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Research Report on **Climate Performance of Chinese Asset Management Institutions** 2023

Authors:

Yuan Yuan, Li Jiacheng

Valuable comments and inputs were provided by:

Bao Qiong, Liu Wenjie, Yuan Ying, Wu Qi, August Rick, Liu Qilin, Tian Meng, Wang He, Tom NG, Winnie Chan
Greenpeace East Asia

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Executive Summary

The climate crisis is now one of the most pressing challenges to the sustainable development of natural ecosystems and human societies. Asset managers play a distinctive role in the financial sector's response to climate change. Armed with substantial flexible capital and a pivotal position in the investment chain, they offer financial support to a wide range of businesses and projects. Leveraging their influence, asset managers can accelerate the economic transformation while creating long-term value for their clients.

In recent years, there has been a surge in the popularity of ESG investing and green finance. Globally, regulations have been intensified to curb greenwashing practices among financial institutions. In China, the "dual carbon" goals and green finance policies have driven up responsible investments. However, in the face of a worsened climate crisis and a complex global economic landscape, further research and analysis are needed to evaluate financial institutions' progress in addressing climate change.

The Research Report on Climate Performance of Chinese Asset Management Institutions (the "Report") focuses on the progress made by China's major asset managers (AMs) in their climate actions, as well as monitors and summarizes their substantive measures to address climate change. First released in 2022, the Report follows the overall research framework while updating its methodology and implementing more rigorous scoring criteria in its 2023 edition.

Sixteen leading Chinese mutual fund managers were selected based on factors such as assets under management (AUM), place of incorporation, and data availability. By examining two core themes, Climate-related Risk Governance and Concrete Climate Actions, the Report provides AMs with comparable performance information using widely recognized benchmarks in order to accelerate industry-wide actions. Additionally, it offers insights for key stakeholders such as regulatory authorities and asset owners, and proposes actionable recommendations aimed at helping AMs contribute to China's carbon neutrality goals.

Key Findings

Core Theme 1: Climate-related Risk Governance covers three dimensions: the organization's governance structure around climate-related risks, processes of climate-related risk management, and the actual and potential impacts of climate-related risks. This theme explores how AMs perceive the influence of climate-related risks on their operations or portfolios. Starting with their top-level climate-related policies, the Report assesses the current status of each AM's awareness and practices in climate risk governance.

Compared to the 2022 edition, the study in 2023 reveals that the **16 AMs have shown significant progress in climate risk governance.** This suggests **growing awareness and prioritization of climate change issues** within the asset management sector. However, most AMs have not viewed climate-related risks as strategic risks with tangible impacts on their operations, nor do they integrate climate risk management processes into their overall risk management strategies. Additionally, more than half of these AMs need to disclose climate risk impacts and their countermeasures. Furthermore, they have yet to analyze the resilience of their strategies under different climate scenarios or disclose complete information regarding such analysis.

Core Theme 2: Concrete Climate Actions investigates the progress and outcomes of AMs in integrating climate issues into their decision-making processes, operations, and investment activities, aiming to provide evidence of the implementation and results of their top-level climate policies. Evaluation dimensions include the accounting and disclosure of greenhouse gas (GHG) emissions data, the climate target setting, the development of climate action plans, stewardship, climate-related information disclosure, and portfolio analysis.

Results show that AMs have made **slow progress in setting climate targets, accounting and disclosing GHG emissions, developing climate action plans, and disclosing climate information. There is an urgent need for these AMs to translate their awareness into concrete actions.**

1. Although the quantity of climate-related disclosures has increased, their quality still needs improvement. 2023 witnessed a rise in the overall number of disclosure reports from AMs, indicating progress in their overall climate performance. Six AMs, including China Southern Asset Management, Bosera Asset Management, China Merchants Fund Management, Invesco Great Wall Fund Management, Penghua Fund Management, and Da Cheng Fund Management, published environmental disclosure reports for the first time in 2022. However, the quality of climate-related information disclosures needs optimization, with issues such as inadequate data coverage, poor comparability, and insufficient standardization still prevalent.

2. AMs need more ambition for net-zero targets and carbon emissions accounting for their investment and financing activities. During the 2023 evaluation period, seven AMs, including China Southern Asset Management, Bosera Funds, China Merchants Fund Management, Da Cheng Fund Management, Penghua Fund Management, Yinhua Fund Management, and Invesco Great Wall Fund Management, disclosed carbon emissions for their funds for the first time. Despite the challenges of limited underlying data, many AMs have developed capabilities and infrastructure for calculating carbon emissions from investment and financing activities, blazing a trail for the industry in carbon emission accounting disclosure. However, none of these AMs has committed to science-based medium to long-term net-zero targets at the institutional level, indicating a lack of ambition to achieve net zero.

3. Stewardship has emerged as a critical lever for AMs to undertake climate actions, yet there is still

room for improvement in its disclosure practices. AMs are increasingly prioritizing stewardship strategies, evidenced by significant enhancements in the "Stewardship" indicator among the 16 AMs. More AMs are developing internal policies on active ownership and voting, providing guidance to investee companies on engagement processes, and aiding in internal investment decisions. Additionally, a growing number of AMs are disclosing the methods, progress, and outcomes of actively managing investee companies' low-carbon transitions during the reporting period. However, the gap between local practices and international standard requirements regarding developing and disclosing detailed stewardship-related internal policies needs to be promptly addressed.

4. With hundreds of billions of yuan investments in high-carbon industries, AMs need to set clear strategies to facilitate the low-carbon transitions of the real economy. The Report analyzes approximately CNY 3.06 trillion in AUM across various AMs, with around CNY 267.2 billion allocated to high-carbon sectors and nearly CNY 74 billion directed toward fossil fuel industries. However, these AMs have yet to incorporate climate risk factors into their long-term asset allocation plans. None of the 16 AMs has outlined plans to phase out fossil fuel-related assets or disclosed stewardship strategies or institutional-level plans for promoting low-carbon transitions in specific industries or companies. Without such strategies, evaluating the effectiveness of these investments in driving low-carbon transitions becomes challenging. Given the exacerbating impacts of climate change, failure to expedite the development of climate strategies may not only affect investment portfolio values but also pose systemic financial risks.

5. The definition of sustainable-themed financial products remains unclear, elevating the risk of greenwashing behaviors in carbon-neutral mutual funds. AMs are increasingly launching financial products linked to green investments as a key strategy to capitalize on climate opportunities. However, our analysis of 40 sustainable-themed mutual funds reveals that AMs pay insufficient attention to disclosing information regarding sustainable, ESG-themed investment products and lack consensus on enhancing the transparency of such information. Additionally, the reliance on index providers for defining index themes, selecting constituent stocks, and rating in passively managed funds has led to inconsistencies and ambiguity in theme names and investment strategies. Furthermore, existing policy guidelines for green economy activities do not adequately cover mutual funds primarily composed of equity assets, resulting in significant controversy over greenwashing allegations for both actively and passively managed funds.

Recommendations

In light of the findings presented in the Report, we call on:

- **Policymakers and regulatory authorities, such as the China Securities Regulatory Commission and the Asset Management Association of China, to enhance regulatory policies in the following areas:**

1. For the asset management sector:
1) Mandate the disclosure of environmental and climate information.
2) Enact mandatory disclosure requirements for sustainable financial products to ensure mutual funds align with stated sustainable goals or purposes and prevent greenwashing risks.
3) Introduce a stewardship code, drawing upon international policy practices, to promote active ownership by various financial entities on climate issues.

2. For listed companies in real sectors:
Urge quantitative disclosure of green/transition economy activities, utilizing financial indicators such as the proportion of green/transition revenue, capital expenditure, and operating costs to demonstrate alignment with environmental objectives.

- **Chinese asset management institutions to intensify climate actions and reduce greenwashing risks through the following measures:**

1. Commit to achieving net-zero carbon emissions across all operations and investment and financing activities by 2050 or sooner and establish specific phased targets and corresponding climate action plans to ensure effective implementation.
2. Initiate accounting and disclosure of carbon emissions related to all investment and financing activities, disclose portfolios' climate-related risks, including the proportion of high-carbon and green assets held, and strengthen analysis of climate-related financial risks to conduct more comprehensive risk assessments of high-carbon assets.
3. Standardize the management of sustainable-themed financial products, define theme names and investment strategies carefully, and collaborate with index providers to mitigate greenwashing controversies.
4. Actively monitor the development of transition finance, develop and publish stewardship plans for high-carbon assets, and report the outcomes in exercising shareholder rights.

I. Background

The climate crisis is now one of the most pressing challenges to the sustainable development of natural ecosystems and human societies. As climate change awareness grows, countries around the world are setting carbon neutrality goals that align with the objectives of the Paris Agreement. While the financial sector plays a crucial role in supporting the low-carbon transitions of the real economy, there remains a significant gap in climate investment and financing.

In 2023, environmental, social, and governance (ESG) investing continued to be a prominent topic. Tighter regulations have been implemented globally to mitigate the risk of greenwashing by financial institutions, particularly asset management institutions. For instance, the European Commission's Sustainable Finance Disclosure Regulation (SFDR) mandates that asset management institutions disclose their investments' potential adverse impacts on sustainability factors such as climate change[1]. Similarly, the U.S. Securities and Exchange Commission has proposed more specific and stringent disclosure requirements [2] [3] for asset management institutions and financial products involving ESG investment.

In Mainland China, oversight of financial institutions has improved under the green finance framework since 2012, with more specific rules and higher standards being introduced. Regulators, including the former China Banking Regulatory Commission and the former China Banking and Insurance Regulatory Commission, have issued various policies for the banking and insurance sectors. However, regulation for the asset management sector is still in its early stage. Please see Appendix III for significant green finance policies in Mainland China.

The introduction of green finance and ESG investing guidelines in recent years has driven China's sustainable investment market expansion. According to the *Fifteen Years of Responsible Investment in China report* released by the China Sustainable Investment Forum (China SIF), ESG investment in the Chinese mainland has grown rapidly in the past few years. As of September 2023, China's responsible investment market size reached approximately CNY 33 trillion, with 86.2% coming from green loans issued by commercial banks. Despite a small share, mutual funds have seen a notable increase in the number of products. By September 2023, 98 fund companies issued over 700 ESG mutual funds, totaling over CNY 500 billion[4].

1 EUROSIF. SFDR. (n.d.). https://www.eurosif.org/policies/sfdr/

2 US Securities and Exchange Commission. (2022). Enhanced Disclosures by Certain Investment Advisers and Investment Companies About Environmental, Social, and Governance Investment Practices. https://www.federalregister.gov/documents/2022/06/17/2022-11718/enhanced-disclosures-by-certain-investment- advisers-and-investment-companies-about-environmental

3 US Securities and Exchange Commission. (2022). SEC Proposes Rule Changes to Prevent Misleading or Deceptive Fund Names. https://www.sec.gov/files/rules/proposed/2022/ic-34593.pdf3

4 Aegon-Industrial Fund, CIB Wealth Management, SynTao Green Finance, China SIF. (2023). ESG New Journey: Fifteen Years of Responsible Investment in China report. https://www.xqfunds.com/data/20231130131701esg.pdf

Asset management institutions play a distinctive role in the financial sector's response to climate change. Armed with substantial flexible capital and a pivotal position in the investment chain, they offer financial support to a wide range of businesses and projects. Leveraging their influence, asset management institutions can accelerate economic transformation while creating long-term value for their clients. This not only aligns with the global emissions reduction goal but also reflects investors' increasing focus on environmental, social, and governance factors. As ESG and sustainable investing gain popularity in China, further research and analysis are necessary to evaluate the progress made by asset management institutions in their climate responses.

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II. Research Methodology

1 Introduction

1.1 Research Objectives

The Research Report on Climate Performance of Chinese Asset Management Institutions (the "Report") focuses on the progress made by China's major asset managers (AMs) in their climate actions, as well as monitors and summarizes the substantive measures to address climate change. The Report aims to offer insights for key stakeholders, including regulatory authorities and asset owners, on how financial institutions respond to climate issues. By utilizing widely recognized benchmarks, it provides AMs with comparable performance information to accelerate industry-wide actions. Additionally, it proposes actionable recommendations to help these AMs contribute to China's carbon neutrality goals.

1.2 Research Subjects

Sixteen leading mutual fund managers in China were selected for evaluation based on factors such as assets under management (AUM), place of incorporation, and data availability. These AMs include Bosera Asset Management, Da Cheng Fund Management, ICBC Credit Suisse Asset Management, Fullgoal Fund Management, GF Fund Management, Guotai Asset Management, Invesco Great Wall Fund Management, Hwabao WP Fund Management, China Asset Management, China Universal Fund Management, Harvest Fund Management, China Southern Asset Management, Penghua Fund Management, E Fund Management, Yinhua Fund Management, and China Merchants Fund Management.

All 16 asset managers are mutual fund managers registered in Mainland China. AUM data was obtained from two sources: the scale of mutual fund managers in 2022[5] released by the Asset Management Association of China (AMAC), and the Top 500 Asset Managers in 2023 published by Investment & Pension Europe (IPE)[6]. Additionally, being a signatory to the United Nations Principles for Responsible Investment (UN PRI) and managing investments for the basic pension fund were also critical criteria considered[7].

5 Asset Management Association of China. (2022). Ranking of Monthly Size of Non-Monetary Mutual Funds by Fund Management Institutions. https://www.amac.org.cn/sjtj/datastatistics/fundindustrydata/

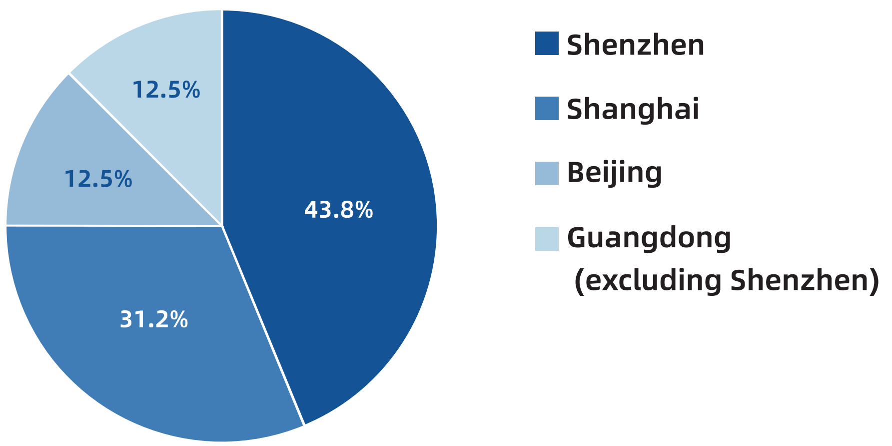
6 China Fund. (2023). The Highly Anticipated Asset Management Rankings Revealed! https://app-web.chnfund.com/jx/jxtt/202306/t20230616_4215730.html?path=article

7 Asset Management Association of China. (n.d.). Basic Pension Insurance Fund Investment Management Institutions. https://www.amac.org.cn/fwdt/wyc/jgcprycx/jgcx/yangLaoJinBaoXian/

Table 1. Place of incorporation, PRI signatory, and Basic Pension Fund Management of 16 asset managers

Company Name	Place of Incorporation	PRI Signatory	Investment Manager of the Basic Pension Fund
E Fund Management	Guangdong	Y	Y
China Asset Management	Beijing	Y	Y
GF Fund Management	Guangdong	Y	Y
Fullgoal Fund Management	Shanghai	Y	Y
China Merchants Fund Management	Shenzhen	Y	Y
China Universal Asset Management	Shanghai	Y	Y
China Southern Asset Management	Shenzhen	Y	Y
Harvest Fund Management	Shanghai	Y	Y
Penghua Fund Management	Shenzhen	Y	Y
ICBC Credit Suisse Asset Management	Beijing	Y	Y
Invesco Great Wall Fund Management	Shenzhen	N	Y
Guotai Asset Management	Shanghai	Y	N
Yinhua Fund Management	Shenzhen	Y	Y
Hwabao WP Fund Management	Shanghai	Y	N
Da Cheng Fund Management	Shenzhen	Y	Y
Bosera Asset Management	Shenzhen	Y	Y

Figure 1. Distribution of Place of Incorporation



1.3 Research Framework

Leveraging our self-developed Climate Performance Evaluation System for Chinese Asset Management Institutions (see Appendix I for indicators and weights), the Report uses qualitative and quantitative analyses to review and assess the climate actions of major Chinese mainland AMs. First released in 2022, the Report follows the overall research framework while updating its methodology and implementing more rigorous scoring criteria in its 2023 edition.

This evaluation system encompasses two core themes.

Core Theme 1: Climate-related Risk Governance covers three dimensions: the organization's governance structure around climate-related risks, processes of climate-related risk management, and the actual and potential impacts of climate-related risks. This theme explores how AMs perceive the impact of climate change on their operations or portfolios. Starting with their top-level climate-related policies, it assesses each company's understanding and implementation of climate-related risk governance. The indicators are primarily derived from the Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and the Guidelines for Environmental Information Disclosure by Financial Institutions, the first industry-wide recommended standard for environmental information disclosure issued by the People's Bank of China (PBOC).

Core Theme 2: Concrete Climate Actions looks at six dimensions to gauge how AMs influence climate change. It investigates the progress and outcomes of AMs in integrating climate issues into their decision-making processes, operations, and investment activities, using external data and information to verify the implementation and results of their top-level climate policies. Evaluation dimensions include the comprehensive accounting and disclosure of greenhouse gas (GHG) emissions data, the climate target setting, the development of climate action plans, comprehensive stewardship, climate-related information disclosure, and portfolio analysis. These indicators draw upon frameworks or standards such as the Investor Climate Action Plan Expectations Ladder (ICAP), the PRI reporting framework, and the SFDR.

Each asset manager receives a rating between 0 and 100 for each theme based on its overall performance. These scores are then used to classify these AMs into grades ranging from A to F.

F	E-	E	E+	D-	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
(0-24)	(25-30)	(31-35)	(36-40)	(41-45)	(46-50)	(51-55)	(56-60)	(61-65)	(66-70)	(71-75)	(76-80)	(81-85)	(86-90)	(91-95)	(96-100)

2 Research Methods

2.1 Qualitative Analysis

The qualitative analysis focuses on eight primary indicators (A to H) and 33 secondary indicators within the Climate Performance Evaluation System. Each secondary indicator is scored on a five-point scale to evaluate the presence and quality of disclosed information, with each option corresponding to 0%/25%/50%/75%/100% of the total. An AM's overall score is then calculated by weighting these scores.

All information used in the qualitative analysis is publicly available and was collected before December 31, 2023. This includes reports published by AMs from 2022 to 2023, such as ESG investment reports, environmental disclosure reports, and corporate social responsibility (CSR) reports (see Appendix V for a complete list of references), and reports released via third-party organizations. It is worth noting that while some AMs may have wholly owned subsidiaries or be controlled by other financial institutions, we do not consider reports from those institutions, which fall within the ownership hierarchy, as primary sources of information.

2.2 Quantitative Analysis

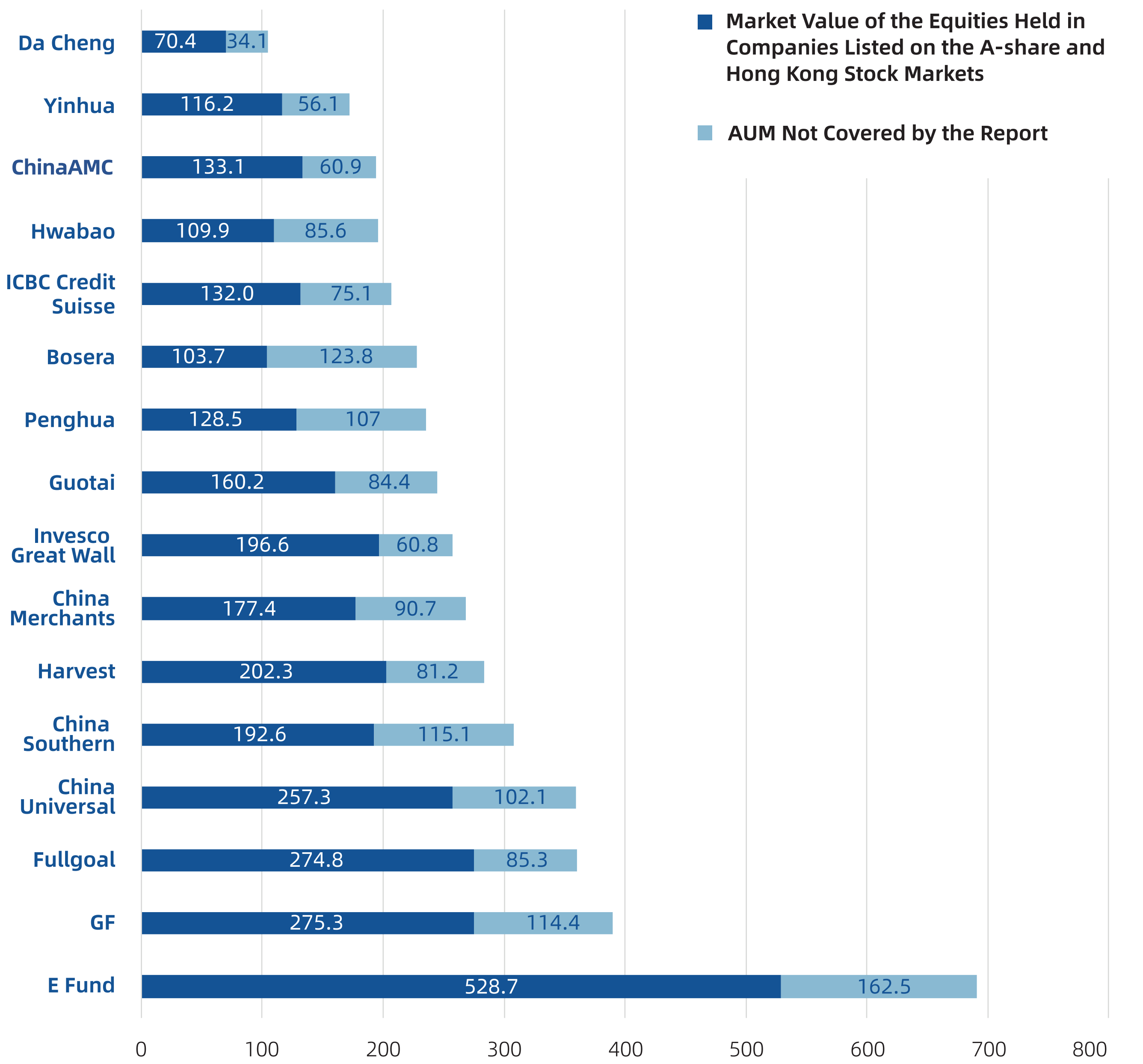
In the quantitative analysis, we investigated equity holdings and sampled sustainable-themed funds. The equity holdings analysis targets shares held by AMs in companies listed on the A-share and Hong Kong stock markets[8]. Sampled sustainable-themed funds include 40 products, excluding those targeting specific green industries, selected from 16 AMs, all issued in the Chinese mainland since 2021. These products feature names containing keywords such as green, environmental-friendly, low-carbon, sustainable, ESG, carbon neutral, and climate[9]. Analysis of these products focuses on their equity investment[10].

8 Limited to the AUM covered by the Bloomberg terminal database

9 Such as funds focusing on new energy vehicles and green electricity

10 In analyzing the proportion of holdings related to ESG-themed funds, we did not use the net asset value percentage. Instead, we calculated the proportion of each stock's market value to the total equity holding's market value, thereby avoiding a bias toward products with a higher proportion of bank deposits.

Figure 2. AUM Covered by the Quantitative Research in the Report (in CNY 1 billion)



The Report aims to assess the proportion of investments in high-carbon emission sectors/companies across AM's equity holdings and products. We classified sectors based on their direct and indirect carbon emissions, emission intensity, and input-output relationships between production functions or products. Please note that while the energy consumption data released by the National Bureau of Statistics of China (NBSC) aligns with the latest version of the National Economic Industry Classification (GB/T 4754-2017), inconsistencies exist in the granularity of disclosure across different sectors. To ensure consistency, we used the NBSC's minimum granularity of energy consumption data in our industry classification (see Appendix II). Next, the AMs' investee companies were categorized into High-Carbon, or Non-High-Carbon and Fossil Fuel-Related or Non-Fossil Fuel-Related based on their industries and primary businesses.

See Appendix II for details on data sources and methods for classifying industry and listed companies.

3 Limitations of the Study

The Report's methodology may have the following limitations, which we aim to address and optimize in future work.

1. The industry classification hierarchy used in the Report is constrained by the granularity of data disclosed by the NBSC. In specific sectors where granularity is coarse, it is challenging to assess subsectors accurately without precise data. For instance, the "Transportation, Warehousing, and Postal Services" sector only has aggregated data available. Given its moderate emission intensity, all its subsectors, like "Air Transport," were classified as Non-High-Carbon.

2. The industry classification method adopted in the Report is based on the National Economic Industry Classification, which may not fully align with green economic activities. First, a single industry may correspond to multiple green activities. For example, "Electricity, Heat Production, and Supply" covers various clean energy production activities and non-green activities, making it impossible to categorize the industry as High-Carbon or Low-Carbon. To address this issue, we used the method mentioned above. Second, a single green activity may span multiple industries. For example, "Renewable Energy Technology Manufacturing" can be classified into various manufacturing categories like "Special Equipment Manufacturing", "General Equipment Manufacturing", and "Electrical Machinery and Equipment Manufacturing". However, it does not necessarily imply that these industries solely utilize renewable energy sources, leading to controversy over the classification of industries and companies involved in renewable energy technologies.

3. While exceptions are considered for specific industries, differences in individual companies, such as revenue composition, business distribution, and technological processes, can limit evaluation accuracy.

4. Due to limitations in the coverage of public data and data providers, we do not evaluate business areas beyond equity investments.

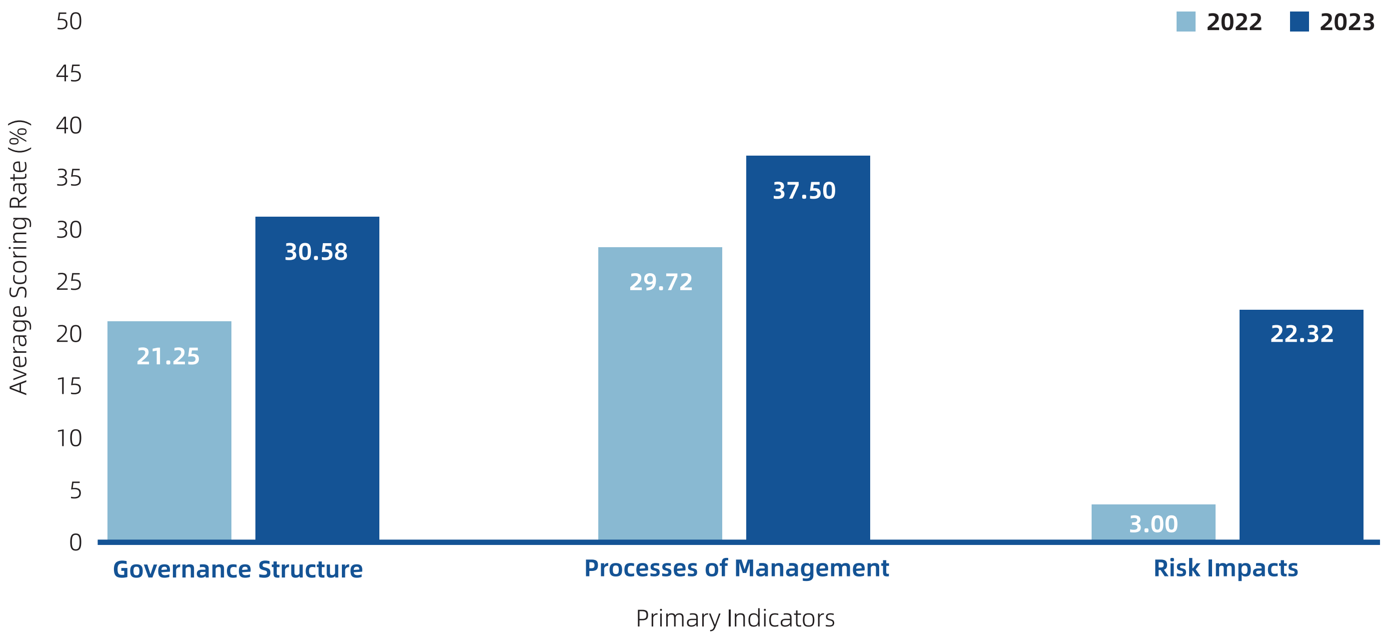
III. Conclusions and Findings

1 AMs have made progress in climate risk governance practices

Progress:

Compared to the 2022 results, the performance of the 16 AMs in 2023 showed significant progress in climate risk governance. Their average score rates for the three primary indicators of Core Theme 1 have all improved (see Figure 3), indicating growing awareness and prioritization of climate change issues within the asset management sector.

Figure 3. Comparison of Average Scoring Rates for Primary Indicators between 2022 and 2023 Reports



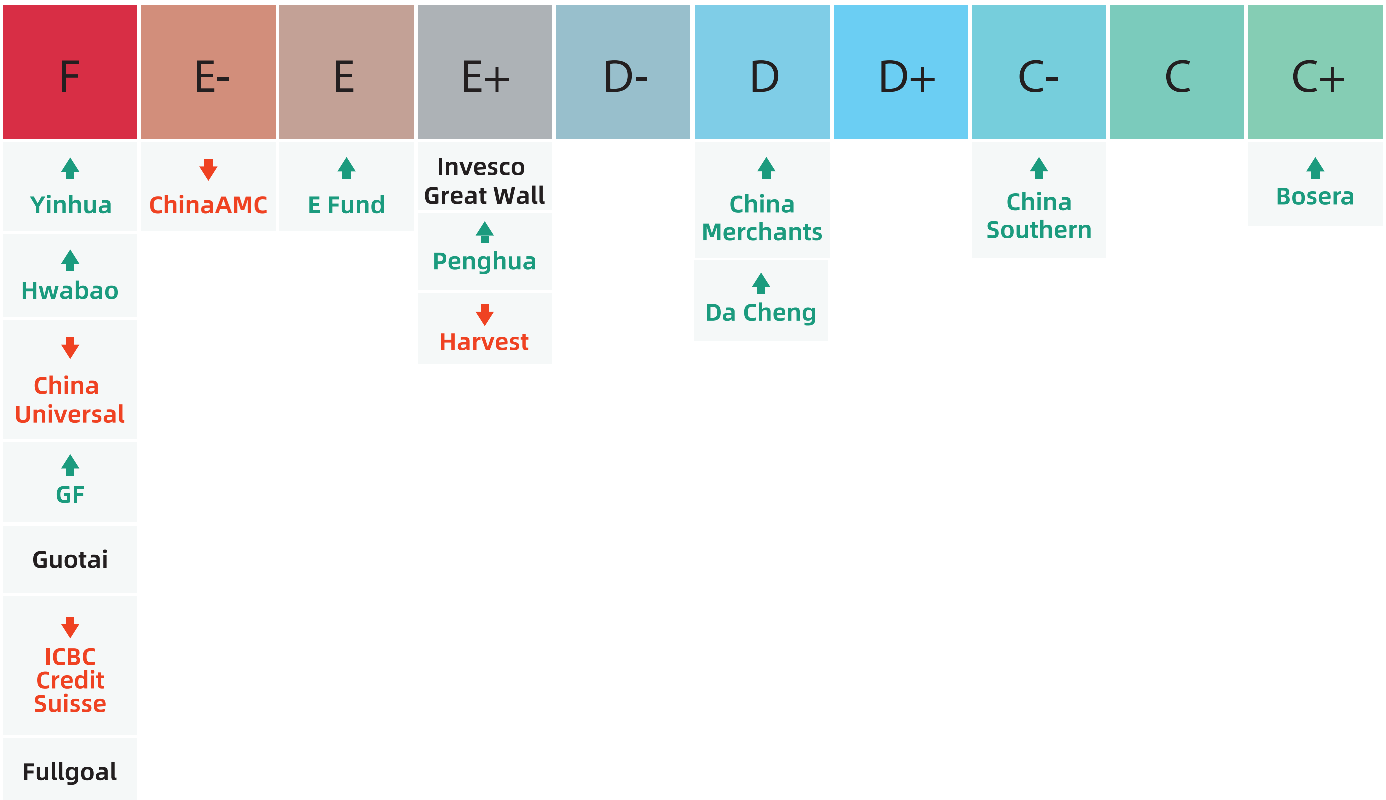
Overall, these AMs have made progress in their governance of climate-related risks. Most of them have, to some extent, disclosed their organizational structures and responsibilities for climate risk governance at both the executive level and within professional or working group levels.

Processes of climate-related risk management is a rapidly improving area in AMs' climate governance practices. By utilizing ESG frameworks, most of them have established methods, processes, and tools for risk identification, assessment, and management. For instance, some built a carbon emission database to monitor investee companies' climate risks, while others have incorporated environmental and climate risks during all phases of investment research. In 2023, more AMs began to draw upon regulatory requirements and globally recognized frameworks and standards in developing policies related to green finance or responsible investing, thereby ensuring standardized processes of climate-related risk management.

The average scoring rates for the actual and potential impacts of climate-related risks showed the most significant improvement. This is mainly due to the disclosures made by some AMs such as Southern, Bosera, China Merchants, Da Cheng, Harvest, Penghua, and Invesco Great Wall. They comprehensively analyzed the strategic, business, and financial impacts of climate change at different timeframes, including short-, medium-, and long-term, from the perspectives of transition risks and physical risks.

Several AMs had similar mid-range scores regarding performance ratings, while the gap between the top and bottom performers widened (Figure 4). In the 2023 report, four AMs were rated above E, and less than half were rated as F. In contrast, the best-performing company in the 2022 report only received an E+ rating, and two-thirds were rated as F. Nine AMs showed improvement compared to their performance in the 2022 report[11]. In 2023, Bosera made notable progress in climate risk governance, rising to a C+ rating and leading the Core Theme 1 rankings. Compared to 2022, China Southern improved markedly in climate risk governance, ranking second with a C- rating.

Figure 4. AMs' Performance Ratings and Performance Progress for Core Theme 1 Climate-related Risk Governance



11 Performance progress indicates the change in score from Core Theme 1 between the 2022 and 2023 reports. Black text is for AMs that are included in the ranking for the first time.

Discussion and Recommendations:

Guotai Asset Management, ICBC Credit Suisse Asset Management, and Fullgoal Fund Management did not disclose any relevant information regarding Core Theme 1 Climate-related Risk Governance.

Regarding governance structure around climate-related risks, less than half of the AMs disclosed information about the board's oversight of climate risks. Additionally, the disclosed information was vague and general, limiting its effectiveness—the average scoring rate for the secondary indicator "Board- and/or Board Committee-level Oversight of Decisions" was only 10.94%. This indicates that most AMs have not established a comprehensive top-down climate governance accountability system and fail to view climate-related risks as strategic risks with tangible impacts on their operations.

The overall average scoring rate for "Processes of Climate-related Risk Management" remained below 40%, suggesting significant room for improvement. AMs' management processes mainly focus on the ESG ratings of their investee companies, funds, and portfolios. Over half of them have not integrated climate risk management processes into their overall management strategies.

Despite a substantial rise, the overall scoring rate for "Actual and Potential Impacts of Climate-related Risks" remained below 30%. Only China Southern disclosed information on scenario analysis and stress testing for the first time, including methods, quantitative results, and countermeasures. The rest of these AMs failed to disclose climate risk impacts and their countermeasures. Furthermore, they have not analyzed the resilience of their strategies under different climate scenarios or disclosed complete information regarding the practices of such analyses.

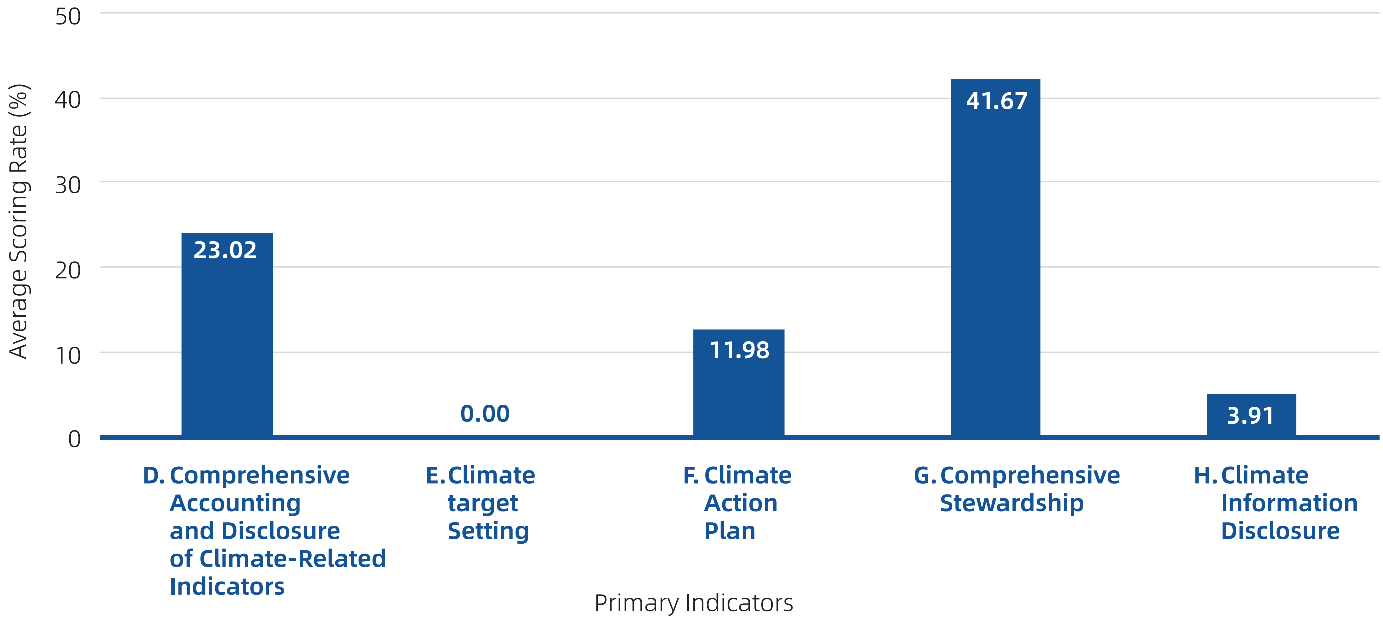
Table 2. Average Scoring Rates for Secondary Indicators under "Climate-related Risk Governance"

Primary Indicators	Secondary Indicators	Average Scoring Rates for Secondary Indicators (%)
Governance Structure (A)	A-1	10.94
	A-2	42.71
	A-3	32.03
Processes of Management (B)	B-1	40.63
	B-2	36.72
	B-3	32.81
Risk Impacts (C)	C-1	37.50
	C-2	32.03
	C-3	5.73

2 AMs urgently need to translate knowledge into concrete climate actions

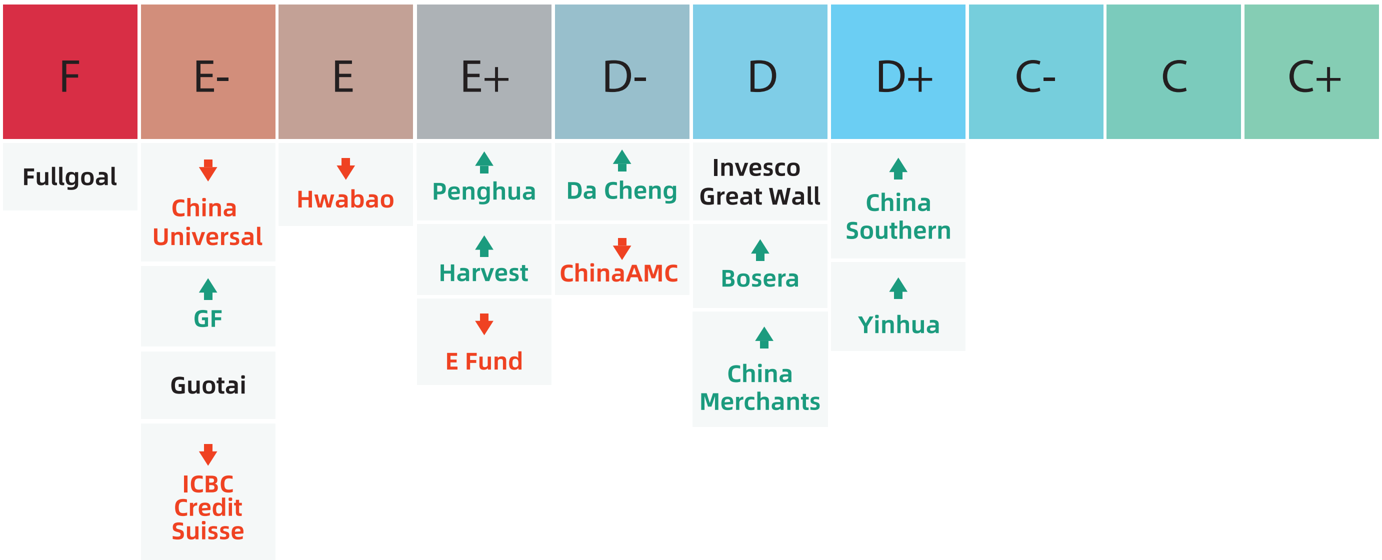
In contrast to the upward trend observed in all indicators under Core Theme 1, AMs' performance under Core Theme 2 Concrete Climate Actions was mixed in 2023. AMs have made major progress in "Portfolio Analysis" and "Comprehensive Stewardship". Notably, "Comprehensive Stewardship" had average scoring rates exceeding 40%, the highest among qualitative indicators. However, the scores for climate target setting, GHG emissions accounting and disclosure, climate action plans, and climate-related information disclosure were low (Figure 5).

Figure 5. Average Scoring Rates of the 16 AMs for Qualitative Primary Indicators under Core Theme 2



Eight AMs improved their performance ratings, and the number of AMs with an F rating dropped remarkably. Notably, China Southern Asset Management and Yinhua Fund Management outperformed their peers. On the other hand, Guotai Asset Management and Fullgoal Fund Management did not voluntarily disclose any relevant information and did not score in any qualitative indicators. Only Fullgoal Fund Management received an F rating (Figure 6).

Figure 6. AMs' Performance Ratings and Performance Progress for Core Theme 2 "Concrete Climate Actions"



2.1 Although the quantity of climate-related disclosures has increased, their quality still needs improvement

Progress:

In 2020, Shenzhen introduced the Regulations of Shenzhen Special Economic Zone on Green Finance, the first legislation on green finance in China[12]. The Shenzhen government mandated qualified financial institutions disclose environmental information in accordance with the Guidelines of the Shenzhen Municipality for Environmental Information Disclosure, and published a list of 161 financial institutions required for disclosures[13].

As required by this policy, six Shenzhen-registered AMs, including China Southern Asset Management, Bosera Asset Management, China Merchants Fund Management, Invesco Great Wall Fund Management, Penghua Fund Management, and Da Cheng Fund Management, which are assessed in the Report, released their 2022 environmental disclosures for the first time in 2023. The increase in the number of disclosures by these AMs significantly contributes to the overall improvement in the climate performance of the AMs assessed in the 2023 edition.

12 Shenzhen Government. (2020). Regulations of Shenzhen Special Economic Zone on Green Finance .http://www.sz.gov.cn/cn/xxgk/zfxxgj/zcfg/content/post_8279899.html

13 Shenzhen Green Finance Association. (2023). Announcement from the Shenzhen Municipal Financial Regulatory Administration Regarding the 2023 List of Shenzhen Financial Institutions Required to Disclose Environmental Information. https://www.szgfa.com/news_view.aspx?nid=2&typeid=28&id=975

Discussion and Recommendations:

The "Climate-related Information Disclosure" indicator assesses whether AMs regularly disclose information related to their climate actions. Dimensions assessed include whether they regularly disclose clear climate actions in independent reports and whether third parties have independently verified these reports. Unfortunately, the 16 AMs only registered a 3.91% average scoring rate for this indicator. Among them, China Southern Asset Management is the only one that has released ESG investment reports for three consecutive years; China Universal Asset Management publishes CSR reports every year but does not provide detailed information regarding climate change. It is worth noting that most of these AMs did not mention climate change-related content in their CSR reports. Although some have announced their support for the TCFD, none has issued a formal TCFD report. None of their reports have been independently verified and evaluated by third parties.

Furthermore, there is still room for improvement in the quality of environmental and climate information disclosure by AMs. Challenges include inadequate data coverage, poor comparability, and insufficient standardization. For instance, only a few AMs released climate risk reports based on the TCFD framework. While these reports offer qualitative analyses, quantitative analyses still need to be made available. These issues hinder performance comparisons between AMs.

In the short term, AMs continue encountering challenges in aligning their environmental and climate disclosure with international guidelines and frameworks. For example, acquiring ESG data from listed companies can be difficult, and these data are often incomparable. There are also issues with incomplete or inconsistent classification standards and methods. Regulatory differences may lead to uneven levels of climate-related information disclosure across different regions or jurisdictions. For instance, some AMs provide comprehensive information for their Hong Kong branches. While in Mainland China, where regulations are relatively vague, AMs tend not to disclose information proactively.

While challenges persist, Chinese AMs should not merely meet compliance requirements when identifying and disclosing climate-related issues. Instead, they should promptly begin voluntary disclosure.

First, climate change and low-carbon transition are among the most closely watched ESG issues for investors. Enhancing environmental and climate disclosure has become a global consensus in the financial sector. AMs' climate disclosure can provide a data foundation for portfolio management and internal policy formulation. This helps stakeholders identify and manage climate risks and opportunities in investment and financing activities, effectively monitoring the flow of funds in climate investment and financing, assessing climate and environmental performance, and reducing greenwashing risk. To strengthen long-term competitiveness, AMs must thoroughly integrate their business and strategies with ESG and sustainability concepts. Second, regulations have been upgraded to enforce the availability of underlying sustainability data. AMs should capitalize on the opportunities presented by these guidelines to expedite their climate actions.

The International Sustainability Standards Board (ISSB) issued the International Financial Reporting Sustainability Standards (IFRS) in 2023, which include standards for climate-related disclosures (IFRS S2). This move underscores the crucial role of climate-related information in sustainability disclosures. Financial regulators in major economies are transitioning from voluntary to mandatory requirements for disclosing climate-related environmental information. With the implementation of the ISSB's IFRS S2 in 2024, countries including China will face stricter requirements and standards for sustainability reporting. China's regulatory landscape for climate-related disclosures is also expected to tighten.

In 2024, the China Securities Regulatory Commission introduced guidelines on sustainable development reporting. On April 12, China's three major stock exchanges in Shanghai, Shenzhen, and Beijing simultaneously released the Guidelines on Sustainable Development Reporting for Listed Companies, which came into effect on May 1, 2024[14 15 16]. These guidelines mandate the constituent stocks of STAR50, SSE180, and SZE100, as well as companies listed both on the Chinese mainland and overseas, to disclose sustainability reports. With an emphasis on double materiality, these guidelines require listed companies not only to disclose governance, strategies, impacts, risk and opportunity management, indicators, and targets related to climate change, but also to further disclose matters such as climate adaptability, transition plans, total GHG emissions, emission reduction measures, and emission-related opportunities. Additionally, companies are encouraged to utilize third-party organizations to verify and authenticate disclosure reports to ensure quality.

2.2 AMs lack both ambition for net-zero targets and carbon emissions accounting for their investment and financing activities

Progress:

By procuring third-party data, constructing proprietary databases, and adopting the Partnership for Carbon Accounting Financials (PCAF) methodology, many AMs have developed capabilities and infrastructure

14 Shanghai Stock Exchange. (2024). Notice on the Release of the Shanghai Stock Exchange Listed Companies' Self-Regulatory Guidelines No. 14 - Sustainable Development Report (Trial Implementation). https://www.sse.com.cn/lawandrules/sselawsrules/stocks/mainipo/c/c_20240412_5737862.shtml

15 Shenzhen Stock Exchange. (2024). Notice on the Release of the Shenzhen Stock Exchange Listed Companies' Self-Regulatory Guidelines No. 17 - Sustainable Development Report (Trial Implementation). https://www.szse.cn/lawrules/rule/stock/supervision/currency/t20240412_606839.html

16 Beijing Stock Exchange. (2024). Notice on the Release of the Beijing Stock Exchange Listed Companies' Self-Regulatory Guidelines No. 11 - Sustainable Development Report (Trial Implementation). https://www.bse.cn/cxjg_list/200021393.html

for calculating carbon emissions from investment and financing activities at the product, portfolio, and organizational levels. They have blazed a trail for the industry in carbon emission accounting disclosure. While deserving commendation, these efforts reflect the challenges AMs face in building comprehensive emission accounting and disclosure capabilities, mainly due to insufficient underlying data from listed companies. As of June 2023, 1,714 of the A-share listed companies independently disclosed ESG reports or CSR reports, accounting for 32.9%[17]. This indicates a low disclosure rate of ESG information for A-share listed companies, with significant room for improvement in the coverage, statistical criteria, and authenticity of carbon emission data.

For instance,

- Penghua Fund Management reported 635.74 metric tons of carbon emissions from investment and financing activities in 2022, accounting for 0.12% of its investment and financing business.

- Da Cheng Fund Management calculated the carbon emissions and emission intensity of the Da Cheng CSI Shanghai Environment Exchange Carbon Neutral Exchange-traded Open-end Index Fund. In 2022, the fund emitted 33,695.07 metric tons of CO_2 equivalent, with the investment portion included in carbon accounting amounting to 0.07% of the company's AUM.

- Invesco Great Wall selected the Invesco Great Wall CSI New Energy Vehicle Battery ETF, a representative green finance-themed product. Currently, carbon accounting only covers holdings of investee companies with voluntary disclosures, representing 63.8% of the fund's total market value. Based on this, the company calculated the fund's carbon footprint as of December 31, 2022, reporting it in CO_2 equivalent generated per CNY 1 million investment. The carbon emissions from investment and financing activities were 2,690.97 metric tons of CO_2 equivalent, accounting for 0.10% of the company's total investment and financing business.

Additionally, more AMs are venturing into carbon emission accounting and disclosure. In the 2023 report, nine of these AMs disclosed carbon emissions related to scope 1, 2, and 3 categories, including employee commuting, office water and paper usage, and waste management. They also provided details on the data and methodologies used for emission calculation. In contrast, in the 2022 report, only three AMs disclosed scope 1 and 2 GHG emissions, with only one disclosing partial scope 3 emissions. Furthermore, 11 AMs did not disclose any verification and carbon emission-related information.

17 SynTao Consultancy. (2023). Research Report on ESG Information Disclosure for A-Share Listed Companies in 2022. http://www.syntao.com/newsinfo/6344195.html

Discussion and Recommendations:

Chinese AMs have been slow to set climate targets. As of 2023, none of these AMs has committed to science-based medium to long-term net-zero targets at the institutional level. These include intensity or absolute targets for scope 3 category 15 emissions, timelines, milestones, baselines, and base years. Financial institutions' operational activities generate lower carbon emissions than investment and financing activities, making achieving carbon neutrality in operations less challenging. However, even those who have announced their targets commit only to "achieving operational carbon neutrality" or "completing portfolio carbon emissions calculations by 20XX" without demonstrating ambitions for net zero.

For instance,

• ChinaAMC plans to complete baseline calculations and target setting for portfolio carbon emissions by 2025.

• Bosera Asset Management is steadily advancing its carbon neutrality progress. It aims to achieve operational carbon neutrality by 2025 and complete the baseline determination and target setting for portfolio carbon emissions by 2030.

• Yinhua Fund Management has started to calculate the carbon intensity of specific stock portfolios in 2023.

As a foundational infrastructure, comprehensive accounting of GHG emissions, including those from investment and financing activities, is crucial for AMs in setting their climate targets. However, they are still not willing to voluntarily disclose carbon emission information. Consistent with the findings from the 2022 report, the 2023 report revealed that none of the AMs assessed quantified and disclosed GHG emissions related to their investment and financing activities. For those making first-time carbon emission disclosures for their funds, the scale or proportion of investment and financing business included in carbon accounting remains low, with most being less than 1%. For example, China Southern stated in its report that it had calculated carbon emissions for all its stock portfolios and compared them with industry benchmarks to adjust asset allocation. However, it did not disclose the results in detail.

As the asset management sector thrives, mutual fund managers have increasingly expanded globally by setting up overseas subsidies[18]. According to information from the China Securities Regulatory Commission[19],

18 China Fund. (2023). Approved! More Chinese Fund Management Institutions Expand Globally. https://www.chnfund.com/article/AR2023073010384065806895

19 Asset Management Association of China. (n.d.). Government Information Disclosure. http://www.csrc.gov.cn/csrc/c101878/zfxxgk_zdgk.shtml?channelid=67351b5599d044b1a56f066e7eda9

12 out of the 16 AMs assessed in the Report have established subsidiaries in Hong Kong. When comparing the disclosures by their Chinese mainland headquarters and Hong Kong branches, we found that the difference primarily lies in calculating and disclosing carbon emissions at the product level. Among them, CSOP[20], ChinaAMC (Hong Kong)[21], and Bosera International[22] disclosed quantitative data such as the total carbon emissions, weighted average carbon intensity, and proportion of investment covered for 11, 21, and 5 products, respectively. The main reason for this difference is the mandatory requirements of the Hong Kong Securities and Futures Commission regarding climate-related risk management and disclosure for fund managers outlined in the Code of Conduct for Fund Managers. Effective in August 2022, the regulation requires large fund managers (defined as licensed corporations whose collective investment schemes' assets equal or exceed HKD 8 billion for any three months in the previous reporting year) to disclose their portfolios' carbon footprint[23].

The Report found that some AMs have developed the capability to conduct carbon accounting for their portfolios, enabling them to meet stricter regulations. Given the positive outcomes of the inaugural disclosure by AMs in the Chinese mainland, we anticipate more AMs to extend their practices from Hong Kong to the mainland. In the future, these institutions are expected to disclose their carbon emissions data related to investment and financing activities, formulate specific strategic goals, and elevate the coverage of disclosed investment and financing business annually.

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20 CSOP (2022). Climate Risk Report. https://www.csopasset.com/assets/pdf/esg/CsopClimateDisclosureReportTc.pdf

21 China Asset Management (Hong Kong) Limited. (2023). Climate-related Risk Management Policy. https://www.chinaamc.com.hk/wp-content/uploads/chinaamc/resources/climate.pdf

22 Bosera Asset Management (International) (2023). Bosera International Climate-Related Risk Information Preliminary Disclosure. http://www.bosera.com.hk/api/infobase/downloadattfile.do?attachmentId=11046

23 Hong Kong Securities and Futures Commission. (2021). Consultation Conclusions on the Management and Disclosure of Climate-Related Risks by Fund Managers. https://apps.sfc.hk/edistributionWeb/api/consultation/conclusion?lang=TC&refNo=20CP5

Table 3. Responsible Investment-related Information Disclosure by AMs' Hong Kong Branches

Asset Manager	Hong Kong Subsidiary	Information Disclosure
China Southern	CSOP	1. Responsible investment-related policies: Responsible Investment Policy, Stewardship Policy, Voting Process Guidelines 2. Annual reports: Climate Risk Report, Proxy Voting Results, Sustainable Development Report
E Fund	E Fund Asset Management (Hong Kong)	Responsible Investment Statement
Da Cheng	Da Cheng International	2022 Da Cheng International Climate-related Risk Management Disclosure Report
Harvest	Harvest International	Management and Disclosure of Climate-Related Risks，2022 Carbon Footprint Disclosure
ChinaAMC	ChinaAMC (Hong Kong)	Sustainable Investment Policy，ESG Engagement Policy，Proxy Voting Policy，China Asset Management (Hong Kong) Limited Climate-related Risk Management Policy
Bosera	Bosera Asset Management (International)	Bosera International Climate-Related Risk Information Preliminary Disclosure, Climate-related Risk Engagement Policy, Climate-related Risk Management Statement
Yinhua	Yinhua International Capital	ESG Policy Statement Yinhua International Capital Management Limited
GF	GF International Asset Management	Climate-related Risk Management Disclosure Statement
Guotai	Guotai Global Investments	Null
ICBC Credit Suisse	ICBC Credit Suisse Investment Management (International)	Null
China Universal	China Universal Asset Management (Hong Kong)	Null
Fullgoal	Fullgoal Asset Management (Hong Kong)	Null

2.3 Stewardship has emerged as a critical lever for AMs to undertake climate actions, yet there is still room for improvement in its disclosure practices

Progress:

The "Comprehensive Stewardship" indicator among the 16 AMs has significantly enhanced in the 2023 evaluation period. This indicator examines whether these AMs exercise active ownership through stewardship to facilitate investee companies' low-carbon transition and assesses their progress in participating in policy advocacy. The average scoring rate of these AMs in the investee corporate engagement indicator was 46.09%, higher than that of the policy engagement indicator, 32.81%. Among them, Bosera and ChinaAMC showed the most outstanding performance, while Southern and Harvest tied for third place.

Additionally, more AMs have focused on developing internal policies on active ownership, voting, and interaction, to guide their shareholder engagement process and assist internal investment decisions. Some AMs also use proprietary ESG rating systems or carbon emission databases to identify high-risk companies, clarify issue priorities, and guide the communication and engagement with investee companies. Furthermore, a growing number of AMs are disclosing the methods, progress, and outcomes of actively managing investee companies' low-carbon transitions. These include frequencies of participation in shareholder meetings and/or voting, and collective engagement activities through initiatives like "Climate Action 100+."

For instance,

• In 2022, Yinhua Fund Management made significant strides in improving stewardship policies and processes. 1. Strengthening stewardship infrastructure: Based on existing stewardship principles and policies, including voting and interaction policies, Yinhua developed a detailed voting manual that covers common voting items at A-share listed companies' shareholder meetings, providing guidance to internal investment research voting decisions. Yinhua encourages listed companies to explicitly define the scope of green capital expenditure in ESG reports or similar documents and provide quantitative disclosure. This facilitates investors' analysis of the alignment between target companies' strategies and capital allocation with low-carbon transition and sustainable development trends. It also makes it easier to monitor and supervise the implementation of target companies' low-carbon commitments. 2. Exercising shareholder rights to enhance the quality of listed companies: In 2022, Yinhua participated in 145 shareholder meetings held by 103 listed companies, involving 98 funds. It conducted special research or industry integration research and interaction activities with listed companies on corporate governance and environmental and social issues, including topics such as the board of directors and executives, equity incentives, low-carbon transition opportunities, climate risks, and production safety. In 2022, Yinhua's investment and research teams (including ESG researchers) participated in 2,525 research and interaction activities with 822 listed companies.

• In 2022, Bosera maintained ongoing interaction and diverse communication with several investee companies regarding environmental issues. It collaborated with a Chinese chemical business to enhance its climate-related disclosure. Under an international evaluation framework, the business' performance in carbon emissions, chemical safety, and water resources fell short of global best practices. Bosera aimed to help the business by communicating issues critical to the industry and performance improvement. This will bolster market recognition for the business' sustainability efforts, thereby lifting its value. Bosera provided sustainability recommendations to the business, prompting its voluntary transition toward greener practices and continuous enhancements in its ESG performance. First, the business aligned its carbon management efforts with the United Nations Sustainable Development Goals (SDGs) and published policies on carbon emissions. Second, it increased transparency in sustainable investment information and disclosed CDP climate change and water security information. Third, it took measures to gradually reduce GHG emissions and enhance water resource recycling rates.

• ChinaAMC provided climate disclosure advice to large domestic businesses, including a Chinese automobile manufacturing company, to support the achievement of the climate targets outlined in the Paris Agreement. The carmaker's environmental and climate disclosures followed national-level requirements but lacked awareness of international climate disclosure standards. As part of the Climate Action 100+ initiative's working group for the company, ChinaAMC collaborated with other institutional members to engage with the company, primarily through meetings with its management team. ChinaAMC recommended that the company include detailed information about its carbon neutrality strategy in its corporate reports and assess its vehicles' lifecycle emissions, starting with its flagship model. This will underscore its strengths in clean technology, showcasing to domestic and overseas investors Chinese automobile manufacturing companies' efforts toward zero-carbon transformation. Along with other group members, ChinaAMC devised a long-term engagement plan based on feedback from the company and planned to assess the progress and outcomes of its engagement through regular follow-up communications.

To promote stewardship policies, AMs are currently pursuing two main avenues. First, they collaborate with regulators on research, participating in policy consultations and standard formulation. Second, they partner with academic institutions and industry associations to lead research projects on green finance and ESG or conduct industry research on the transition challenges of high-carbon sectors.

For instance,

• China Southern contributed feedback on the draft of the International Financial Reporting Standards and engaged in the research on the Guidelines of the Shenzhen Municipality for the Development of a Green Finance System for Financial Institutions and its supporting policies.

• Partnering with the National Institute of Finance at Tsinghua University, Invesco Great Wall published reports analyzing the current status and transformation prospects of carbon emissions in listed companies within the coal mining, coal-fired power generation, and steel industries. It conducted research on carbon emission calculations and transformation strategies for listed coal power companies. It also offered insights on how the financial sector can facilitate low-carbon transitions in key industries at a forum on finance supporting the real economy in low-carbon transitions.

• China Merchants Fund Management, as a contributing entity, collaborated with peers to formulate the ESG Value Assessment Specifications for Iron and Steel Enterprises initiated by the Chinese Society for Metals.

Discussion and Recommendations:

We have noticed that more AMs are placing greater emphasis on stewardship strategies, which are becoming a central focus and significant lever for their climate actions. However, the gap between local practices and international standard requirements regarding developing and disclosing detailed stewardship-related internal policies needs to be promptly addressed.

First, most AMs did not prioritize climate issues in their stewardship strategies. Among the 16 assessed AMs, only ChinaAMC made carbon neutrality strategies their primary focus in ESG communications with Chinese companies since 2022. They also developed specialized communication strategies due to these companies' lack of understanding regarding carbon neutrality issues.

Second, most AMs did not disclose specific target companies or industries. Among the 16 assessed AMs, only China Southern, based on its self-built carbon emissions database, identified the top 100 companies with the highest carbon emissions in its fully covered portfolios as target companies for stewardship. However, the names of these top 100 companies were not disclosed.

Most importantly, most AMs did not disclose the outcomes of their engagements. Some only presented successful cases rather than providing comprehensive information. Transparency in shareholder voting practices also needs improvement. Only a few AMs have disclosed their internal voting policies and have not given details on voting records, reasons, and results. For instance, China Southern has helped several high-emission industries, including coal, oil and gas, and transportation, to reduce carbon emissions by leveraging its carbon emission database. However, details about how these industries reduced emissions were not disclosed.

Looking ahead to 2024, one of the most significant trends in responsible investment will be the expansion of transition finance. Its rapid growth not only brings new opportunities for the asset management industry but also poses fresh challenges in managing portfolios' climate-related risks and exercising active ownership. AMs must keep pace with the latest developments in transition finance to conduct stewardship activities for their high-carbon assets. They need to carefully evaluate the transition readiness and capabilities of high-carbon companies, urging them to set decarbonization targets and formulate detailed transition plans, in order to identify and support companies with genuine potential for transformation. Meanwhile, AMs need to develop their own institutional-level transition plans, ensuring that low-carbon transformation guides their investment activities as a strategic direction. These plans should encompass climate targets, carbon emissions (including those related to investment and financing activities), measures to address climate risks and opportunities, and goals and actions to support the low-carbon transition in the real economy.

Additionally, as China further opens to global markets, Chinese AMs must meet overseas trustees' and clients' higher expectations and requirements in sustainable investment. The results of the *Responsible Investment Survey Report for Asset Owners (2023)* released by China SIF highlight the greater importance of overseas asset owners to stewardship and engagement. They expect higher communication and engagement capabilities from fund managers, with climate change being the primary concern in communication[24]. Therefore, the asset management industry must enhance its level of stewardship and forge comprehensive, transparent, and outcomes-oriented climate engagement strategies, thereby mitigating the impact of climate risks on asset owners' portfolios.

2.4 With hundreds of billions of yuan investments in high-carbon industries, AMs need to set clear strategies to facilitate the low-carbon transitions of the real economy towards net zero

The 16 AMs analyzed in the Report have a combined equity investment of approximately CNY 3.06 trillion[25], with around CNY 267.2 billion (8.73%) allocated to high-carbon sectors and nearly CNY 74 billion (2.41%) directed toward fossil fuel industries.

Regarding the position ratio of high-carbon investments, six AMs, including Da Cheng, Fullgoal, Southern,

24 SynTao Green Finance. (2023). Responsible Investment Survey Report for Asset Owners. https://www.syntaogf.com/products/srao2023

25 As of September 2023

Guotai, Harvest, and GF, surpass the industry average of 8.73%. Da Cheng leads with the highest proportion (16.42%), significantly exceeding the industry average. Fullgoal and Southern follow closely, with position ratios over 10%. Most other AMs have a position ratio for high-carbon industries ranging from 7% to 10%. Among the seven high-carbon sectors, the chemical industry (chemical raw materials and chemical product manufacturing) attracts the most investments from most AMs.

Regarding the absolute value of assets invested in high-carbon industries, the top five AMs–E Fund, Fullgoal, GF, Southern, and China Universal–collectively contribute over half (51.8%) of the total investment by all 16 AMs. Notably, E Fund invested over CNY 40 billion, accounting for 15% of the total investment (Figure 8). GF's investments in electricity, heat production, and supply exceed one-third of the total investment, while E Fund's investments in ferrous metal smelting and rolling processing also surpass one-fourth of the total investment.

Table 4. Investments in High-carbon Industries by AMs

Asset Manager	Investments in High-carbon Industries (in CNY 100 million)	Position Ratio for High-carbon Industries
E Fund	406.42	7.69%
Fullgoal	316.77	11.53%
GF	255.77	9.29%
China Southern	215.04	11.16%
China Universal	189.81	7.38%
Harvest	188.94	9.34%
Guotai	155.47	9.71%
Invesco Great Wall	152.96	7.78%
Da Cheng	115.54	16.42%
ChinaAMC	112.65	8.46%
China Merchants	111.90	6.31%
Penghua	107.34	8.35%
Yinhua	95.25	8.20%
ICBC Credit Suisse	85.19	6.45%
Hwabao	82.27	7.49%
Bosera	80.34	7.75%

Figure 7. Distribution of AMs' Equity Investments Across Seven High-carbon Industries (in CNY 1 billion)

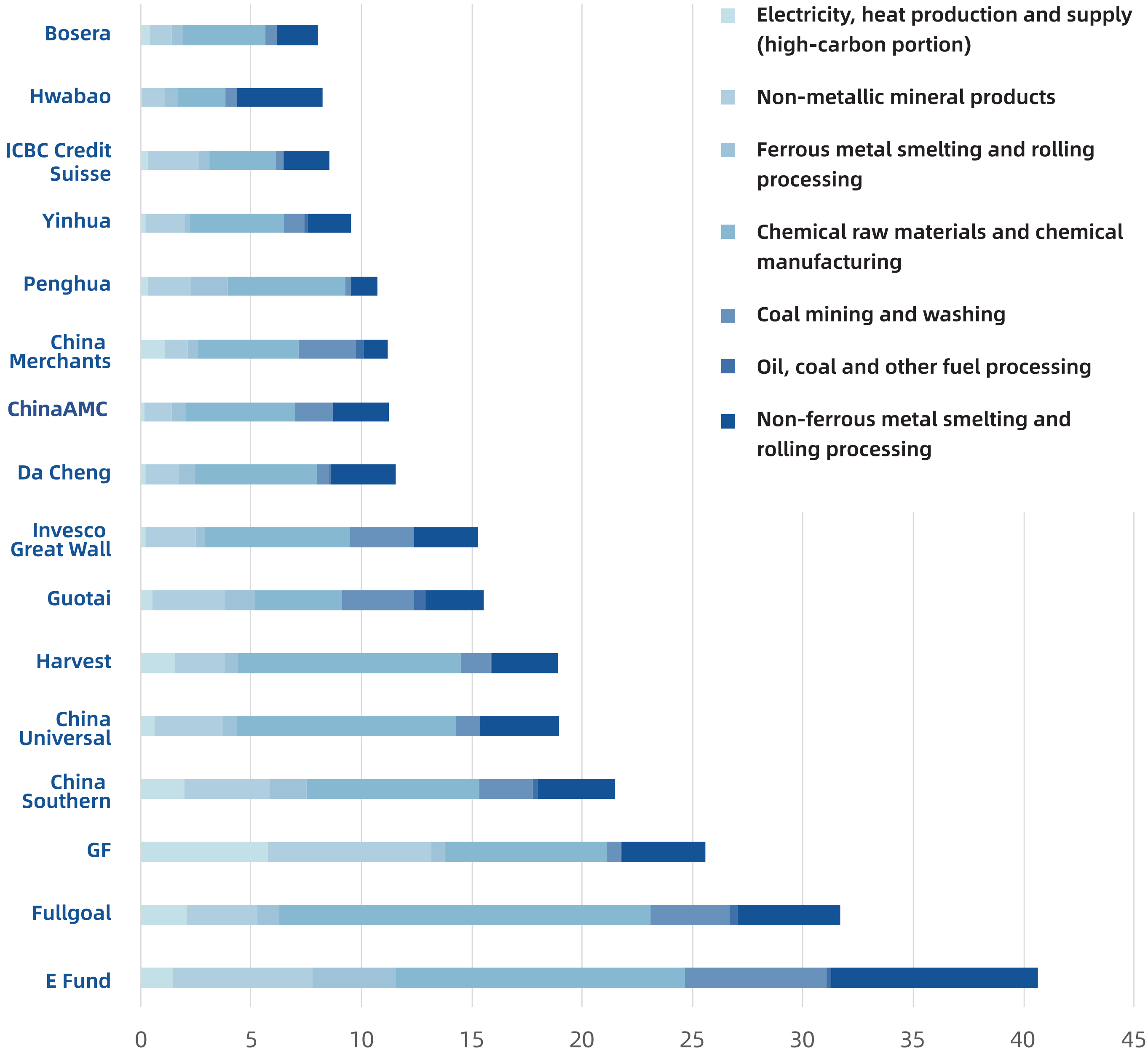


Figure 8. Proportions of High-carbon Investments Among 16 AMs

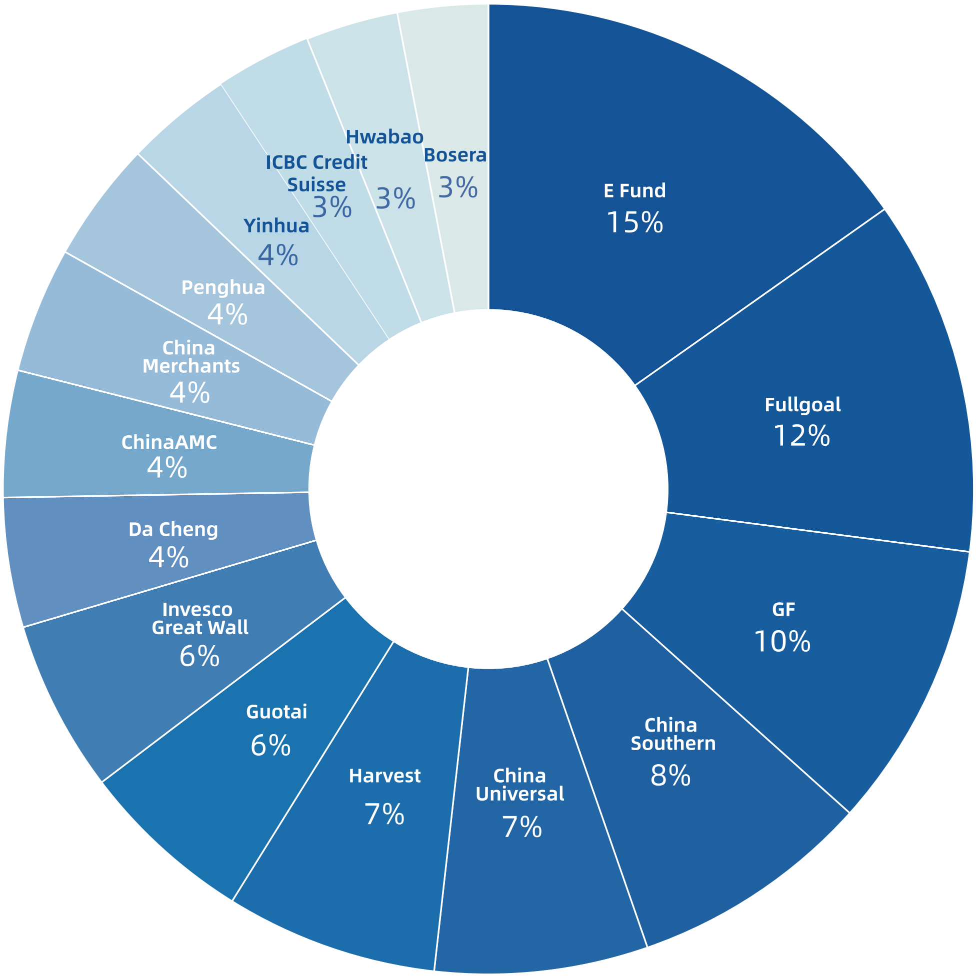


Table 5. Proportions of AMs' Investments in Each High-carbon Industry

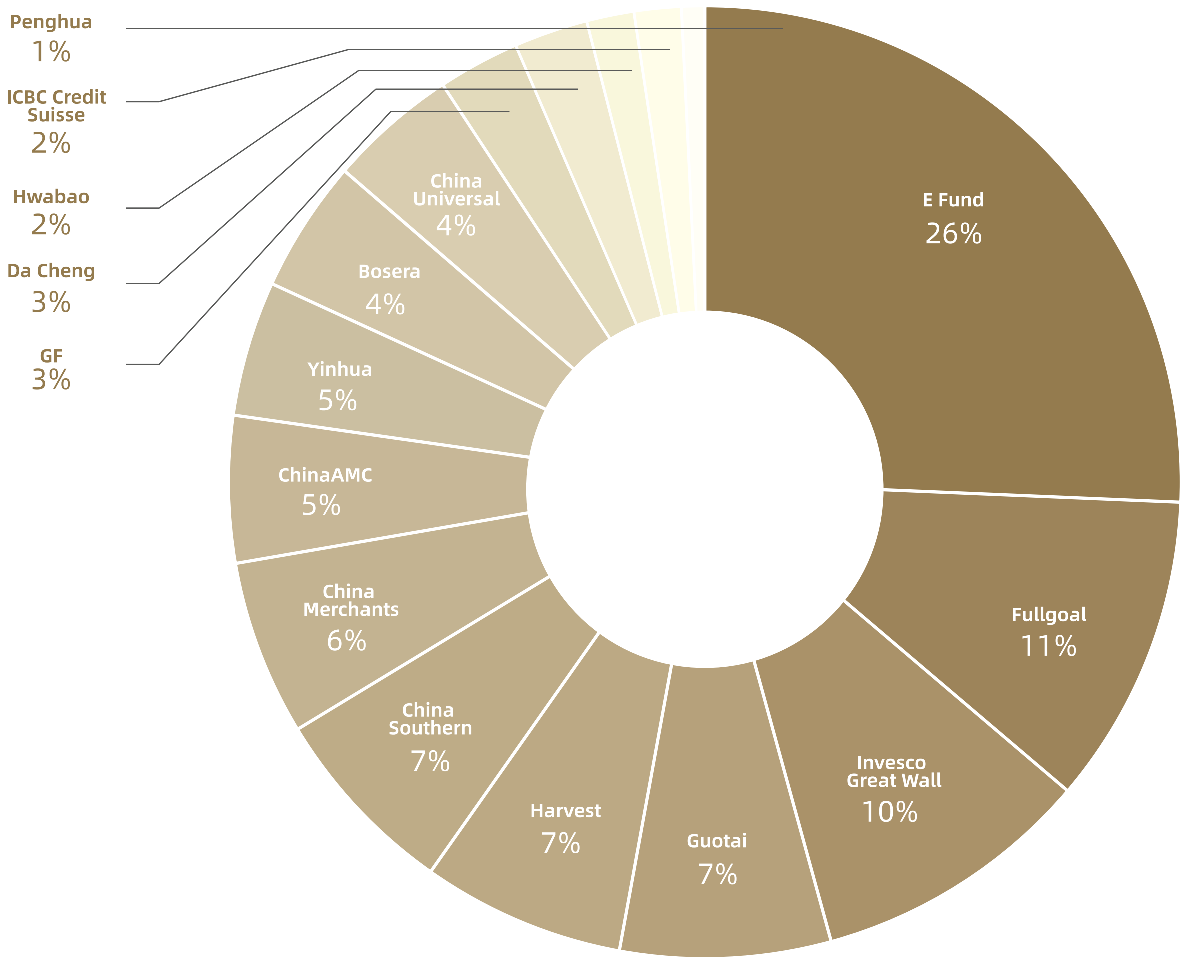
Company name	Electricity, heat production and supply (high-carbon portion)	Non-metallic mineral products	Ferrous metal smelting and rolling processing	Chemical raw materials and chemical manufac-turing	Coal mining and washing	Oil, coal and other fuel processing	Non-ferrous metal smelting and rolling processing
E Fund	8.66%	14.49%	24.69%	11.96%	22.19%	8.41%	18.44%
Fullgoal	12.25%	7.34%	6.27%	15.42%	12.32%	17.63%	9.11%
GF	33.52%	17.03%	4.17%	6.73%	2.18%	2.45%	7.35%
China Southern	11.43%	9.06%	10.43%	7.19%	8.23%	10.69%	6.96%
China Universal	3.82%	7.08%	4.00%	9.13%	3.61%	1.01%	7.06%
Harvest	9.14%	5.16%	3.70%	9.27%	4.60%	3.10%	5.86%
Guotai	2.94%	7.52%	9.35%	3.61%	11.17%	25.75%	5.20%
Invesco Great Wall	1.37%	5.22%	2.76%	5.99%	9.95%	0.92%	5.74%
Da Cheng	1.13%	3.47%	4.88%	5.07%	1.99%	1.24%	5.82%
ChinaAMC	1.09%	2.84%	3.98%	4.55%	5.85%	1.05%	4.99%
China Merchants	6.47%	2.34%	2.90%	4.20%	8.88%	18.93%	2.10%
Penghua	2.00%	4.51%	10.66%	4.87%	0.94%	1.03%	2.31%
Yinhua	1.16%	4.07%	1.95%	3.87%	3.20%	7.22%	3.86%
ICBC Credit Suisse	2.02%	5.31%	3.13%	2.71%	1.36%	0.30%	3.96%
Hwabao	0.41%	2.36%	3.64%	2.01%	1.83%	0.04%	7.55%
Bosera	2.60%	2.21%	3.51%	3.40%	1.69%	0.24%	3.68%

Regarding fossil fuel-related industries, E Fund stands out with the highest investment and exposure from its peers. Its holdings in these industries reached CNY 18.94 billion, contributing to nearly 26% of the total investment by all 16 AMs (Figure 9). Additionally, its position ratio (3.58%) surpasses the average of the 16 AMs by about 1.5 times. While Invesco Great Wall shares a similar position ratio in fossil fuel-related industries with E Fund, its total investment is comparatively more minor. On the other hand, Penghua, GF, and ICBC Credit Suisse all have a position ratio of less than 1%.

Table 6. Investments in the Fossil Fuel Industries by AMs

Asset Manager	Investments in the Fossil Fuel Industries (in CNY 100 million)	Position ratio in the Fossil Fuel Industries
E Fund	189.37	3.58%
Fullgoal	77.85	2.83%
Invesco Great Wall	70.19	3.57%
Guotai	52.74	3.29%
Harvest	50.82	2.51%
China Southern	48.41	2.51%
China Merchants	43.91	2.48%
ChinaAMC	36.70	2.76%
Yinhua	33.85	2.91%
Bosera	33.17	3.20%
China Universal	32.30	1.26%
GF	20.44	0.74%
Da Cheng	18.50	2.63%
Hwabao	11.87	1.08%
ICBC Credit Suisse	11.80	0.89%
Penghua	5.83	0.45%

Figure 9. Proportions of Investments in Fossil Fuel-Related Industries Among 16 AMs



Across the four fossil fuel-related industries, most AMs directed their investments primarily toward oil and gas extraction while allocating the least funds to the oil, coal, and other fuel processing industries. Specifically, E Fund has the most significant investment in coal mining and washing, as well as oil and gas extraction, accounting for 22% and 30% of the total investment by the 16 AMs, respectively. In terms of oil, coal, and other fuel processing, Guotai contributes a quarter of the total investment by the 16 AMs.

Figure 10. Distribution of AMs' Equity Investments Across Four Fossil Fuel-Related Industries (in CNY 1 billion)

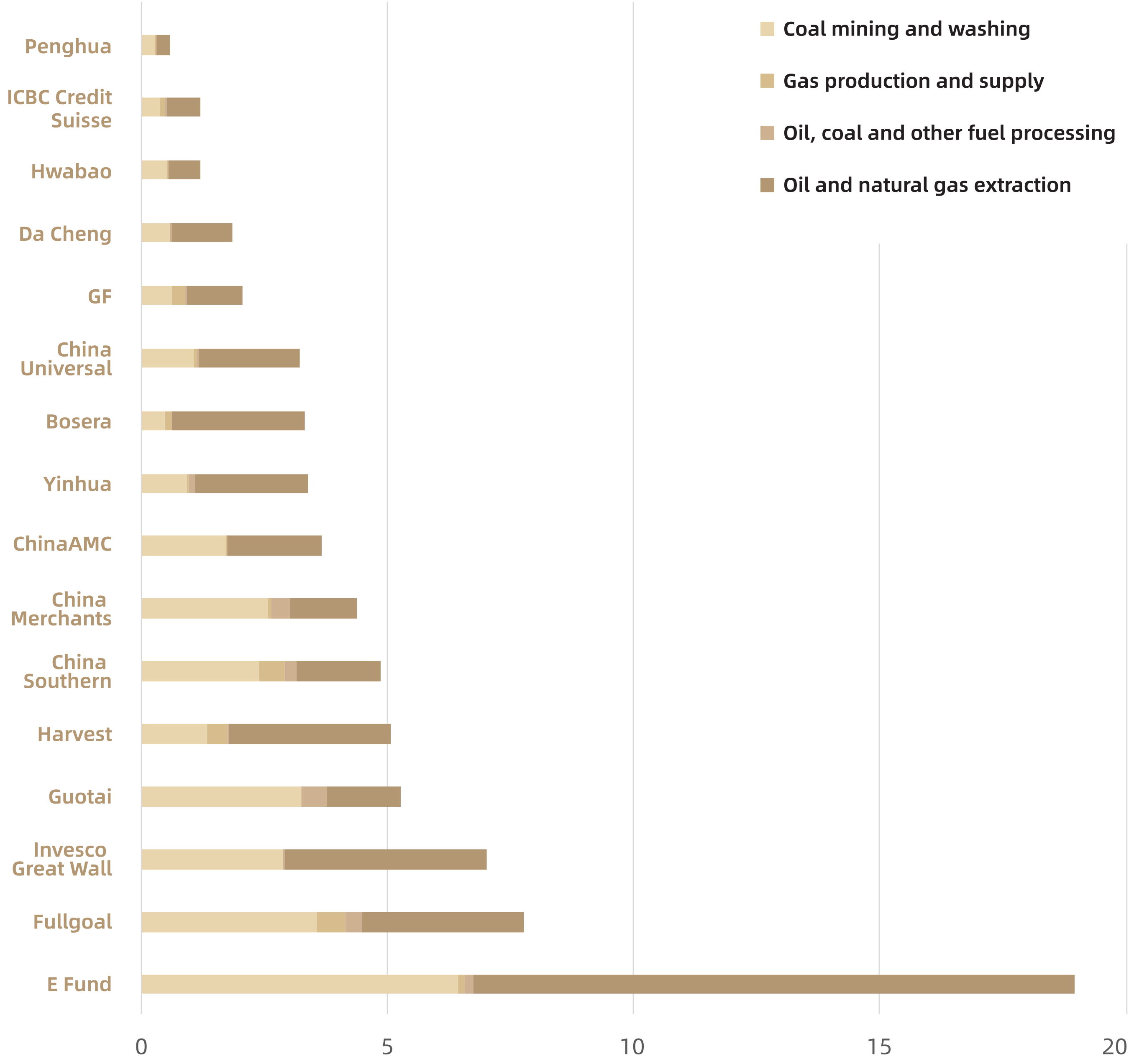


Table 7. Proportions of AMs' Investments in Each Fossil Fuel-Related Industry

Company name	Coal mining and washing	Gas production and supply	Oil, coal and other fuel processing	Oil and natural gas extraction
E Fund	22.19%	5.72%	8.41%	30.22%
Fullgoal	12.32%	23.83%	17.63%	8.13%
Invesco Great Wall	9.95%	0.05%	0.92%	10.19%
Guotai	11.17%	0.68%	25.75%	3.74%
Harvest	4.60%	16.83%	3.10%	8.12%
China Southern	8.23%	21.99%	10.69%	4.23%
China Merchants	8.88%	2.30%	18.93%	3.43%
ChinaAMC	5.85%	1.68%	1.05%	4.74%
Yinhua	3.20%	0.68%	7.22%	5.69%
Bosera	1.69%	5.03%	0.24%	6.69%
China Universal	3.61%	3.87%	1.01%	5.12%
GF	2.18%	10.13%	2.45%	2.77%
Da Cheng	1.99%	0.63%	1.24%	3.06%
Hwabao	1.83%	1.04%	0.04%	1.56%
ICBC Credit Suisse	1.36%	3.91%	0.30%	1.69%
Penghua	0.94%	1.63%	1.03%	0.62%

Discussion and Recommendations:

In terms of the impact of long-term investors on investee companies, active ownership is considered a more effective strategy than divestment. However, exercising active ownership over high-carbon assets also poses higher requirements for AMs.

Analyzing the "Climate Action Plan" indicator[26], we found that AMs have yet to incorporate climate risk factors into their long-term asset allocation plans. Regarding traditional high-carbon assets, none of the 16 AMs has outlined plans to phase out fossil fuel-related assets or disclosed detailed climate engagement strategies or institutional-level plans for promoting low-carbon transitions in specific industries or companies. Only China Southern mentioned in its report about optimizing portfolios through a carbon emission database, adjusting the proportion of high-pollution companies, and reducing over 40% of the weighted average carbon emissions in stock portfolios. It also mentioned avoiding investments in high-pollution and high-energy-consuming industries and selecting the top 100 companies with the highest carbon emissions from the database as target companies for stewardship. However, details on long-term plans and goals for optimizing portfolios were not disclosed.

Compared to financing methods like bonds and loans, the equity investment approach favored by most AMs makes it challenging to assess investee companies' emissions reduction benefits by tracking how the invested capital is used. Additionally, the lack of a unified definition and guidance standards for transition finance introduces considerable uncertainties. In such a situation, if AMs lack guidance on net-zero transition-related strategies for investment decisions involving hundreds of billions of yuan in high-carbon industries, it is challenging to assess whether their investment and financing activities effectively contribute to the low-carbon transitions in these industries. If AMs delay on consideration and development of climate strategies and fail to assess and control climate risk exposure promptly, it may lead to loss of portfolio value, particularly for those with significant investments in high-carbon industries. This could potentially trigger systemic financial risks.

2.5 The definition of sustainable-themed financial products remains unclear, elevating the risk of greenwashing practices in carbon-neutral mutual funds

Issuing green investment products is a primary strategy for AMs to capitalize on climate opportunities. Analyzing the "Climate Action Plan" indicator, we found six AMs disclosed their investment scale and trend changes in green products, mainly green bonds and green mutual funds, in 2022. Most green bonds follow the Guiding Catalogue for Green Industries and Catalogue of Projects Supported by Green Bonds, while green

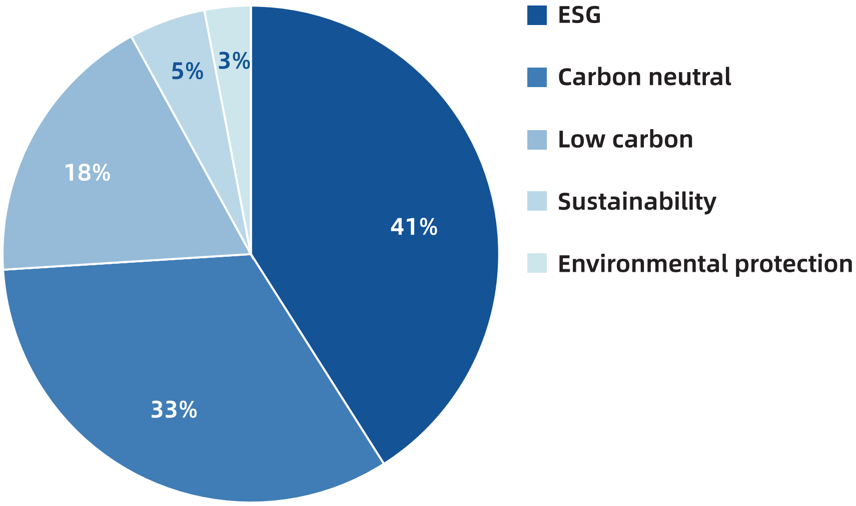
26 The indicator examines whether AMs have set clear climate-related strategies, policies, or plans and defined outcomes, including investment plans, objectives, and progress for both high-carbon and green assets or products, as well as plans and objectives for the low-carbon transitions of actively managed investee corporates

mutual funds follow the Green Investment Guidelines (For Trial Implementation). They focus on themes like low carbon, carbon neutral and new energy, or track industries/themes such as green electricity and new energy vehicles.

While the quantity and scale of green investment products from AMs increase[27], quality remains uneven. Some AMs declare compliance with specific theme in their product investment strategies but fail to disclose the detailed target selection process. Therefore, identifying a product's greenwashing risk becomes increasingly difficult for investors.

This report selected 40 sustainable-themed mutual funds issued by the 16 AMs since 2021 as research samples, with a total investment of approximately CNY 18.94 billion. 19 are actively managed funds, and 21 are passively managed products. The chart below illustrates the themes of these products, with 50% featuring "carbon neutral" or "low-carbon" in their names, underscoring their focus on climate issues.

Figure 11. Distribution of Themes Among Sampled Funds



Overall, most of the sampled funds have investments in high-carbon industries. Specifically, actively managed products exhibit a lower exposure (average of 14.82%) than passively managed ones (average of 19.51%). See Appendix IV for details. Among the 19 actively managed funds, only "Harvest Carbon Neutral" and "GF ESG Responsible Investment" have exposure over 20%, at 80.06% and 32.98%, respectively. Among the 21 passively managed products, eight have investment proportions close to 30%, all tracking the CSI SEEE Carbon Neutral Index (Table 8).

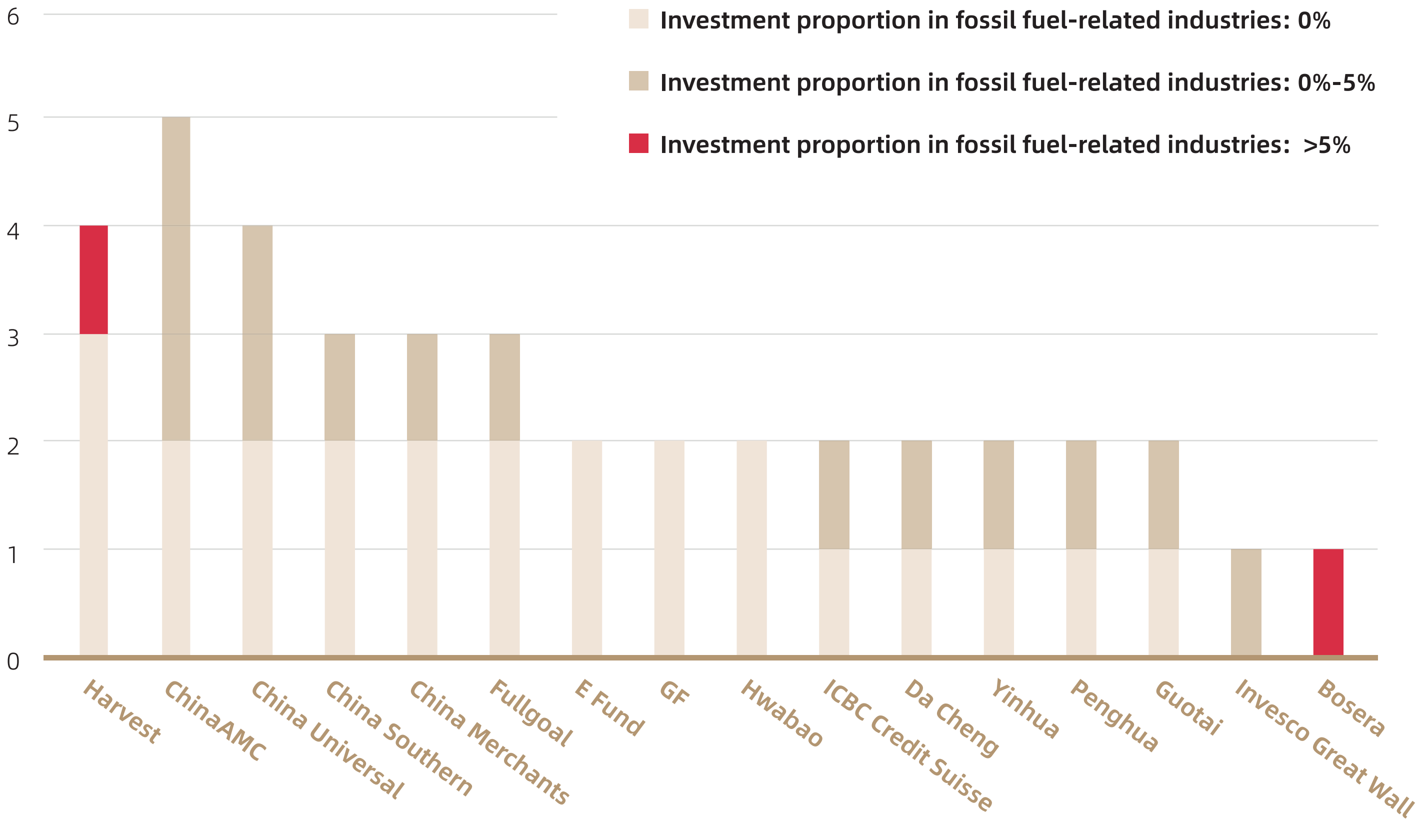
27 Aegon-Industrial Fund, CIB Wealth Management, SynTao Green Finance, China SIF. (2023). ESG New Journey: 15-Year Report on Responsible Investment in China. https://www.xqfunds.com/data/20231130131701esg.pdf

Table 8. Industry Distribution of Funds Tracking the CSI SEEE Carbon Neutral Index

Fund Name	Fund Type	High-carbon Investment to Equity Investment (%)	Fossil Fuel Investment to Equity Investment (%)
China Merchants CSI SEEE Carbon Neutral ETF (159641.OF)	Passive	29.54	0.00
E Fund CSI SEEE Carbon Neutral ETF (562990.OF)	Passive	29.59	0.00
Southern CSI SEEE Carbon Neutral ETF (159639.OF)	Passive	29.58	0.00
China Universal CSI SEEE Carbon Neutral ETF (560060.OF)	Passive	29.62	0.00
GF CSI SEEE Carbon Neutral ETF (560550.OF)	Passive	29.62	0.00
ICBC Credit Suisse CSI SEEE Carbon Neutral ETF (159640.OF)	Passive	29.60	0.00
Fullgoal CSI SEEE Carbon Neutral ETF (561190.OF)	Passive	29.65	0.00
Da Cheng CSI SEEE Carbon Neutral ETF (159642.OF)	Passive	29.56	0.00

16 out of the 40 products invest in fossil fuel-related industries. Two have investment proportions exceeding 5%, and both are actively managed funds: Harvest ESG Sustainable Investment (7.85%) and Bosera ESG Quantitative Stock Selection (5.83%). Only the sustainable-themed products issued by Hwabao WP, E Fund, and GF do not have holdings in fossil Fuel-related industries.

Figure 12. Investments in Fossil Fuel-related Industries Across Sampled Products from the 16 AMs (Vertical Axis: Number of Products)

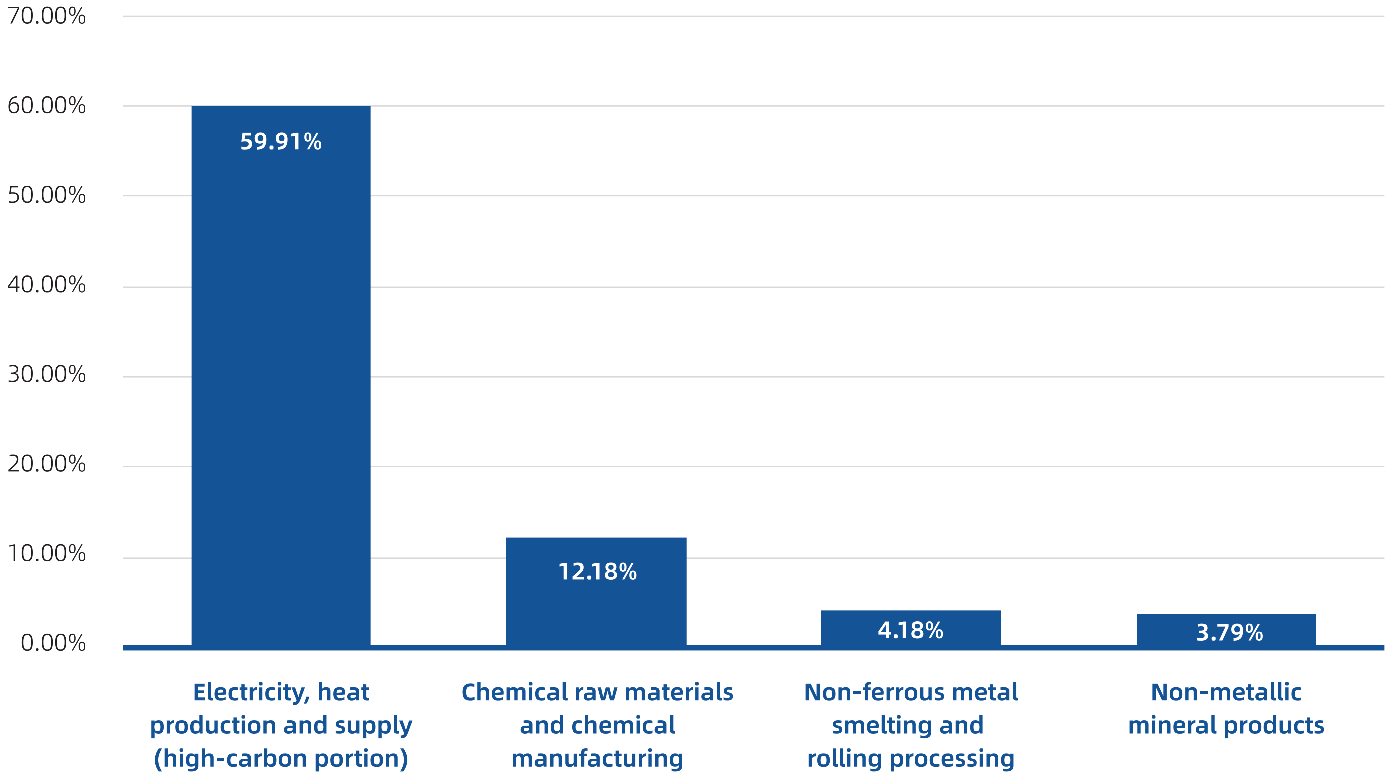


When comparing fund themes, we notice significant variations among funds sharing the same theme. For instance, with China's commitment to the "dual carbon" goals, funds themed around "carbon neutral" have become magnets for investment. Our research sample includes actively managed "carbon neutral" themed funds issued by five AMs in recent years (Table 9). Notably, the Harvest Carbon Neutral Themed fund allocates 80% of its equity investment to high-carbon industries, with 59.91% directed toward companies primarily involved in thermal power generation (Figure 13). In contrast, the Fullgoal Carbon Neutral fund has only a 1.4% exposure to high-carbon industries. Despite being labeled "carbon neutral", these five funds differ significantly in their portfolio composition.

Table 9. Comparison of Investment Industry Distribution in Carbon Neutral Funds

Fund Name	Fund Type	High-carbon Investment to Equity Investment (%)	Fossil Fuel Investment to Equity Investment (%)
China Merchants Carbon Neutral-Themed A (016350.OF)	Active	11.69	0.00
Southern Carbon Neutral A (016013.OF)	Active	8.31	0.00
Harvest Carbon Neutral-Themed A (016568.OF)	Active	80.06	0.00
China Universal Carbon Neutral-Themed A (013147.OF)	Active	17.05	0.84
Fullgoal Carbon Neutral A (017041.OF)	Active	1.40	0.00

Figure 13. Distribution of High-carbon Holdings in the Harvest Carbon Neutral-Themed Fund



Further examination of their prospectuses reveals that the Harvest Carbon Neutral-Themed and Fullgoal Carbon Neutral funds have nearly identical descriptions of stock selection strategies—both target sectors such as electricity, industry, transportation, construction, and public services. However, this information neither helps us understand the reasons for the differences in portfolio composition nor assists investors in comparing products effectively.

Table 10. Comparison of Prospectuses for Carbon Neutral Themed Funds

Fund Name	Definition of Carbon Neutral Theme	Primary Investment Targets
Fullgoal Carbon Neutral A	Carbon neutrality is the state of achieving net-zero emissions by offsetting the total amount of carbon dioxide emitted within a defined period by enterprises, organizations, or individuals, both directly and indirectly, through carbon dioxide removal methods.	This fund will focus its investments on industrial chains and sectors related to decarbonization pathways with the goal of carbon neutrality. China's pathway to carbon neutrality begins with addressing carbon emission sources. This involves decarbonizing power generation, saving energy in the industrial sector, electrifying transportation, and promoting green construction. Below are the specific carbon reduction pathways and the corresponding industrial chains: (1) Power sector: Corresponds to the new energy industry chain, including PV, wind power, nuclear power, hydropower, thermal power, heat services, distributed generation, energy storage systems, ultra-high voltage transmission, and smart grids. (2) Industrial sector: Corresponds to the energy-saving and emission-reduction industry chain. It is related to reducing carbon emissions in industrial production through technological upgrades and process improvements, covering the steel, basic chemical, power equipment, green appliances, and machinery equipment sectors. Specifically, for the steel sector, investment focuses primarily on green production process improvements such as specialty steel, electric arc furnace steelmaking, and hydrogen-based steelmaking to decarbonize steel production. Investment in the basic chemical sector concentrates on continuous transformation and technological upgrades in traditional chemical sectors and new materials. Investment in the power equipment sector prioritizes low-carbon upgrades and transformations of batteries, motors, and other power equipment, as well as the construction of new energy power equipment like PV, wind power, and energy storage and new power systems such as electronic motor equipment and grid equipment. For the machinery equipment sector, investment focuses on energy conservation, emission reduction, energy rail transit, automated

Fund Name	Definition of Carbon Neutral Theme	Primary Investment Targets
		equipment, and traditional equipment with continuous innovation and flexible transformation. For green appliances, investment centers around energy-saving and low-carbon home appliances and energy-saving housing lighting facilities. (3) Automotive sector: Corresponds to the new energy vehicle industry chain. This includes: a) the automotive sector related to new energy vehicles, b) non-ferrous metals and manufacturing equipment related to the new energy battery industry chain, c) businesses providing data, communication services, and software or services enabling intelligent operations, including electronic, software and hardware development, communication services and equipment related to high-speed signal transmission, d) the automotive sector as well as vehicle and component manufacturing related to lightweight and energy-saving traditional automobiles. (4) Public sector: Corresponds to energy-saving and emission reduction projects in transportation, green warehousing and logistics construction, and internet e-commerce. (5) Construction sector: Corresponds to the green building industry chain, including environmentally friendly materials and prefabricated buildings. (6) Environmental protection sector: Corresponds to the environmental protection industry chain. Investment focuses on environmental protection equipment and pollution control, including equipment and materials for detecting and disposing of wastewater, waste gas, waste residue, and polluted soil, as well as forestry carbon sinks and new energy operations.

Fund Name	Definition of Carbon Neutral Theme	Primary Investment Targets
Harvest Carbon Neutral-Themed A	Carbon neutrality is the state of achieving net-zero greenhouse gas (GHG) emissions by balancing the total amount of GHG emitted, both directly and indirectly, within a defined period, with an equivalent amount of carbon dioxide emissions produced through various methods.	This fund will focus its investments on industrial chains and sectors related to decarbonization pathways with the goal of carbon neutrality. China's pathway to carbon neutrality begins with addressing carbon emission sources. This involves decarbonizing power generation, saving energy in the industrial sector, electrifying transportation, and promoting green construction. Below are the specific carbon reduction pathways and the corresponding industrial chains: (1) Power sector: Corresponds to the new energy industrial chain. It includes sectors such as PV, wind, nuclear, hydro, distributed generation, energy storage systems, ultra-high voltage transmission, and smart grids. (2) Industrial sector: Corresponds to the energy-saving and emission-reduction industry chain. It is related to reducing carbon emissions in the industrial production through technological upgrades and process improvements, covering the steel, chemicals, and machinery equipment sectors. Specifically, The steel sector focuses primarily on green production process improvements such as specialty steel, electric arc furnace steelmaking, and hydrogen-based steelmaking to decarbonize steel production. The chemical sector concentrates on developing new chemical materials and technologies to replace fossil fuels with non-fossil fuels, promoting energy efficiency and emission reduction. The machinery equipment sector has two primary focal points. The first point is new energy equipment, driven by downstream demand for new energy installations. The second point is the transition towards new equipment replacing traditional machinery, including railway transportation equipment, fuel-efficient engines, and automation equipment. (3) Transportation sector: Corresponds to the new energy vehicle industry chain. It includes sectors such as new energy vehicles and their essential components (such as power batteries and materials, and upstream elements like lithium, cobalt, nickel, and silicon). (4) Construction and Building Materials sectors: Corresponds to the green building industry chain, including environmentally friendly materials and prefabricated buildings.

Fund Name	Definition of Carbon Neutral Theme	Primary Investment Targets
		(5) Public sector: Corresponds to the environmental protection industry chain. It focuses on investments in environmental protection equipment and pollution control. It includes the detection of wastewater, waste disposal, waste residue, soil pollution, and disposal of equipment and materials. (6) New materials sector: Corresponds to the new materials industrial chain, including new chemical materials.

A similar situation is observed in actively managed funds focused solely on ESG themes (Table 11). These ESG funds have yet to disclose in their investment strategies the proportion of environmental, social, and governance factors in investment decisions, specific methods for assessing corporate ESG performance, and other key information. This reflects a prevalent issue among many market-available sustainable-themed fund products, characterized by imprecise naming and ambiguous definitions. The transparency and detail level of the information disclosed is also low, preventing investors from comprehending the stock selection criteria and the actual impact of their investments on the themes concerned, thereby posing a significant greenwashing risk.


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Table 11. Comparison of Investment Industry Distribution in ESG-Themed Fund Products

Fund Name	Fund Type	High-carbon Investment to Equity Investment (%)	Fossil Fuel Investment to Equity Investment (%)
Invesco Great Wall ESG Quantitative A (014634.OF)	Active	2.59	1.65
Harvest ESG Sustainable Investment A (017086.OF)	Active	3.42	7.85
China Universal ESG Sustainable Growth A (011122.OF)	Active	17.48	0.00
ChinaAMC ESG Sustainable Investment One-Year Hold A (014922.OF)	Active	1.06	0.49
Hwabao WP ESG Responsible Investment A (018118.OF)	Active	16.64	0.00
GF ESG Responsible Investment A (017199.OF)	Active	32.98	0.00
Da Cheng ESG Responsible Investment A (015780.OF)	Active	8.24	3.70
Bosera ESG Quantitative Stock Selection A (018130.OF)	Active	9.88	5.83

Greenwashing risks may also be present in passively managed fund products. ESG index-based investing has experienced rapid growth in China in recent years. With the introduction of a series of "dual carbon" policies, sustainable-themed indices such as carbon-related and green themes have become hotspots for index service providers. Additionally, the reliance on index providers for defining index themes, selecting constituent stocks, and rating in passively managed ETFs has led to inconsistencies and ambiguity in definitions of theme names and investment strategies.

The above-mentioned eight ETFs, which invest nearly 30% in high-carbon industries, all track the CSI SEEE Carbon Neutral Index. The constituent stocks of this index include a significant number of companies from high-carbon sectors such as chemicals, non-ferrous metals, and power, totaling a 30.97% share (Figure 14). In contrast, four ETFs that track another index, the CSI China Mainland Low Carbon Economy Index, have a much lower position ratio in high-carbon industries, at just about 6% (Table 12). Upon detailed comparison of different index compilation schemes, we find that most indices currently only require the selected companies to have a certain percentage of revenue from relevant green businesses. Nonetheless, these indices have not sufficiently considered the companies' performances in other vital areas, such as carbon emissions, environmental and climate targets, and transformation plans. This results in a one-sided judgment of listed companies' environmental benefits. For instance, the CSI SEEE Carbon Neutral Index categorizes companies into Deep High-Carbon and High-Carbon Emissions Reduction and applies a weighting bias, but it does not disclose detailed information regarding the Comprehensive Score for Carbon Emission Reduction of SEEE Listed Companies, which the High-Carbon Emissions Reduction category refers to, making it difficult to know the actual performance and transformation potential of high-carbon companies in dealing with climate change.

Figure 14. Distribution of High Carbon Industries in Constituent Stocks of the CSI SEEE Carbon Neutral Index

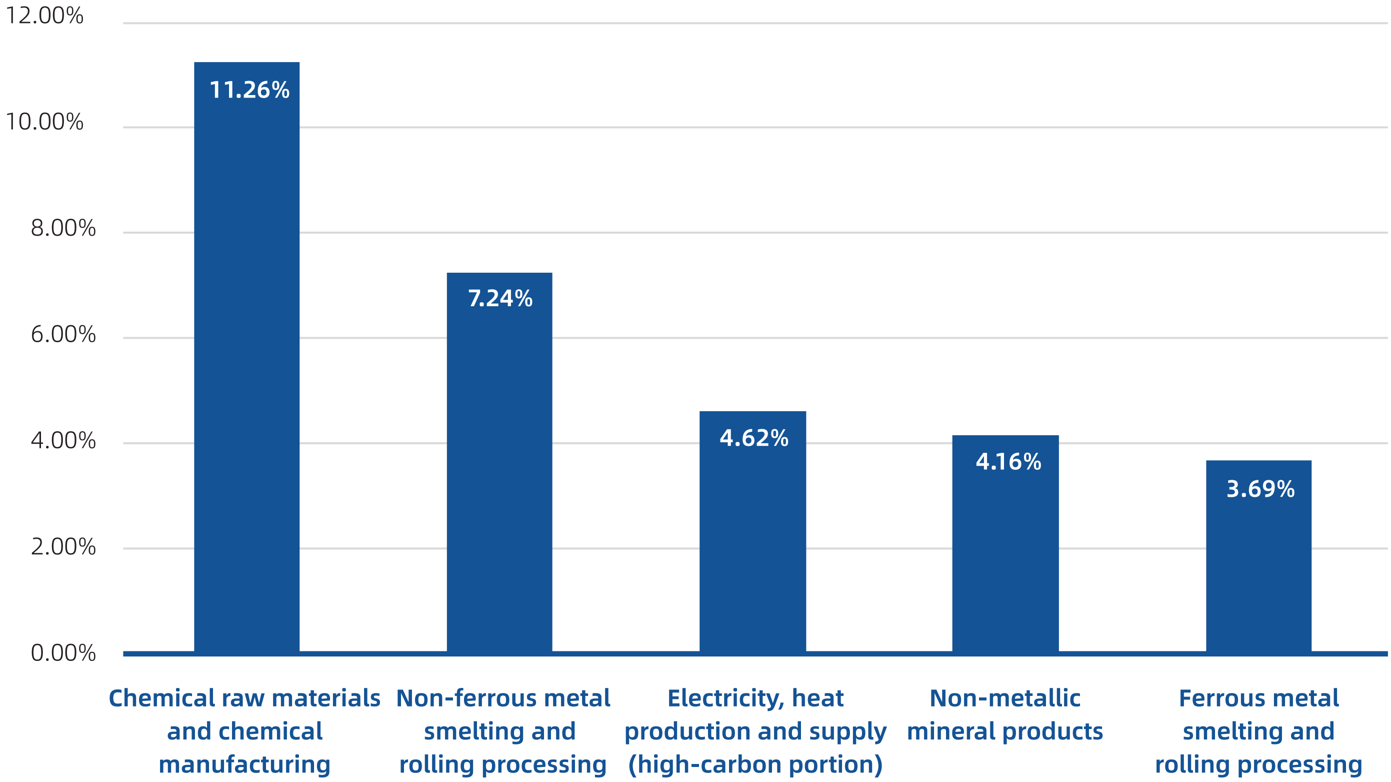

Table 12. Comparison of Investment Industry Distribution in China Mainland Low Carbon Economy Themed Funds

Fund Name	Fund Type	High-carbon Investment to Equity Investment (%)	Fossil fuel Investment to Equity Investment (%)
Yinhua CSI China Mainland Low Carbon Economy Themed ETF (562300.OF)	Passive	5.96	0.00
E Fund CSI China Mainland Low Carbon Economy ETF (516070.OF)	Passive	5.95	0.00
Penghua CSI China Mainland Low Carbon Economy ETF (159885.OF)	Passive	5.98	0.00
ChinaAMC CSI China Mainland Low Carbon Economy Themed ETF (159790.OF)	Passive	5.97	0.00

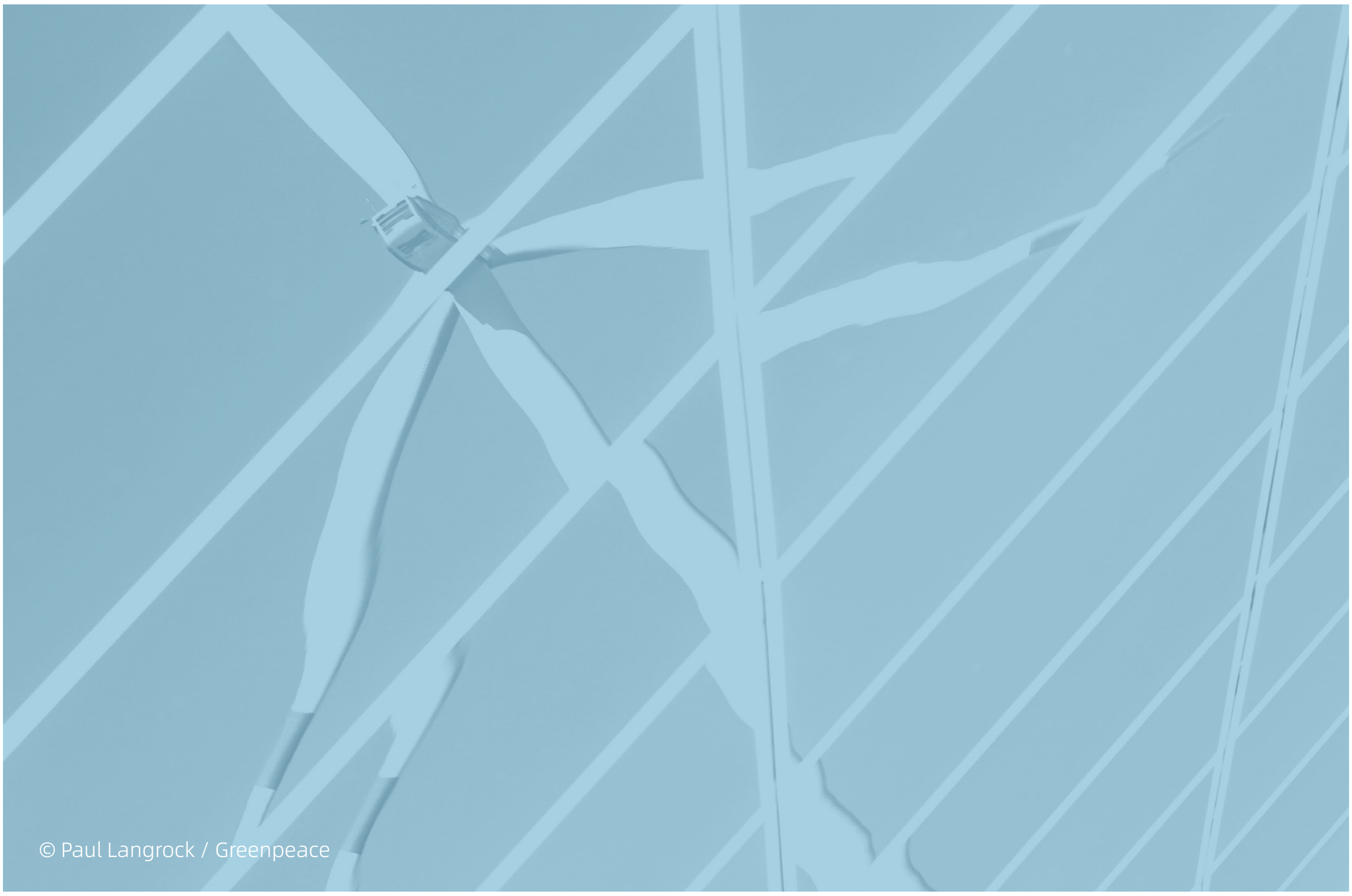

Table 13. Comparison of Stock Selection Methods by Index

Index Name	Positioning	Stock Selection Methods and Weighting Approaches
CSI SEEE Carbon Neutral Index	The CSI SEEE Carbon Neutral Index selects securities from listed companies with a relatively large market value in deep low-carbon sectors such as clean energy and energy storage, as well as from those with relatively significant carbon reduction potential in high-carbon emission reduction sectors such as thermal power and steel. A total of 100 securities are chosen as index samples. This index reflects the overall performance of securities from listed companies that contribute significantly to carbon neutrality in the Shanghai and Shenzhen stock markets.	For securities that pass the screening criteria for investability within the sample pool, those ranked in the bottom 10% of the CSI ESG scores in their respective CSI primary industries are excluded. Those of listed companies in the deep low-carbon and high-carbon emission reduction sectors are chosen as potential samples from the remaining securities. The deep low-carbon sectors include clean energy and energy storage, green transportation, carbon reduction, and carbon fixation technologies; the high-carbon emission reduction sectors include thermal power, steel, building materials, non-ferrous metals, chemicals, and construction. 3) Based on the carbon reduction model of the carbon neutrality sector, calculate the carbon neutrality contributions in the deep low-carbon sector (W1) and those in the high-carbon emission reduction sector (W2). According to the carbon neutrality contribution scores from these two sectors, determine the number of index samples for the deep low-carbon sector (N1) and the high-carbon emission reduction sector (N2) as follows: N1 = round(100×W1), N2 = 100 - N1. In each sector, distribute the number of samples across sub-sectors evenly based on rounding down, and make further adjustments to ensure that the allocated sample numbers for the two sectors remain unchanged at N1 and N2. 4) For the potential samples in the deep low-carbon sector, select the corresponding number of samples in each sub-sector based on the ranking of the average daily total market value from highest to lowest over the past year. For the potential samples in the high-carbon emission reduction sector, select the corresponding number of samples in each sub-sector based on the ranking of Comprehensive Score for Carbon Emission Reduction of SEEE-Listed Companies, from highest to lowest. A total of 100 securities are selected as index samples.

Index Name	Positioning	Stock Selection Methods and Weighting Approaches
CSI China Mainland Low Carbon Economy Index	The CSI China Mainland Low Carbon Economy Index comprises companies from sectors such as clean energy generation, energy conversion and storage, clean production and consumption, and waste management. This index reflects the overall performance of securities from listed companies focused on the low-carbon economy theme.	Securities within the sample pool are ranked based on their average daily trading amount over the past year, and the bottom 20% are excluded. From the remaining securities, those of companies that, in the most recent fiscal year, derived at least 50% of their revenue or profits from the following sectors are selected as potential samples: clean energy generation (such as solar, wind, nuclear, hydroelectric, and clean coal), energy conversion and storage (such as smart grids and batteries), clean production and consumption (such as energy efficiency), and waste management (water treatment and waste disposal). The top 50 securities ranked by their average daily total market value over the past year are selected as index samples among these potential samples.

Moreover, most AMs have yet to commence accounting and disclosure of carbon emissions at the product portfolio level. Yinhua Fund Management, Da Cheng Fund Management, and China Merchants Fund Management have done a pilot disclosure of carbon emissions information for their products in their environmental information disclosure reports, including four financial products: the Yinhua CSI China Mainland Low Carbon Economy Themed ETF, the Yinhua SSI ESG Leaders, the Da Cheng CSI SEEE Carbon Neutral ETF, and the China Merchants Carbon Neutral Theme.

Discussion and Recommendations:

This report's analysis of sample products indicates that the AMs currently lack sufficient attention to the disclosure of information on sustainable and ESG-themed investment products, and no consensus has been reached on how to improve information transparency for sustainable-themed fund products. Moreover, current policy guidelines targeting green economic activities, such as the Guiding Catalogue for Green Industries, the Catalogue of Projects Supported by Green Bonds, and the recently introduced Catalogue for Guiding the Transition of Industries to Green and Low-carbon Energy (2024), are not fully applicable to mutual funds primarily invested in equity assets, posing a higher greenwashing risk for green products.

Research findings from the Green and Sustainable Investment Committee of the Asset Management Association of China (AMAC) in 2023 indicate[28] the increasing emergence of carbon-related themed funds in China. Most of these funds highlight a focus on financial support for low-carbon industries in their investment strategies. However, the concept of low-carbon sectors remains vaguely covered, without a clear definition or reference standards for industries such as low-carbon, green, or high-carbon. Furthermore, despite mentioning investments in low-carbon industries, these strategies fail to quantify the specific allocation of funds towards green investments.

Globally, regulatory requirements on asset management institutions for sustainable information disclosure primarily focus on the institutional and the product level, with numerous policies and regulations on the product level emerging in recent years. The European Union has implemented the Sustainable Finance Disclosure Regulation (SFDR), the United States Securities and Exchange Commission (SEC) has proposed rule amendments on the Enhanced Disclosures by Certain Investment Advisers and Investment Companies about Environmental, Social, and Governance Investment Practices and the Names Rule, and the Hong Kong Securities and Futures Commission (SFC) has released documents such as SFC's Circular to Management Companies of SFC-Authorized Unit Trusts and Mutual Funds– ESG Funds, all of which impose stricter disclosure

28 Asset Management Association of China. (2023). Research on Classification Standards for Fund Industry Investments in High-Carbon and Low-Carbon Sectors. https://www.amac.org.cn/hyyj/sy/202311/P020231126406353575533.pdf

requirements on financial products to combat the issue of "green in name only"[29]. The Regulations of the Shenzhen Special Economic Zone on Green Finance also mention the establishment of financial regulatory and anti-greenwashing systems, strictly prohibiting financial institutions from marketing, selling, or promoting financial products that lack green characteristics under the guise of green financial products.

Furthermore, China's growing demand for sustainable and green assets necessitates attracting capital from international investors. Therefore, standardization of information disclosure and alignment with international frameworks and benchmarks are paramount. Enhanced information disclosure, particularly for sustainable investment products, can empower investors to understand financial product characteristics better and facilitate product comparisons.

Therefore, AMs urgently need to strengthen their vigilance against greenwashing when issuing and managing green products. This is especially crucial for actively managed funds, where transparent and clear reporting on characteristics that align with the product's designated theme is essential. For instance, ESG funds should disclose the intended ESG goals, the ESG investment strategies employed to reach the goals, the ESG performance metrics used to assess goal attainment, and the referenced ESG scoring standards and data in their offering documents and periodic reports. Funds focused on climate or environmental themes should also disclose climate/environmental performance metrics related to their portfolios (such as total carbon emissions and the weighted average carbon intensity) and the proportion of investments that comply with classification directories. AMs with a significant portfolio of passively managed funds should actively collaborate with index providers. This collaboration should focus on refining existing index naming and index compilation methodologies to reduce greenwashing controversies, as well as developing net zero index with stringent decarbonization indicators and more consistent with the Paris-aligned Benchmark (PAB). These efforts will facilitate the development of passively managed green products and contribute to reducing corporate carbon emissions.

In 2023, the Institutional Investors Group on Climate Change (IIGCC) collaborated with eight index providers, including Bloomberg, S&P Global, FTSE Russell, and MSCI, to explore how to address the challenges of developing and utilizing net zero benchmarks, as well as how to improve the quality of these benchmarks and provide best practice examples[30].

The IIGCC has proposed five key principles for net zero benchmarks:

29 US Securities and Exchange Commission. (2022). Enhanced Disclosures by Certain Investment Advisers and Investment Companies About Environmental, Social, and Governance Investment Practices. https://www.federalregister.gov/documents/2022/06/17/2022-11718/enhanced-disclosures-by-certain-investment- advisers-and-investment-companies-about-environmental

30 IIGCC. Enhancing the Quality of Net Zero Benchmarks. https://139838633.fs1.hubspotusercontent-eu1.net/hubfs/139838633/Past%20resource%20uploads/IIGCC-Enhancing-the-Quality-of-Net-Zero-Benchmarks.pdf

1. Index design should prioritize real-world tangible emissions reductions.
2. Index providers must ensure transparency and public accessibility of benchmark rules and their consequences.
3. Net zero benchmarks should account for variations in decarbonization pathways across different sectors and regions.
4. Net zero benchmarks should prioritize the use of publicly available data and integrate alternative alignment metric (such as carbon budgets and corporate green capital expenditures).
5. Net zero benchmarks should utilize engagement to improve the performance of the issuers of the constituent stocks.

IV. Summary and Recommendations

The climate crisis is now an urgent issue, and climate change-related risks have become some of the most severe globally in both the short and long term. The financial sector begins to play a crucial role in addressing climate change, pushing for a transition to a low-carbon global economy through capital allocation and policy influence. In 2023, topics such as ESG investing, responsible investment, green finance, and transition finance continued to gain traction globally. Chinese financial institutions leveraged the momentum of the "dual carbon" goals to further expand their development and growth in these areas. As issues like ESG investment, green finance, and transition finance become focal points, the financial industry also finds itself at the forefront of the anti-greenwashing movement.

Due to factors such as regulatory policy development and increased awareness of the issue within institutions, Chinese asset management institutions have made progress in addressing climate change. However, they still have a way to catch up with internationally recognized standards. We recommend that policymakers, regulators, asset managers, and asset owners collectively increase their efforts to address climate change-related risks and accelerate the financial industry's support for China's carbon neutrality goals.

1 Policymakers and regulatory authorities

In recent years, China has rapidly developed and refined its green finance policy guidance, primarily focused on the banking and insurance sectors (see Appendix III for a policy overview). Compared to the banking and insurance sectors, policy development for the asset management industry remains limited. In 2023, the successful implementation of pilot programs such as the Regulations of the Shenzhen Special Economic Zone on Green Finance demonstrated the effectiveness of mandatory disclosure policies. Therefore, we recommend that national policymakers consider expanding the application of such regulations. Regulatory authorities should adopt mandatory environmental and climate-related disclosure requirements to enable financial institutions to track and monitor fund flows, thereby enhancing the environmental and climate performance of their investment and financing activities.

As a critical tool currently implemented by asset management institutions, stewardship also requires regulatory guidance. In Mainland China, some industries have introduced voluntary stewardship guidelines[31], but clear

31 Such as the ESG Stewardship Initiative for the China Insurance Asset Management Industry by Insurance Asset Management Association of China, Work Guidelines for the Investor Relations Management of Listed Companies by China Securities Regulatory Commission, and Work Guidelines on Fund Management Companies Exercising Voting Rights on Behalf of Funds by Asset Management Association of China

guidance and requirements for specific engagement methods (such as shareholder voting and collaborative engagement) are still absent. A national stewardship framework applicable to all financial sectors has yet to be established. Financial policymakers and regulatory authorities can leverage existing practices as references to develop and refine stewardship codes and introduce a regulatory framework for domestic institutional investors to engage in stewardship as soon as possible. This framework should encourage investors to actively practice stewardship and improve the quality and effectiveness of their engagement. Furthermore, the stewardship regulatory framework should explicitly emphasize the importance of managing environmental and climate risks, thereby promoting stewardship as an effective tool for achieving carbon neutrality goals.

Currently, stewardship practices in developed markets are more mature. In these well-established markets, stewardship codes have been implemented to regulate the stewardship responsibilities of investors (Table 14)[32] [33]. The UK Stewardship Code serves as a precedent for global stewardship codes. Its revised version, the UK Stewardship Code 2020, sets forth multiple principles for asset owners, asset managers, and other financial service providers. Signatories are required to disclose their implementation of each principle on a “comply or explain” basis. The Code emphasizes explicitly the need for investors to consider climate-related issues in their investment and stewardship practices[34].

32 China Council for International Cooperation on Environment and Development. (2023). Sustainable Investment Practices of Sovereign Asset Owners: International Experience and Policy Recommendations. http://www.cciced.net/zcyj/yjbg/zcyjbg/2023/202308/P020230815358842158103.pdf

33 Asset Management Association of China, ZD Proxy Shareholder Services. (2021). Compilation of Overseas Regulations and Practices on Institutional Investors’ Participation in Listed Company Governance.

34 Financial Reporting Council. (2020). THE UK STEWARDSHIP CODE 2020. https://media.frc.org.uk/documents/2020_Corporate_Stewardship_Code.pdf

Table 14. Practice Cases of Global Stewardship Related Guidelines

Issuing Body	Country/ Region	Guideline Title	First Issued	Issuing Body
Regulatory authorities	United Kingdom	UK Stewardship Code	2010	Financial Reporting Council
	Japan	Principles for Responsible Institutional Investors	2014	Financial Services Agency
Industry organizations	United States	Stewardship Framework for Institutional Investors	2017	Investor Stewardship Group
	European Union	EFAMA Stewardship Code	2011	European Fund and Asset Management Association
		Dutch Stewardship Code	2011	Eumedion
	Switzerland	Guidelines for Institutional Investors	2013	Association of Swiss Pension Fund Providers
Third-party organizations	South Korea	Korea Stewardship Code	2016	Korean Corporate Governance Services
	Singapore	Singapore Stewardship Principles for Responsible Investors	2016	Stewardship Asia

We recommend that policymakers and regulatory authorities, such as the China Securities Regulatory Commission and the Asset Management Association of China, enhance regulatory policies in the following areas:

1. For the asset management sector:
   a. Mandate the disclosure of environmental and climate information.
   b. Enact mandatory disclosure requirements for sustainable financial products to ensure mutual funds align with stated sustainable goals or purposes and prevent greenwashing risks.
   c. Introduce a stewardship code, drawing upon international policy practices, to promote active ownership by various financial entities on climate issues.
2. For listed companies in real sectors:
   Urge quantitative disclosure of green/transition economy activities, utilizing financial indicators such as the proportion of green/transition revenue, capital expenditure, and operating costs to demonstrate alignment with environmental objectives.

2 Asset Management Institutions

We call on Chinese asset management institutions to intensify climate actions and reduce greenwashing risks through the following measures:

1. Commit to achieving net-zero carbon emissions across all operations and investment and financing activities by 2050 or sooner and establish specific phased targets and corresponding climate action plans to ensure effective implementation.
2. Initiate accounting and disclosure of carbon emissions related to all investment and financing activities, disclose portfolios' climate-related risks, including the proportion of high-carbon and green assets held, and strengthen analysis of climate-related financial risks to conduct more comprehensive risk assessments of high-carbon assets.
3. Standardize the management of sustainable-themed financial products, define theme names and investment strategies carefully, and collaborate with index providers to mitigate greenwashing controversies.
4. Actively monitor the development of transition finance, develop and publish stewardship plans for high-carbon assets, and report the outcomes in exercising shareholder rights.

Appendixes

Appendix Ⅰ Climate Performance Evaluation System for Chinese Asset Management Institutions

Core Theme	Primary Indicators	Secondary Indicators	Tertiary Indicator
Climate-Related Risk Governance (19%)	A. Internal Governance Structure around Climate-Related Risk (7%)	A-1 Decision Oversight at the Board and/or Board Committees Level (2%)	1. Does the board consider climate-related issues when guiding strategies, policies, annual budgets, and business plans? (1%)
			2. Are the methods, processes, frequency, goals, and key indicator progress for oversight publicly disclosed? (1%)
		A-2 Management Level's Assessment and Management (3%)	1. Does management level have relevant positions/committees and associated organizational structures to address climate-related risks? (1%)
			2. What are the primary responsibilities and reporting pathways? (1%)
			3. Are the processes, methods, and frequency for assessing and monitoring climate-related issues publicly disclosed? (1%)
		A-3 Practices at the Professional Department Level (2%)	1. Are there internal organizations, such as climate risk working groups, established, and what are their primary responsibilities? (1%)
			2. Are key indicators, effectiveness, and progress in implementing climate risk management publicly disclosed? (1%)

Core Theme	Primary Indicators	Secondary Indicators	Tertiary Indicator
	B. Climate-Related Risk Management Processes (5%)	B-1 Identification and Assessment of Climate-Related Risks (2%)	1. Are there processes for identifying and assessing climate risks at the institutional level, including assessment processes, reference frameworks, and compliance with policy regulatory requirements? (1%)
			2. Are there processes, resources, and tools for identifying and assessing the significant climate-related risks of each product or investment strategy? (1%)
		B-2 Management and Control of Climate-Related Risks (2%)	1. Are there processes for managing climate-related risks, including how to mitigate, transfer, accept, or control risks, and how to prioritize/rank them based on their importance? (1%)
			2. How are the significant climate risks of each product or investment strategy managed? (1%)
		B-3 Integration of Processes for Identifying, Assessing, and Managing Climate-Related Risks into Overall Risk Management (1%)	Are the processes for identifying, assessing, managing, and controlling climate-related risks integrated into overall risk management? (1%)
	C. Actual and Potential Impacts of Climate Risks (7%)	C-1 Identified Climate-Related Risks (2%)	1. Are climate risks (transition risks and/or physical risks) that could have a significant financial impact over different time scales (short-term, medium-term, long-term) considered? (1%)
			2. Is the process or reference method for determining the financial impact of climate risks publicly disclosed? (1%)

Core Theme	Primary Indicators	Secondary Indicators	Tertiary Indicator
		C-2 Impact of Climate-Related Risks on Business, Strategy, and Financial Planning (2%)	1. Are the impacts of climate-related risks on business, strategy, and financial planning considered? Including: (1) Business: Adaptation/slow-down of products and services, supply chain/value chain (2) Strategy: R&D investment (3) Finance: operating costs and revenues, capital expenditure allocation, acquisitions/or divestments, capital acquisition opportunities, etc (1%)
			2. How are products or investment strategies affected by climate-related issues? How are climate-related risks incorporated into each product or investment strategy? (1%)
		C-3 Quantitative Risk Analysis Based on Scenario Analysis (3%)	1. Are the resilience of organization strategies considered under different climate scenarios? What is the situation of conducting scenario analysis and what are the relevant climate scenarios, timeframes, methodologies, models, and tools used? (1%)
			2. Are the results of such analysis publicly disclosed? (1%)
			3. How are strategies adjusted to address potential risks? (1%)

Core Theme	Primary Indicators	Secondary Indicators	Tertiary Indicator
Concrete Climate Actions (81%)	D. Comprehensive Accounting and Disclosure of Climate-Related Indicators (15%)	Verification and Disclosure of Scope 1, 2, and 3 GHG Emissions at the Institutional Level	1. Does the carbon emission information cover Scope 1 and 2 emissions? (1%)
			2. Does the carbon emission information cover Scope 3, Category 15 emissions, i.e., emissions related to investment activities? (4%)
			3. Are the climate impacts of products or portfolios quantified and disclosed, including the total carbon emissions or weighted average carbon intensity of products or portfolios, the proportion of assets assessed to total assets under management (AUM), etc.? (5%)
			4. Are the methodologies and underlying data used to calculate climate indicators publicly disclosed? (5%)
	E. Climate target Setting (10%)	Set Comprehensive Climate Targets	1. Are science-based comprehensive climate targets set at the institutional level: including intensity or absolute targets that encompass Scope 3 Category 15 emissions, the applicable timeline and key milestones for the targets, baseline levels, and baseline years? (5%)
			2. Are the climate targets aligned with national or global targets (e.g. portfolio emission reduction targets aligned with China's policy targets or NDCs, or aligned with a 1.5°C pathway and a net-zero target by 2050)? (5%)
	F. Climate Action Plan (12%)	Develop Strategies or Plans to Achieve Climate targets and Address Climate Change	Are clear climate strategies or plans developed at the institutional strategy or policy level and expected outcomes set, including:
			(1) Asset allocation adjustments: Disclose investment plans, goals, and progress on high-carbon assets or products, and the methods and standards referenced (4%)

Core Theme	Primary Indicators	Secondary Indicators	Tertiary Indicator
			(2) Asset allocation adjustments: Disclose investment plans, goals, and progress on green or sustainable assets or products, and the methods and standards referenced (4%)
			(3) Active management plans and goals for addressing low-carbon transition issues for investee companies (4%)
	G. Comprehensive Stewardship (12%)	Exercise Influence and Engage with Investee Companies and Stakeholders	1. Are the stewardship practices used to positively influence the low-carbon transition of investee companies, including direct communication, collective engagement, (proxy) voting, supporting or submitting climate-related resolutions, escalation, etc.? (4%)
			2. Is information on actively managed investee companies ' low-carbon transitions disclosed, including target companies, supervision and management methods, related voting policies, progress, and outcomes? (4%)
			3. Is there active participation in policy advocacy, including responding to policy consultations, participating in the formulation of various policies and standards, and urging the government to accelerate actions? (4%)
	H. Climate Information Disclosure (4%)	Regularly Disclose Climate Action-Related Information Through Independent Reports	1. Is specific climate action-related information disclosed regularly in independent ESG, TCFD, or other reports? (2%)
			2. Are these reports independently verified and assessed by third parties? (2%)
	I. Portfolio Analysis (28%)	I-1 Equity Investment Asset Allocation (16%)	Proportion of investments in high-carbon industries within annual equity investments
		I-2 Sustainable-Themed Product Asset Allocation (12%)	Actively managed products:

Core Theme	Primary Indicators	Secondary Indicators	Tertiary Indicator
			(1) Are clear theme-related investment strategies disclosed? How are relevant features or indicators measured? What are the standards or methods referenced?
			(2) Is there carbon emission assessment and disclosure for the products?
			(3)Does the product include high-carbon holdings? If so, what is the proportion of investments in these holdings?
			Passively managed products:
			(1) Are clear theme-related investment strategies disclosed? How are relevant features or indicators measured? What are the standards or methods referenced?
			(2) What is the index being tracked? What is the reason for the selection?
			(3) Is there carbon emission assessment and disclosure for the products?
			(4) Does the product include high-carbon holdings? If so, what is the proportion of investments in these holdings?

Appendix II Data Sources, Industry Classification Method and Result

Data Sources for Quantitative Analysis

Analysis Objects	Data Sources
Classification of High-Carbon Industry	1. Total consumption by sub-industries of eight major energy and power sectors in 2020 from the National Bureau of Statistics[35] 2. Input-Output Tables of China 2020 from the National Bureau of Statistics[36] 3. Default values for the average low calorific value of energy from the General Rules for Calculation of the Comprehensive Energy Consumption (GB/T 2589-2020) 4. Default values for carbon content per unit calorific value and carbon oxidation rates from the Guidelines for the Compilation of Provincial Greenhouse Gas Inventories (for Trial Implementation) (No. 1041 [2011] of the National Development and Reform Commission, Climate Office) [37] [38] 5. National power grid emission factors published by the Ministry of Ecology and Environment in 2023[39]
Equity Holdings	1. Bloomberg database: Equity holdings data for 16 asset management institutions targeting A-shares and Hong Kong-listed companies, as of September 19, 2023 2. Wind database: Equity holdings data from interim reports of 40 sample products in 2023, as of September 28, 2023 3. Wind database: Industry classification of A-share and Hong Kong-listed companies

Industry and Listed Company Classification Methods

1. High-Carbon Industry Categorization Method

Due to gaps in carbon emissions data for A-share listed companies, it is not feasible to directly calculate the carbon emissions related to equity investment activities of AMs based on the carbon emissions data of investee companies. The report primarily utilizes energy consumption data by industry released by the NBSC

35 National Bureau of Statistics of China. (n.d.). https://data.stats.gov.cn/easyquery.htm?cn=C01

36 National Bureau of Statistics of China. (n.d.). 2020 Input-Output Table of China. https://data.stats.gov.cn/ifnormal.htm?u=/files/html/quickSearch/trcc/trcc01.html&h=740

37 National Public Service Platform for Standards Information. (2020). General Rules for Calculation of the Comprehensive Energy Consumption. https://std.samr.gov.cn/gb/search/gbDetailed?id=B13990C15C2D5DDAE05397BE0A0A0D35

38 National Development and Reform Commission of the PRC. (2011). Guidelines for the Compilation of Provincial Greenhouse Gas Inventories (Trial). http://www.cbcsd.org.cn/sjk/nengyuan/standard/home/20140113/download/shengjiwenshiqiti.pdf

39 Ministry of Ecology and Environment of the People's Republic of China. (2023). Notice on Conducting Greenhouse Gas Emission Reporting and Verification for Enterprises in Key Industries from 2023 to 2025. https://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202310/t20231018_1043427.html

to calculate each industry's total direct and indirect carbon emissions. By incorporating the value-added data from the input-output tables, the carbon emission intensity per unit of value added for each industry is further calculated.

(1) Formulas for Calculating Total Carbon Emissions and Intensity of Industries

a. $\mathbf{E_i = E_{i,1} + E_{i,2}}$

$\mathbf{E_i}$ is the total carbon emissions of industry i. $\mathbf{E_{i,1}}$ is the total direct carbon emissions of industry i[40]. $\mathbf{E_{i,2}}$ is the total indirect carbon emissions of industry i[41].

b. $\mathbf{E_{i,1} = \sum_k^8 V_{i,k} * EF_k}$

$\mathbf{E_{i,2} = V_{i,E} * EF_E}$

$\mathbf{V_{i,k}}$ is the consumption of the k-th type of energy by industry i. $\mathbf{EF_k}$ is the carbon emission factor of the k-th type of energy. $\mathbf{V_{i,E}}$ is the electricity consumption by industry i. $\mathbf{EF_E}$ is the carbon emission factor for electricity.

c. $\mathbf{EF_k = a_k * b_k * c_k * 44/12}$

$\mathbf{a_k}$ is the average low calorific value of the k-th type of energy. $\mathbf{b_k}$ is the carbon content per unit calorific value of the k-th type of energy. $\mathbf{c_k}$ is the carbon oxidation rate of the k-th type of energy.

Energy Type	Average Low Calorific Value kJ/kg(m^3)	Standard Coal Coefficient kgce/kg(m^3)	Carbon Content per Unit Calorific Value (tC/TJ)	Carbon Oxidation Rate	CO_2 Emission Coefficient kg-CO_2/kg(m^3)
Raw Coal	20934	0.7143	26.37	0.94	1.902661952
Coke	28470	0.9714	29.5	0.93	2.86393965
Crude Oil	41868	1.4286	20.1	0.98	3.023958168
Fuel Oil	41868	1.4286	21.1	0.98	3.174403848
Gasoline	43124	1.4714	18.9	0.98	2.928723336
Kerosene	43124	1.4714	19.5	0.98	3.02169868
Diesel	42705	1.4571	20.2	0.98	3.09975666
Natural Gas	38979	1.33	15.3	0.99	2.164854681

40 Total carbon emissions caused by direct energy consumption

41 Total carbon emissions caused by purchased electricity

d. $\mathrm{EI_i} = \frac{\mathrm{E_i}}{\mathrm{AD_i}}$

$\mathbf{EI_i}$ is the carbon emission intensity of industry i. $\mathbf{AD_i}$ is the value added by industry i[42].

(2) Classification Results: According to this report, a high-carbon industry is defined as an industry that has both high total carbon emissions and high carbon emission intensity. Through cluster analysis, this report identifies seven industries that have annual carbon emissions greater than 300 million tons of CO_2 and a carbon emission intensity greater than 0.3 kg CO_2/CNY as high-carbon industries.

High-Carbon Industries	Total Carbon Emissions in 2020 (100 million tons of CO_2)	Carbon Emission Intensity in 2020 (kg CO_2/CNY)
Coal mining and washing	3.83	0.319328669
Ferrous metal smelting and rolling processing	21.19	1.355728689
Chemical raw materials and chemical manufacturing	11.43	0.623477407
Oil, coal and other fuel processing	32.05	3.1866102
Non-ferrous metal smelting and rolling processing	7.67	0.64146872
Non-metallic mineral products	7.99	0.346335889
Electricity, Heat Production and Supply	46.81	2.143882487

(3) Special Case Handling: In the case of high-carbon industries, this report excludes companies in the electricity, heat production and supply industries that primarily engage in renewable energy as their core business. This exclusion is conducted through manual screening.

2. Fossil Fuel-Related Industries: Based on industry characteristics, including production processes and the nature of the products, this report identifies four major categories of fossil fuel-related industries: coal mining and washing, gas production and supply, petroleum, coal, and other fuel processing, and oil and natural gas extraction.

42 Data derived from the NBSC's 2002 Input-Output Table of China

Industry Classification Results

Industry Name	Level of Industrial Classification for National Economic Activities	If High-carbon	If Related to Fossil Fuel
Agriculture, Forestry, Animal Husbandry, and Fishery	Category	Not High-carbon	Not Related
Coal Mining and Washing	Sector	High-carbon	Related
Oil and Natural Gas Extraction	Sector	Not High-carbon	Related
Ferrous Metal Mining and Dressing	Sector	Not High-carbon	Not Related
Non-Ferrous Metal Mining and Dressing	Sector	Not High-carbon	Not Related
Non-Metallic Mineral Mining and Dressing	Sector	Not High-carbon	Not Related
Mining Auxiliary Activities and Other Mining	Merger of Two Sec-tors	Not High-carbon	Not Related
Agricultural Food Processing	Sector	Not High-carbon	Not Related
Food Manufacturing	Sector	Not High-carbon	Not Related
Liquor, Beverage, and Purified Tea Manufacturing	Sector	Not High-carbon	Not Related
Tobacco Products	Sector	Not High-carbon	Not Related
Textile	Sector	Not High-carbon	Not Related
Textile Garment and Apparel	Sector	Not High-carbon	Not Related
Leather, Fur, Feather and Their Products, and Footwear	Sector	Not High-carbon	Not Related
Wood Processing and Products of Wood, Bamboo, Rattan, Palm, and Straw	Sector	Not High-carbon	Not Related
Furniture Manufacturing	Sector	Not High-carbon	Not Related
Papermaking and Paper Products	Sector	Not High-carbon	Not Related

Industry Name	Level of Industrial Classification for National Economic Activities	If High-carbon	If Related to Fossil Fuel
Printing and Recording Media Copying	Sector	Not High-carbon	Not Related
Manufacturing of Goods for Culture, Education, Art, Sport, and Entertainment	Sector	Not High-carbon	Not Related
Oil, Coal and Other Fuel Processing	Sector	High-carbon	Related
Chemical Raw Materials and Chemical Manufacturing	Sector	High-carbon	Not Related
Pharmaceutical Manufacturing	Sector	Not High-carbon	Not Related
Chemical Fiber Manufacturing	Sector	Not High-carbon	Not Related
Rubber and Plastic Products	Sector	Not High-carbon	Not Related
Non-metallic Mineral Products	Sector	High-carbon	Not Related
Ferrous Metal Smelting and Rolling Processing	Sector	High-carbon	Not Related
Non-ferrous Metal Smelting and Rolling Processing	Sector	High-carbon	Not Related
Metal Products	Sector	Not High-carbon	Not Related
General Equipment Manufacturing	Sector	Not High-carbon	Not Related
Special Equipment Manufacturing	Sector	Not High-carbon	Not Related
Automobile Manufacturing	Sector	Not High-carbon	Not Related
Manufacturing of Railway, Ship, Aerospace, and Other Transport Equipment	Sector	Not High-carbon	Not Related
Electrical Machinery and Equipment Manufacturing	Sector	Not High-carbon	Not Related
Manufacture of Computers, Communications, and Other Electronic Equipment	Sector	Not High-carbon	Not Related

Industry Name	Level of Industrial Classification for National Economic Activities	If High-carbon	If Related to Fossil Fuel
Instrument and Meter Manufacturing	Sector	Not High-carbon	Not Related
Other Manufacturing Industries	Sector	Not High-carbon	Not Related
Comprehensive Utilization of Waste Resources	Sector	Not High-carbon	Not Related
Repair of Metal Products, Machinery, and Equipment	Sector	Not High-carbon	Not Related
Electricity, Heat Production and Supply	Sector	High-carbon	Not Related
Gas Production and Supply	Sector	Not High-carbon	Related
Water Production and Supply	Sector	Not High-carbon	Not Related
Construction	Category	Not High-carbon	Not Related
Transport, Storage, and Post	Category	Not High-carbon	Not Related
Wholesale and Retail Trade, Accommodation, and Food Services	Merger of Two Categories	Not High-carbon	Not Related
Other Services and Residential Life	Other Categories	Not High-carbon	Not Related

Appendix III Major Green Finance Policies in the Chinese Mainland[43]

Year	Issuing Body	Policy Document	Main Content
2012	Former China Banking Regulatory Commission (CBRC)	Green Credit Guidelines	Green credit practices are called on to be effectively implemented by banking financial institutions, promoting energy conservation, emission reduction, and environmental protection. The role of banks in directing social capital flows and allocating resources is emphasized. The importance of banks improving their own environmental and social performance is stressed.
2016	People's Bank of China (PBOC), Ministry of Finance, and Five Other Ministries	Guiding Opinions on Building a Green Financial System	The crucial role of the securities market in supporting green investment is clarified. Unified standards for green bonds are called for, and eligible green companies are actively supported in listing and refinancing. The development of green bond indices, green stock indices, and related products is encouraged, and a mandatory environmental information disclosure system for listed companies and bond issuers is gradually established and improved.
2018	Asset Management Association of China	Green Investment Guidelines (For Trial Implementation)	The concept of green investment is defined, and its objectives, principles, basic methods, supervision, and management are clarified.

43 Based on public information collation

Year	Issuing Body	Policy Document	Main Content
2021	The People's Bank of China	Guidelines for Environmental Information Disclosure by Financial Institutions	Commercial banks, asset management institutions, trust companies, and insurance companies are covered. The principles, forms, and content requirements for environmental information disclosure by financial institutions are systematically elaborated.
2022	Green Bond Standard Committee	China Green Bond Principles	Standards for green bonds are unified, and four core elements are clarified.
2022	Former China Banking and Insurance Regulatory Commission	Guidelines on Green Finance for the Banking and Insurance Industries	Banking and insurance institutions are demanded to advance green finance from a strategic perspective. For the first time, these institutions are mandated to consider Environmental, Social, and Governance (ESG) risks and ultimately achieve carbon neutrality.
2022	Former China Banking and Insurance Regulatory Commission	Statistical System for Green Insurance Business	Green insurance is defined for the first time. Its scope is further delineated to encompass both the liability and asset sides.

Appendix IV Information of Mutual Funds Assessed in the Report

Company	Fund Name	Fund Code	Fund Type		Launch Date	Proportion of High-Carbon Sector Investments (%)[44]	Carbon Emission Assessment and Disclosure
China Merchants Fund Management Co., Ltd.	China Merchants CSI SEEE Carbon Neutral ETF	159641	Passive	Index - Equity	2022/7/14	29.54	N
	China Merchants Carbon Neutral Theme	016350	Active	Mixed - Equity-Oriented	2022/9/26	11.69	Y
	China Merchants CSI 300 ESG Benchmark ETF	561900	Passive	Index - Equity	2021/7/6	6.31	N
Yinhua Fund Management Co., Ltd.	Yinhua CSI China Mainland Low Carbon Economy-Themed ETF	562300	Passive	Index - Equity	2021/12/20	5.96	Y
	Yinhua SSI ESG Leaders Index	013174	Passive	Index - Equity	2021/11/19	7.11	Y

44 In the overall equity investment portfolio

Company	Fund Name	Fund Code	Fund Type		Launch Date	Proportion of High-Carbon Sector Investments (%)[44]	Carbon Emission Assessment and Disclosure
E Fund Management Co. Ltd.	E Fund CSI SEEE Carbon Neutral ETF	562990	Passive	Index - Equity	2022/7/11	29.59	N
	E Fund CSI China Mainland Low Carbon Economy ETF	516070	Passive	Index - Equity	2021/4/15	5.95	N
Penghua Fund Management Co., Ltd.	Penghua CSI China Mainland Low Carbon Economy ETF	159885	Passive	Index - Equity	2021/4/6	5.98	N
	Penghua CNI ESG 300 ETF	159717	Passive	Index - Equity	2021/9/15	9.15	N
China Southern Asset Management Co., Ltd.	Southern CSI SEEE Carbon Neutral ETF	159639	Passive	Index - Equity	2022/7/11	29.58	N
	Southern Carbon Neutral	016013	Active	Equity	2022/10/25	8.31	N
	Southern CSI 300 ESG Benchmark ETF	560180	Passive	Index - Equity	2023/4/13	6.28	N

Company	Fund Name	Fund Code	Fund Type		Launch Date	Proportion of High-Carbon Sector Investments (%)[44]	Carbon Emission Assessment and Disclosure
Invesco Great Wall Fund Management Company Limited	Invesco Great Wall ESG Quantitative	014634	Active	Equity	2022/6/6	2.59	N
Harvest Fund Management Co., Ltd.	Harvest Carbon Neutral Theme	016568	Active	Mixed - Equity-Oriented	2023/3/31	80.06	N
	Harvest Green Theme	017744	Active	Equity	2023/2/17	0	N
	Harvest Low Carbon Select	017036	Active	Mixed - Equity-Oriented	2022/12/13	12.27	N
	Harvest ESG Sustainable Investment	017086	Active	Mixed - Equity-Oriented	2023/3/6	3.42	N
China Universal Asset Management Co., Ltd.	China Universal CSI SEEE Carbon Neutral ETF	560060	Passive	Index - Equity	2022/7/13	29.62	N
	China Universal Carbon Neutral Theme	013147	Active	Mixed - Equity-Oriented	2021/9/14	17.05	N
	China Universal Low Carbon Investment One-Year Hold	014522	Active	Mixed - Equity-Oriented	2022/2/25	10.1	N

Company	Fund Name	Fund Code	Fund Type		Launch Date	Proportion of High-Carbon Sector Investments (%)[44]	Carbon Emission Assessment and Disclosure
	China Universal ESG Sustainable Growth	011122	Active	Equity	2021/6/10	17.48	N
China Asset Management Co., Ltd.	ChinaAMC CSI China Mainland Low Carbon Economy-Themed ETF	159790	Passive	Index - Equity	2021/7/30	5.97	N
	ChinaAMC Rongsheng Sustainable One-Year Hold	014482	Active	Mixed - Equity-Oriented	2022/7/26	0.11	N
	ChinaAMC CSI 300 ESG Benchmark ETF	159791	Passive	Index - Equity	2022/2/24	6.2	N
	ChinaAMC Low Carbon Economy One-Year Hold	015229	Active	Mixed - Equity-Oriented	2022/6/28	12.66	N
	ChinaAMC ESG Sustainable Investment One-Year Hold	014922	Active	Mixed - Equity-Oriented	2022/3/9	1.06	N

Company	Fund Name	Fund Code	Fund Type		Launch Date	Proportion of High-Carbon Sector Investments (%)[44]	Carbon Emission Assessment and Disclosure
Hwabao WP Fund Management Co., Ltd.	Hwabao WP Sustainable Development Theme	012262	Active	Mixed - Equity-Oriented	2021/12/10	13.26	N
	Hwabao WP ESG Responsible Investment	018118	Active	Mixed - Equity-Oriented	2023/4/28	16.64	N
Guotai Asset Management Co., Ltd.	Guotai CSI Environmental Protection Industry 50 ETF	159861	Passive	Index - Equity	2021/3/19	7.85	N
	Guotai MSCI China A-share ESG Universal ETF	159621	Passive	Index - Equity	2022/8/30	8.53	N
GF Fund Management Co., Ltd.	GF CSI SEEE Carbon Neutral ETF	560550	Passive	Index - Equity	2023/3/28	29.62	N
	GF ESG Responsible Investment	017199	Active	Mixed - Equity-Oriented	2023/1/19	32.98	N
ICBC Credit Suisse Asset Management Co., Ltd.	ICBC Credit Suisse CSI SEEE Carbon Neutral ETF	159640	Passive	Index - Equity	2022/7/13	29.60	N
	ICBC Credit Suisse CSI 180 ESG ETF	510990	Passive	Index - Equity	2021/6/18	8.96	N

Company	Fund Name	Fund Code	Fund Type		Launch Date	Proportion of High-Carbon Sector Investments (%)[44]	Carbon Emission Assessment and Disclosure
Fullgoal Fund Management Co., Ltd.	Fullgoal CSI SEEE Carbon Neutral ETF	561190	Passive	Index - Equity	2022/7/11	29.65	N
	Fullgoal Carbon Neutral	017041	Active	Mixed - Equity-Oriented	2023/2/24	1.4	N
	Fullgoal CSI 300 ESG Benchmark ETF	516830	Passive	Index - Equity	2021/6/24	6.35	N
Da Cheng Fund Management Co., Ltd.	Da Cheng CSI SEEE Carbon Neutral ETF	159642	Passive	Index - Equity	2022/7/13	29.56	Y
	Da Cheng ESG Responsible Investment	015780	Active	Mixed - Equity-Oriented	2022/6/24	8.24	N
Bosera Asset Management Co., Ltd.	Bosera ESG Quantitative Stock Selection	018130	Active	Mixed - Equity-Oriented	2023/3/31	9.88	N

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Liangdian Creative Park Room 201, Dongsishitiao 94, Dongcheng District, Beijing, China 100007
Tel : +86 (0)10 6554 6931
Fax : +86 (0)10 6408 7910

www.greenpeace.org.cn