of tools to measure and report on ‘green impact’. The diverse nature and geography of Asian markets also adds complexity to the nature of barriers across different markets. Investors generally look to markets where there are clear and stable policy settings and are increasingly active engagement with companies on how they are managing climate change factors.

Overall, there has been increasing interest and activity in low carbon and green investments in the region. The desire to pursue climate-aligned investment to support the objectives of the Paris Agreement to move to a net-zero emissions economy continues to accelerate.

AIGCC will continue to support growing appetite among Asian investors for climate aligned investments and to work with our members and stakeholders in the region to develop investable solutions to facilitate the transition to resilient, net-zero emissions economies.

Relevant websites and resources

- Arabesque Temperature Score
  https://arabesque.com/temperature-score/
- Asia Research & Engagement
  https://www.asiareengage.com
- Asia Sustainable Finance Initiative
  https://www.asfi.asia/
- Carbon Delta
  https://www.carbon-delta.com/
- CFA Institute Asia-Pacific Research Exchange (ARX)
  https://www.arx.cfa/en
- Green Economy Mark launched by London Stock Exchange
  https://www.lseg.com/sites/default/files/content/documents/Green%20Economy%20Fact%20Sheet%20issuer%20version_FINAL_0.pdf
- IGCC Resilience tools report
  https://igcc.org.au/wp-content/uploads/2016/04/IGCC-investing-in-resilience_AUG_Final.pdf
- Intensel https://intensel.com/
- IPE China Environmental Database and Maps http://wwwen.ipe.org.cn/
- PACTA Tool (Paris Agreement Capital Transition Assessment)
  https://www.transitionmonitor.com/

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