

Keep Moving: An Overview of China A-Share ESG Performance

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1 Executive Summary

With the steady rise of the ESG investment concept in recent years, global institutional investors have started to advocate and practice responsible investment based on the ESG concept. Currently, ESG investment has gradually become mainstream internationally and is being increasingly adopted and applied by domestic and international investors. ESG performance of listed companies has also become an essential part of the market valuation during the investment process.

The ESG rating scope of **SynTao Green Finance (STGF)** has covered all A-share listed companies since 2020. According to the ESG rating information of A-share companies included in **STGF STaR ESG Database**, there are 4,138 companies in 2020, among which 588 have an ESG rating of "B" or above, accounting for 14.2% of the total number of listed companies; 3,550 have an ESG rating of "B-" or below, accounting for 85.8%. The ESG rating results of all A-share listed companies mentioned above show that a portion of A-share listed companies already has relatively good ESG performance in 2020. However, the overall ESG performance management is still in the early stage of rapid development.

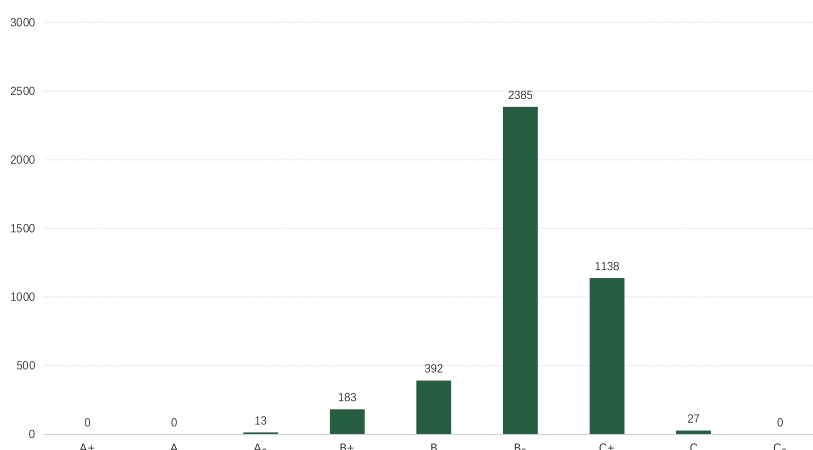


Figure 1. ESG Rating distribution of all A-share listed companies in 2020

Source: STGF STaR ESG Database

Based on the ratings of all A-shares companies, we focus our analysis on the CSI 800 index¹ constituents from 2018 to 2021, and the main findings are:

- **ESG information disclosure:** The number of A-share listed companies issuing ESG reports has steadily increased, but the proportion of companies issuing reports has not increased significantly. Both the disclosure rate and disclosure quality of ESG information have increased year by year. However, the qualitative disclosures still surpassed the quantitative disclosures, and the awareness of listed companies in voluntary disclosure still needs to be enhanced.

¹ CSI 800 index is compiled by China Securities Index Co., Ltd. and its constituents are composed of CSI 500 and CSI 300 constituents together. CSI 800 index reflects the overall situation of large, medium and small market capitalization companies within the Shanghai and Shenzhen Stock Exchanges in a comprehensive manner.

- **Climate-related information disclosure:** In the context of global climate change and China's "Dual Carbon" goals, the disclosure of greenhouse gas-related (GHG) information disclosure of A-share listed companies have improved in 2020 compared with previous years. However, the overall disclosure awareness and disclosure quality need to be further improved.
- **Overall ESG performance:** The overall ESG performance of A-share listed companies has been steadily improving, with environmental performance improving the fastest. However, the overall ESG performance is still in the early stage of development.
- **ESG risk:** ESG risk pressure on A-share listed companies remains high, and the proportion of ESG high-risk incidents shows an increasing trend year by year.
- **ESG performance and share price:** SG performance of A-share listed companies has a positive correlation with stock prices, and the A-share market has a relatively significant adverse reaction to ESG controversies of listed companies.

1.1 Research Path

This report analyzes the ESG performance of A-share listed companies from 2018 to 2021 in detail, using CSI 800 constituent companies as the representative study group. The primary analysis dimensions of this report include 1) ESG information disclosure; 2) climate and carbon neutrality-related information disclosure; 3) ESG rating results analysis; 4) ESG risk analysis, and 5) ESG performance and stock price correlation analysis.

The report first focuses on ESG information disclosure of listed companies and provides a comprehensive comparison and analysis of the quantitative and qualitative aspects of corporate information disclosure. In light of global climate change and China's "Dual Carbon" goals, the report focuses on the disclosure of climate and GHG-related information by CSI 800 constituent companies over the past four years and the disclosure deficiencies.

At the same time, based on the ESG ratings of CSI 800 constituent companies over the past years, the report analyzes the ESG performance of CSI 800 constituent companies in three dimensions: overall ESG performance, ESG management and disclosure, and ESG risk management providing an in-depth analysis of the ESG performance of listed companies by E, S and G factors respectively as well as by sectors.

Also included in this report are a statistical analysis of about 30,000 ESG risks incidents of listed companies, as well as a specialized study on ESG risk exposures of CSI 800 constituents, aiming to reveal the significant ESG risk exposures faced by A-share listed companies.

Finally, the report analyzes the response of the A-share market to ESG risks incidents using the event study methodology and examines the correlation between ESG performance and share prices of listed companies by back-testing the historical performance of ESG portfolios.

1.2 Overview of the ESG Rating Methodology Employed

The ESG information of listed companies used in this report comes from **SynTao Green Finance (STGF) Proprietary ESG Rating Scheme**.² The SynTao Green Finance (STGF) Proprietary ESG Rating Scheme assesses the ESG performance of company entities from two dimensions: ESG management and ESG risk exposures. Core indicators and sector-specific indicators are set up, covering material ESG issues and sector ESG risks. The SynTao Green Finance STGF Proprietary ESG Rating Scheme consists of three tiers: Tier-1 indicators are the three pillars of "Environmental (E)", "Social (S)" and "Governance (G)". Tier-2 indicators cover 13 themes, which are categorized under each of the "Environmental", "Social" and "Governance" pillars. Tier-3 indicators include about 200 specific indicators. The indicators can also be divided into ESG management indicators, which measure the ESG information disclosure quality and the level of ESG management measures of listed companies, and on the other side, ESG risk indicators, which measure the level of ESG risk exposure of listed companies, including government regulatory penalties, news and media reports, and relevant information from NGOs and associations, etc.³

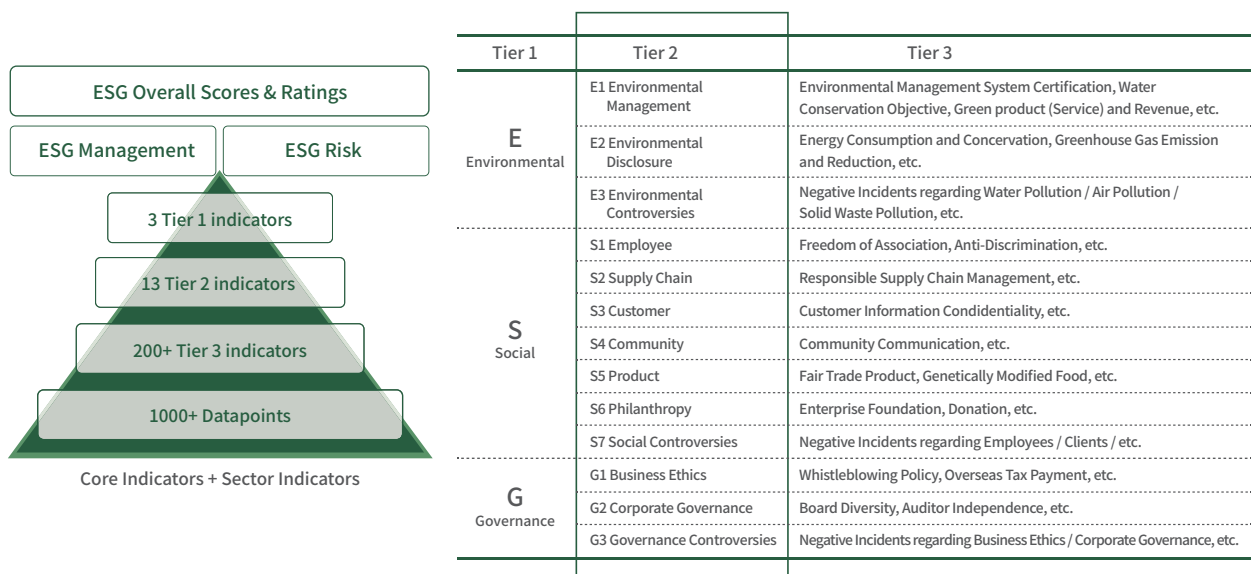


Figure 2 An example of indicators of SynTao Green Finance STGF Proprietary ESG Rating Scheme

By systematically evaluating the ESG management and risk exposures of listed companies, the overall ESG performance of listed companies is quantitatively evaluated, and the final STGF ESG rating result is obtained.

² The ESG rating data used in this report are obtained from SynTao Green Finance's STaR ESG Database, ESG risk exposure data from SynTao Green Finance's ESG Risk Radar System, and climate and GHG-related data from SynTao Green Finance's PANDA Climate Data Platform.

³ SynTao Green Finance has developed its proprietary ESG Risk Radar System, using a combination of AI and expert opinions to regularly collect and analyze regulatory and penalty information from multiple government agencies and ESG controversy reports from nearly 1,000 formal media sources.

◀ 2 Overview of ESG Information Disclosure in A-Share Listed Companies

In recent years, as regulators and international organizations put forward increasingly stringent ESG information disclosure requirements, more and more asset managers have started to include corporate ESG performance through ESG reports and other channels as the important basis for investment decisions. Both the number of ESG reports issued as well as the disclosure rate of ESG indicators and the quality of disclosure of A-share listed companies have increased steadily.

In terms of ESG report release, as of June 29, 2021, 26% of A-share listed companies have released their 2020 annual ESG reports, whereas this percentage is as high as 83% among the CSI 300 listed companies. In the absence of mandatory disclosure requirements by the CSI stock exchanges, more and more A-share listed companies are choosing to publish independent ESG reports voluntarily, the reasons for which are inextricably linked to the role of ESG information in improving brand reputation, demonstrating social responsibility, enhancing investor confidence, and assisting companies in identifying their own opportunities and challenges. Meanwhile, the data show that the ESG performance of CSI 300 constituent companies that publish ESG reports is significantly higher than that of companies that do not publish reports, which is related to the fact that companies that publish ESG reports are more advanced in terms of information disclosure.

In terms of the disclosure rate and disclosure quality of ESG indicators, although the overall disclosure performance of CSI 800 constituent companies is on the rise, the disclosure rate of quantitative indicators is lower than that of qualitative indicators, and the disclosure rate of voluntary disclosure indicators does not yet reach 50%. In addition, indicators with disclosure quality scores of 60 or above on a scale of 100 account for only 34.6% of the total. This situation indicates that the majority of A-share listed companies are still disclosing ESG information following the minimum requirements and standards of domestic regulatory compliance, and their awareness of independent disclosure still needs to be enhanced; At the same time, the low disclosure rate of quantitative information and the overall low disclosure quality score indicates that there is still a gap between A-share listed companies and the international average regarding their actual implementation of ESG management.

2.1 ESG Report Issuance of A-Share Listed Companies

Driven both by policies and the market, ESG information disclosure by listed companies in China is on a rising trend. We have compiled ESG reports of A-share companies from 2009 to 2021 (as of June 29, 2021).⁴ So far in 2021, about 26% of listed companies have issued ESG reports, and the number of ESG reports issued by all A-share listed companies has increased from 371 in 2009 to 1125 at present, demonstrating a stable increase trend. As of June 29, 2021, 250 of CSI 300 listed companies have

⁴ "ESG reports" referred to in this report include reports under the names of "social responsibility reports", "sustainability reports", etc.

issued reports in 2021, accounting for more than 83% (see Figure 3 for details). According to SynTao Green Finance, the ESG scores of those 250 companies that have issued ESG reports are 14.3% higher than those of the 50 companies that have not issued ESG reports.

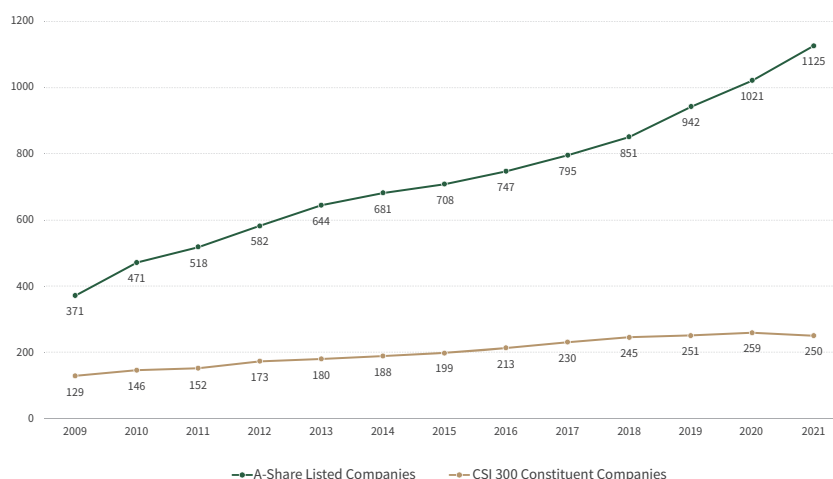


Figure 3 Statistics of ESG reports issued by A-share listed companies, 2009-2021

Source: Compiled by SynTao Green Finance based on public information

Meanwhile, the proportion analysis of ESG reports issued by A-share listed companies from 2009 to 2021 reveals that although the number of companies issuing reports has continued to rise in the last 12 years, the proportion of ESG reports issued by A-share listed companies has not increased significantly, fluctuating between 22.5% and 27%, with a slower fluctuating increase in the last five years (see Figure 4 for details).



Figure 4 Statistics on the proportion of ESG reports issued by A-share listed companies, 2009-2021

Source: Compiled by SynTao Green Finance based on public information

2.2 ESG Indicator Disclosure of CSI 800 Constituent Companies

2.2.1 ESG Indicator Disclosure Rate of CSI 800 Constituent Companies

In this report, the ESG indicator disclosure rate refers to the ratio of the number of companies that have disclosed a particular ESG indicator to the total number of companies in the sample. We have selected the core ESG indicators, which are the same across sectors in the **SynTao Green Finance (STGF) Proprietary ESG Rating Scheme**, as the statistical reference to analyze the ESG indicator

disclosure rate of CSI 800 constituents from 2018 to 2021. The results show that the ESG information disclosure rate of CSI 800 constituents has continued to increase in the last four years, with the disclosure rate of environmental indicators increasing from 29.98% to 48.08%, the disclosure rate of social indicators rising from 18.31% to 28.60%. The disclosure rate of corporate governance indicators increased from 52.39% to 60.15%. Social indicator disclosures are still the weakest compared to corporate governance and environmental information (see Figure 5 for details).

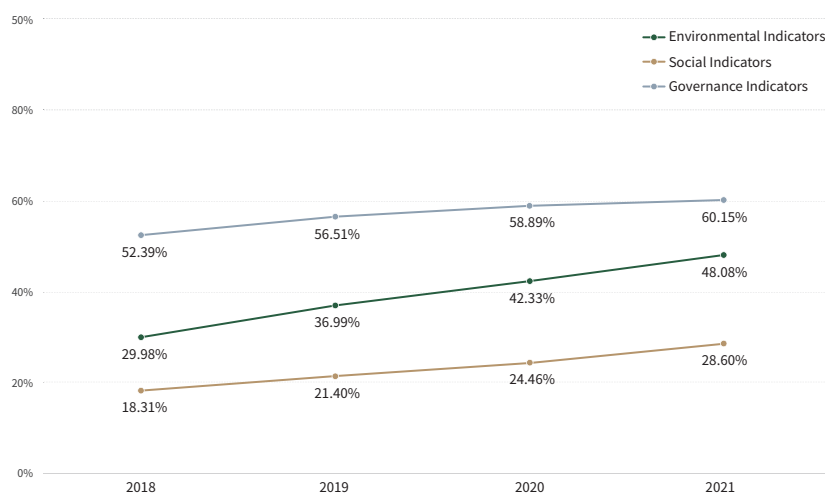


Figure 5 Increase of ESG disclosure rate at the indicator level for CSI 800 constituent companies (2018-2021)

Source: STGF STaR ESG Database

At the ESG indicator-level disclosure, the disclosure rate of most ESG indicators of CSI 800 constituents has shown a clear upward trend in the past four years. However, on a consolidated basis, disclosure of qualitative indicators is generally better than that of quantitative indicators. In addition, for most voluntary disclosure indicators⁵, the disclosure rate has not yet reached 50%.

2.2.2 ESG Indicator Disclosure Quality of CSI 800 Constituent Companies

The quality of ESG indicator disclosure refers to the degree of comprehensiveness, completeness and level of details of the ESG indicator disclosed by listed companies. Take the indicator "environmental management objectives" as an example, in the case that the company provides a high-level and qualitative description of its environmental-related management plans and objective directions; for example, "the company complies with environmental-related laws and regulations, continuously increases investment in environmental protection, and takes environmental protection and energy conservation and emissions reduction as important elements of its sustainable development strategy", such information disclosure would be deemed as of low quality and would not be able to serve the purpose of quantitative management and measurement. In case that the company discloses not only its qualitative target direction, but also the quantitative environmental objectives and timelines, the disclosure quality is considered to be higher.

⁵ Voluntary disclosure indicators refer to the ESG indicators other than those on critical emission units, environmental violations, and corporate governance currently mandated by regulators.

By analyzing the scores of each core ESG indicator disclosed by CSI 800 constituents from 2018 to 2021, we have classified the disclosure quality of ESG information disclosed by CSI 800 constituents into four categories: high, relatively high, medium, and low; and we have discovered that the disclosure quality of ESG indicators of CSI 800 constituents has been steadily improving over the past four years (see Figure 6 for details). As shown in Figure 6, although the disclosure quality has improved in the past four years, the overall ESG disclosure quality of CSI 800 constituents still leaves much room for improvement. In 2021, the proportion of ESG indicators with medium or low disclosure quality is still over 60%.

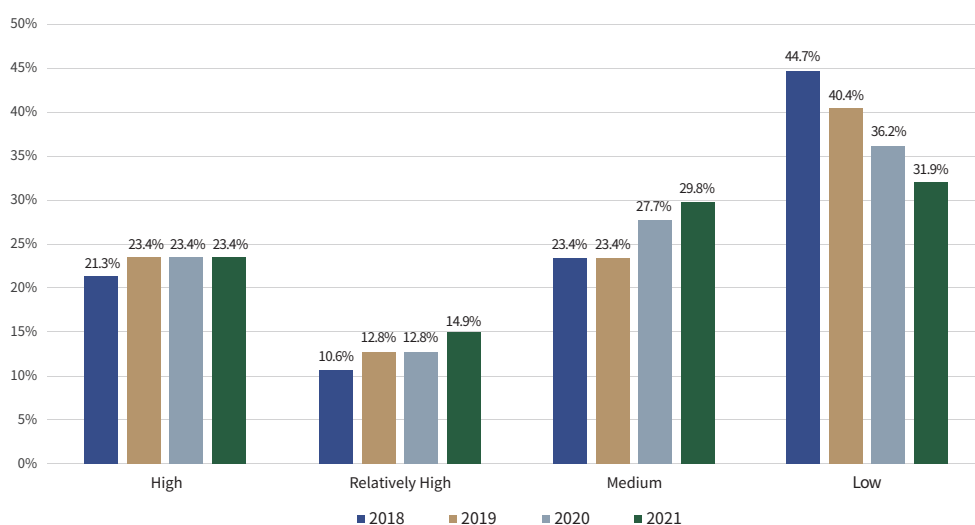


Figure 6 Changes in distribution of ESG disclosure quality at the indicator level for CSI 800 constituent companies (2018-2021)

Source: STGF STaR ESG Database

At the same time, we also see a more pronounced qualitative improvement in the disclosure of indicators that originally had poor disclosure quality. From 2018 to 2021, compared to indicators with disclosure quality of higher and above, the indicators with medium disclosure quality of CSI 800 constituent companies show a more pronounced upward shift in terms of disclosure quality, improving by 27.3% over the 4 years, indicating that ESG disclosure of most A-share listed companies is at the initial stage of raising awareness and enhancing action. The development of ESG information disclosure is mainly about moving from "0" to "1".

2.3 Climate and Carbon Neutrality Related Disclosure for CSI 800 Constituents⁶

In September 2020, President Xi Jinping proposed at the 75th Session of the United Nations General Assembly that "China aims to reach CO₂ emissions peak by 2030 and strives to achieve carbon neutrality by 2060." During the two sessions of the National People's Congress in 2021, "Carbon Dioxide Emissions Peaking" and "Carbon Neutrality" were written into the government work report for the first time. "The 14th Five-Year Plan" also includes the accelerated promotion of green and low-carbon development.

⁶ The carbon neutrality-related data in this section is obtained from the *STGF PANDA Climate Data Platform*.

As the primary responsibility bearer of GHG emissions reduction, companies, especially listed companies, should disclose the GHG management measures and GHG-related information generated in the process of production and operation, which will play an essential role in promoting the compliance of disclosure and the realization of the "Dual Carbon" goals. At the same time, standardized and consistent GHG-related information disclosure will also help investors to make more accurate and effective decisions in the context of the national "Carbon Neutrality" target.

Our analysis of the GHG management information disclosure of CSI 800 constituent companies from 2018 to 2021 using the **STGF PANDA Climate Data Platform** shows that as of June 29, 2021, nearly 50% of companies have disclosed GHG emission management information. However, the majority of them are qualitative objectives and high-level statements, and only 25 companies have set quantitative objectives for the short and/or medium to long term. In terms of GHG-related emissions, the number of companies disclosing such information in 2021 has increased significantly compared to 2020, but the total number of companies is still less than 200. Meanwhile, the performance of GHG emissions management and GHG emission disclosure in two industries with high GHG emissions, namely the "production and supply of electric, heating, gas, and water utilities" and "raw material processing and manufacturing", are in the middle and lower reaches of all industries. Overall, CSI 800 constituent companies have increased their awareness of disclosing their own GHG emissions information in the past three years, but the overall disclosure situation still needs improvement.

Looking at the domestic and international policy guidance, we can foresee that the quantity and quality of GHG emission information disclosure of A-share listed companies are expected to see a significant improvement in the coming years: in 2018, the CDP incorporated the Task Force on Climate-Related Financial Disclosures ("TCFD") into the disclosure framework; on June 28, 2021, the CSRC issued revised guidelines on the format of the annual and semi-annual reports of listed companies, encouraging listed companies to voluntarily disclose the measures taken to reduce GHG emissions and their effects; at the same time, the introduction of the "Dual Carbon" goals also indicates that GHG-related information disclosure enjoys the top-level support from the Chinese government. Suppose A-share listed companies are expected to rapidly improve their performance in GHG emission disclosure in the context of "Carbon Dioxide Emissions Peaking" and "Carbon Neutrality", in that case, the government regulatory system should expeditiously build a framework for GHG-related emission disclosure for listed companies, standardize GHG indicators and standards, and at the same time strengthen supervision and management, to encourage A-share listed companies to carry out GHG emission management and GHG emission disclosure actively.

2.3.1 Disclosure on GHG Emission Management

Our assessment of GHG emission management of listed companies mainly includes whether the companies have future GHG management plans, objectives, and roadmaps, which can be divided into two rating categories according to the degrees of disclosure by the companies. The first category falls within the general statement, which only contains qualitative management guidelines and directions, such as "the company insists on green development, low-carbon environmental protection, and

energy-saving"; the other category contains clear quantitative objectives and timelines, such as "the company plans to reduce GHG emissions by 30% within five years". From 2018 to 2021, the number of CSI 800 constituent companies that self-disclosed their GHG-related management information gradually increases. By the end of June 2021, nearly 50% of companies have disclosed their GHG emission management information. The awareness of listed companies on their GHG emission management has also increased after the "Carbon Dioxide Emissions Peaking" and "Carbon Neutrality" targets were proposed. However, the majority of companies have only submitted qualitative objectives and general statements. In contrast, only a few companies (25) have set and disclosed their own short- or mid- to long-term GHG reduction objectives based on the "Dual Carbon" goals.

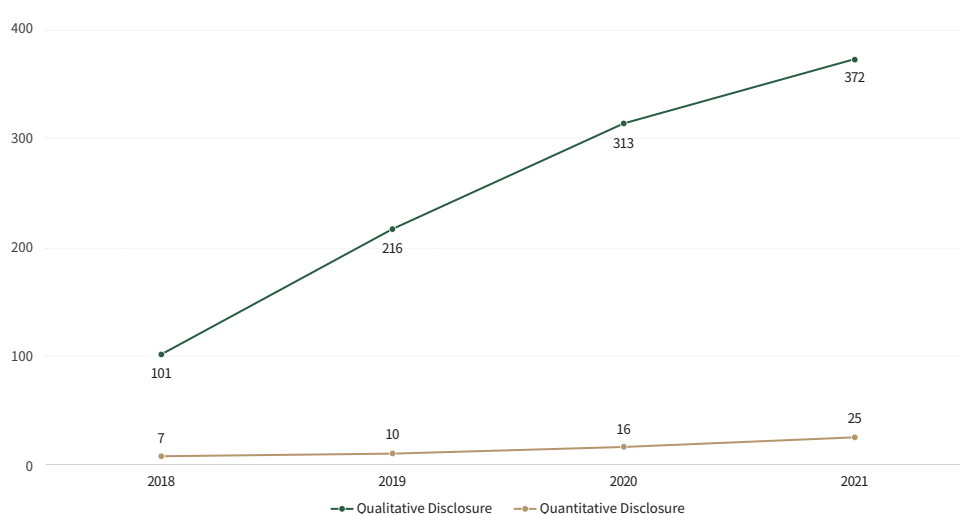


Figure 7 GHG emission management disclosure of CSI 800 constituent companies (in numbers of companies) (2018-2021)

Source: STGF STaR ESG Database

Among the companies that have disclosed their GHG-related management information, we have found that the proportion of CSI 800 constituents that are not dual-listed in A&H share markets is increasing, indicating companies other than dual-listed shares are beginning to voluntarily disclose their GHG management on their own, in addition to the regulatory requirements for climate change disclosure in the Hong Kong Exchanges (HKEX)'s "Environmental, Social, and Governance Reporting Guidelines" for listed companies.

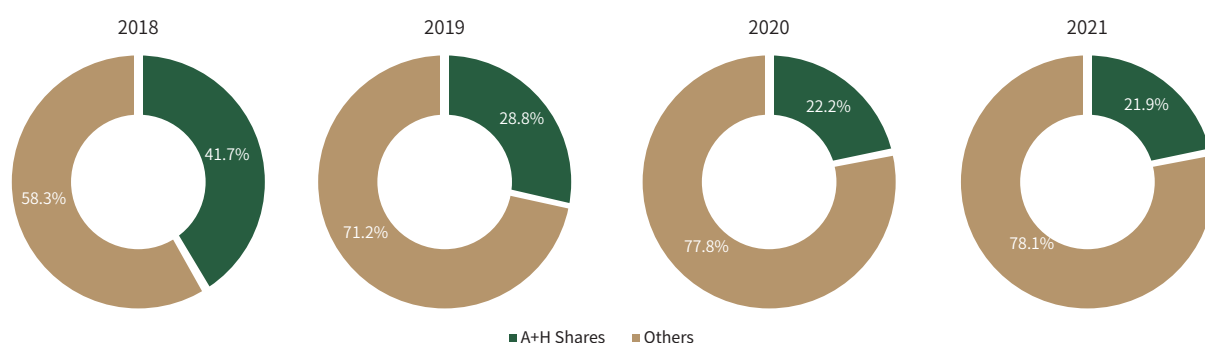


Figure 8 Types of CSI 800 constituent companies disclosing GHG management information (2018-2021)

Source: STGF PANDA Climate Data Platform

By comparing the disclosure of GHG-related management of listed companies in different industries in CSI 800, we have found that in the sectors of "health care", "transportation, warehousing and postal services", "finance", as well as in "construction", more than 70% of the companies have disclosed their GHG-related management information; while in sectors such as "pharmaceutical manufacturing", "food and beverage", "transportation equipment and general/specialized equipment", "communication, software and information technology services", only less than 40% have disclosed their carbon-related management information. In terms of quantitative objectives, more than 10% of companies in the "health care", "water conservancy, environment and public utilities management", "mining", "agriculture, forestry, livestock farming, fishery" sectors have set and disclosed quantitative GHG emission management objectives. In contrast, no company has disclosed quantitative management objectives in the "electric, heating, gas and water utilities and supply" sectors, where GHG emissions are significant.

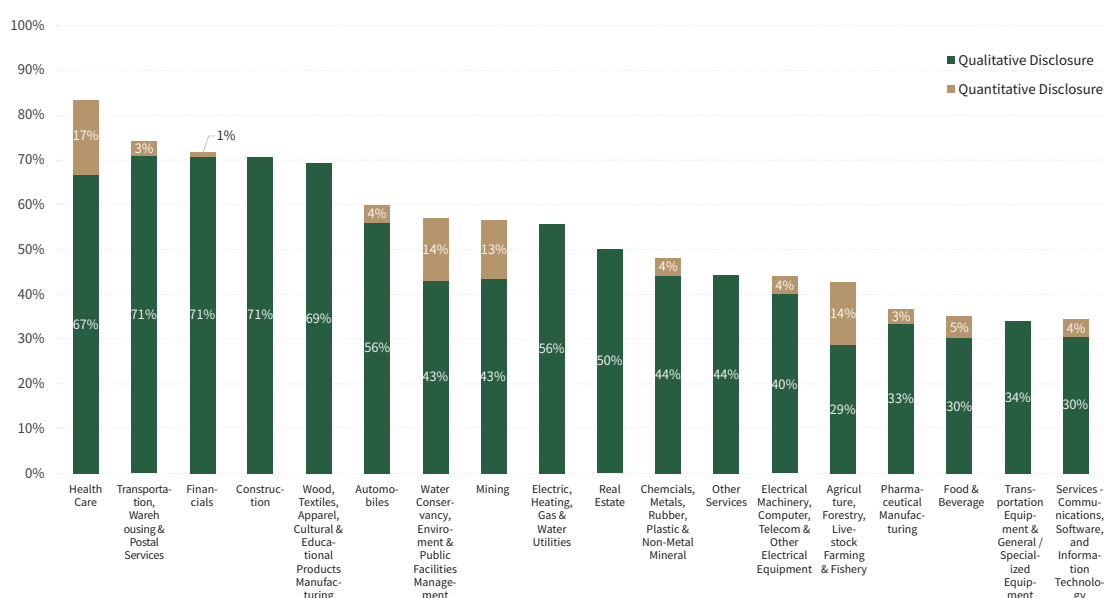


Figure 9 CSI 800 constituent companies' GHG management information disclosure rate by sector (2021)

Source: STGF PANDA Climate Data Platform

2.3.2 Status Quo of GHG Emission Data

GHG emission data of listed companies refer to the quantified emission data of greenhouse gases (mainly carbon dioxide, methane, nitrous oxide, HFCs, etc.) produced by the companies in their production and operation process. Between 2018 and 2021, the disclosure of GHG emission information of CSI 800 constituent companies is also increasing year by year, and it can be seen that the improvement is more significant in 2021, with an increase rate of about 31%. In terms of the disclosure scope, 75% of the companies have already disclosed their GHG emission data. In terms of disclosure scope, 75% of companies have already disclosed GHG emission information pertaining to all production units (i.e., the entire scope of the company), and the proportion is also continuing to grow.

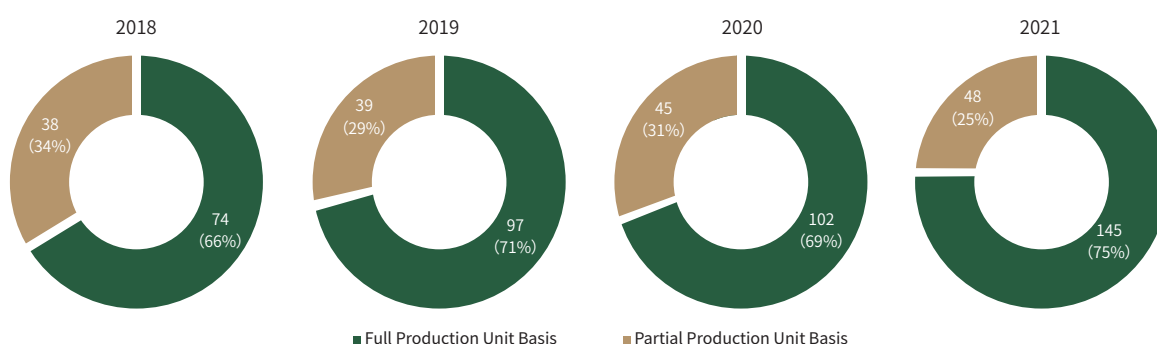


Figure 10 GHG emission disclosure scope of CSI 800 constituent companies (2018-2021)

Source: STGF PANDA Climate Data Platform

In addition, the proportion of companies that are not A&H dual-listed and disclosed GHG emission information is increasing year by year. From 2018 to 2020, more than half of the companies disclosing GHG emission information were both listed in both A&H markets. In 2021, just under 50% of companies disclosing GHG emission information are A&H dual-listed shares, indicating that in addition to the regulatory requirements set by the HKEX, the willingness and practice of non-A&H dual-listed companies to disclose GHG emission information voluntarily is rapidly increasing.

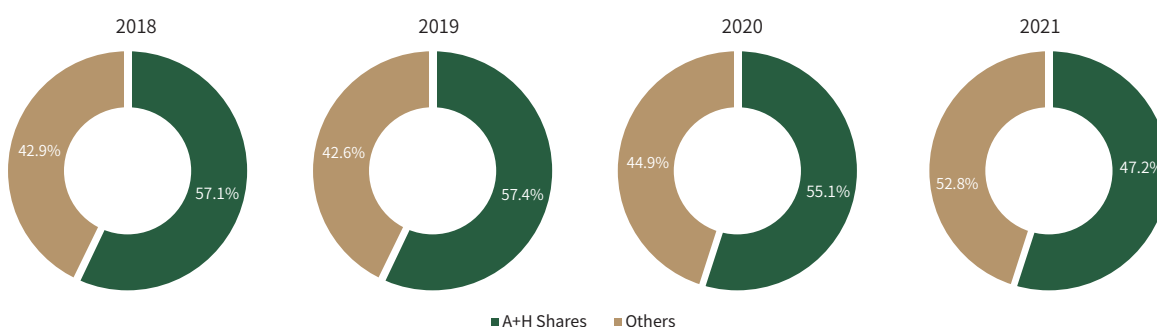


Figure 11 Types of CSI 800 constituent companies with GHG emission disclosure (2018-2021)

Source: STGF PANDA Climate Data Platform

By looking at the disclosure of GHG emission information by listed companies in different sectors, we have found that more than 40% of companies in the health care, mining, finance, transportation, warehousing and postal services sectors disclose GHG emission information. In comparison, only about 10% of companies in the real estate, communication, software and information technology services, and other services sectors disclose their GHG emission information. In the electric, heating, gas and water utilities sector and raw material processing and manufacturing sectors, only about 25% of the companies have disclosed their GHG emission information. Looking at the disclosure scope, more companies in the financial sector disclose GHG emission information on a partial production unit basis than on a full production unit basis, while companies in the mining, transportation equipment and general/specialized equipment sectors disclose on a full production unit basis.

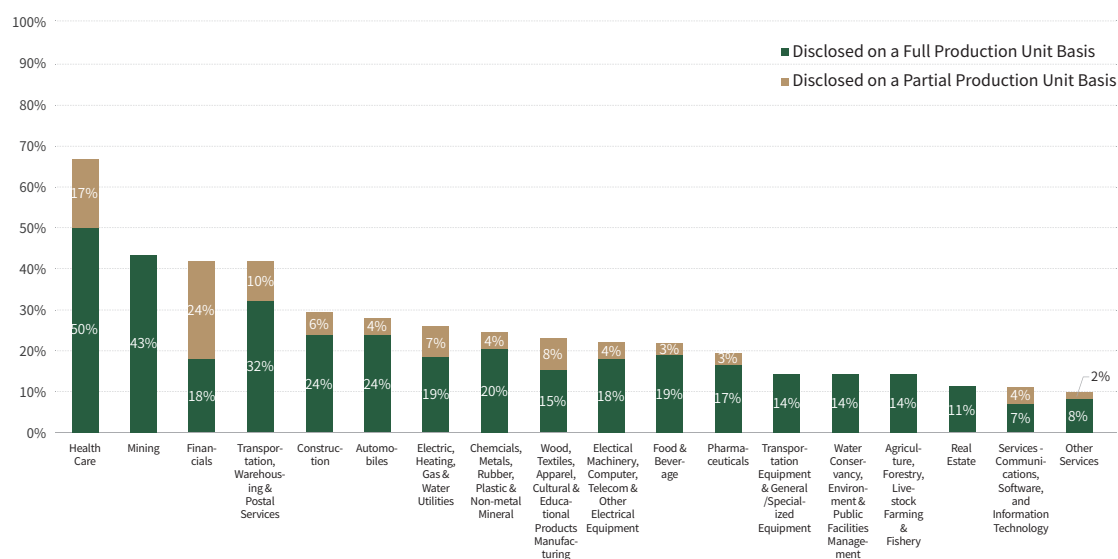


Figure 12 Statistics of GHG emission information disclosure scope of CSI 800 constituent companies by sectors (2021)

Source: STGF PANDA Climate Data Platform

3 ESG Ratings of CSI 800

With the rapid development of the ESG market, the ESG performance of A-share listed companies has also entered a steady growth stage. From 2018 to 2021, the overall ESG ratings of CSI 800 constituent companies are on an upward path. Companies with ESG ratings of B+ and above have increased by 101%; companies with ESG ratings of C+ and below have decreased by more than 40%. Over the past four years, the average ESG score of CSI 800 constituent companies has increased by 8%; listed companies at the top (top 100) have improved at a significantly higher rate than those at the bottom (bottom 100), reflecting the "Matthew effect" of ESG performance improvement, where companies with higher ratings pay more attention to continuous ESG performance improvement. The underlying reason may be that companies with better ESG performance can appreciate the practical benefits of ESG information disclosure and management in terms of corporate image and investment attraction.

In the four years from 2018 to 2021, the environmental pillar enjoys the most significant increase in the ESG rating, that is 12% among CSI 800 companies, which is attributed to the increasingly stringent environmental information disclosure system for A-share listed companies in recent years. In terms of sector performance, the five sectors with the highest average ESG scores in 2021 are: "transportation, warehousing and postal services", "finance", "mining", "electric, heating, gas and water utilities", and "pharmaceutical manufacturing", the composition of which is the same as in 2020.

3.1 Aggregated ESG Rating and Performance of CSI 800 Constituents

Based on the **SynTao Green Finance (STGF) Proprietary ESG Rating Scheme**, the ESG ratings of CSI 800 constituent companies⁷ have improved significantly from 2018 to 2021. The number of companies with ESG ratings of B+ and above increased from 63 to 197, representing an increase of 213%; the number of companies with ESG ratings of C+ and below decreased from 199 to 76, representing a decrease of 61.8%.

⁷ SynTao Green Finance's ESG ratings are categorized into A+, A, A-, B+, B, B-, C+, C, C-, D. There are no companies with A+, C- and D ratings among the CSI 800 constituents in the last 4 years, thus these 3 ratings are not listed in the chart.

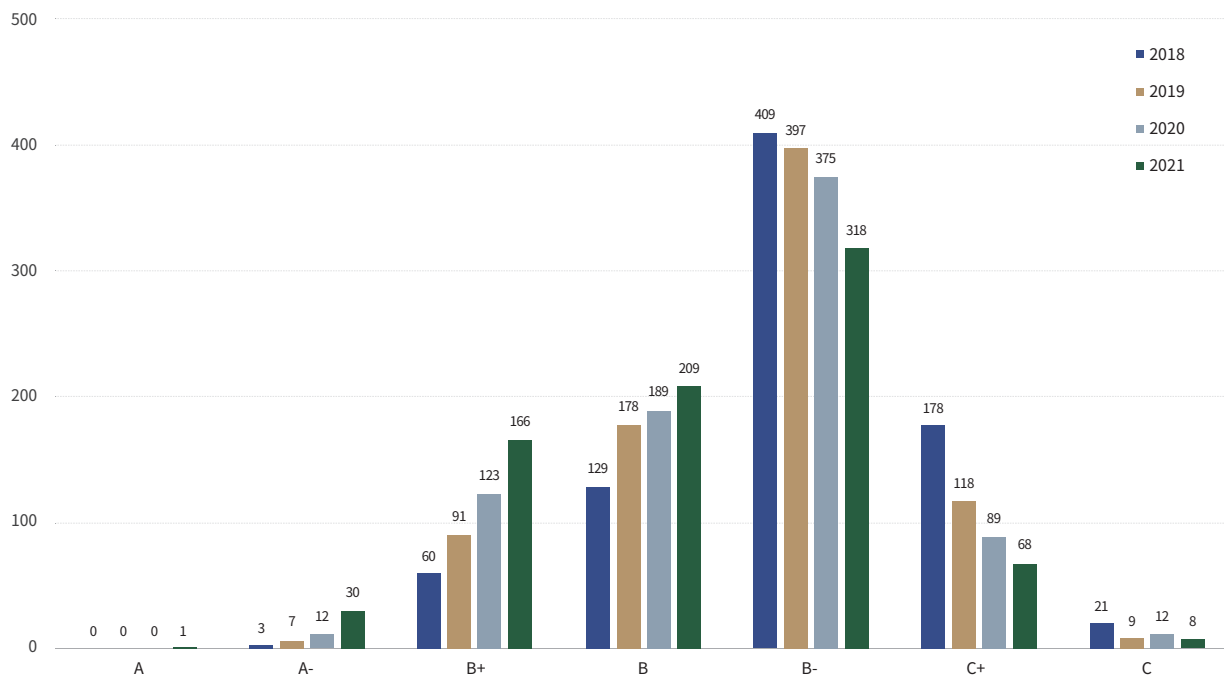


Figure 13 CSI 800 constituent companies' ESG rating score distribution (2018-2021)

Source: STGF STaR ESG Database

Comparing listed companies that are CSI 800 constituents in both 2021 and 2020, 27% of them have their ESG ratings upgraded and 6.5% downgraded. Compared to rating score changes from 2019 to 2020, 19.5% of the CSI 800 constituents were upgraded, 65.9% were unchanged, and 14.6% were downgraded. The comparison shows that the percentage of companies with ESG rating upgrades has accelerated in the past year.

Using the ESG score of CSI 800 constituents in 2018 as the baseline, the total increase in the 4-year average ESG score is 8%, reflecting a steady increase in the overall ESG performance of major A-share listed companies.

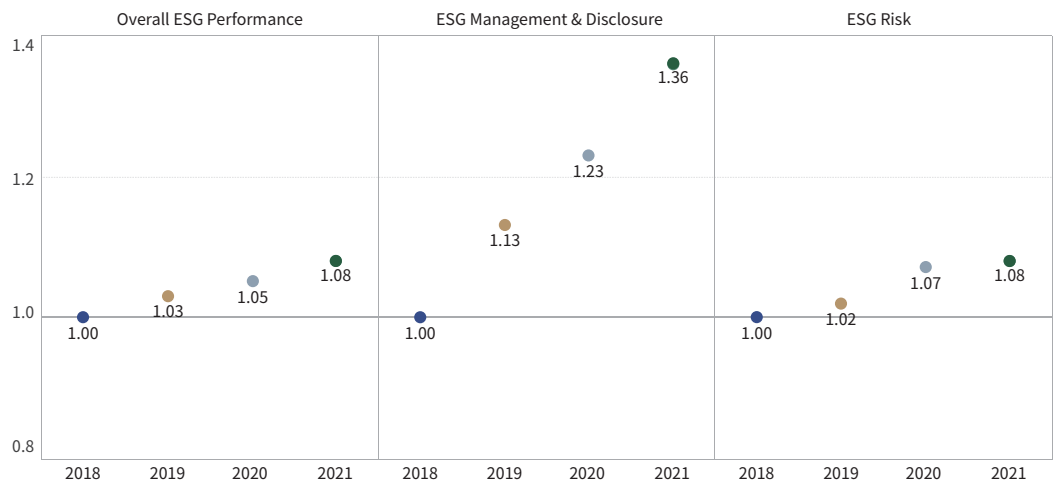


Figure 14 Development in CSI 800 constituent companies' ESG performance (2018-2021)

Source: STGF STaR ESG Database

When we look at the ESG performance of listed companies from ESG management & disclosure and ESG risk, it can be found that the ESG management & disclosure performance of listed companies has shown a substantial improvement in recent years, with an overall improvement of 36% compared to 2018, indicating that the companies' ESG management initiative has been strengthened and information disclosure has been significantly improved. In contrast to ESG management and disclosure, ESG risk exposures, represented by the occurrence and severity of ESG controversies of listed companies, are also increasing year by year, with an overall increase of 8% in four years. It indicates that in the past four years, with the increasingly stringent regulation, more ESG controversies of listed companies have been exposed to the public, and many "black swan incidents" of listed companies are ESG-related.

According to the overall ESG performance of CSI 800 constituents, we have ranked the top 100 companies in each year as the "High ESG 100 Portfolio" and the bottom 100 companies as the "Low ESG 100 Portfolio", and the changes in ESG performance of the two groups over four years were analyzed. It is found that the ESG performance of the companies listed at the top of the ESG performance list has improved faster, and the average annual growth rate is more even, with an overall increase of 12% in 4 years. The ESG performance of companies in the lower end of the ESG performance list has improved less, with an overall increase of 6% in 4 years. It shows that in the context of the overall ESG improvement of A-share listed companies, the companies at the top of the ESG performance scale have more significant improvement in ESG performance.

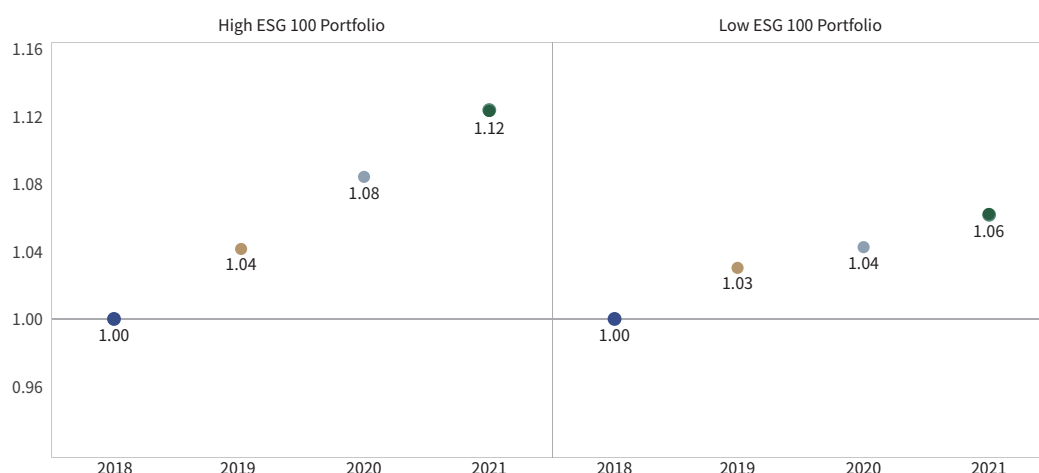


Figure 15 Change in ESG performance of CSI 800 constituent companies' "High ESG 100 Portfolio" and "Low ESG 100 Portfolio" (2018-2021)

Source: STGF STaR ESG Database

3.2 Respective E/S/G performance breakdown of CSI 800 Constituents

We further analyzed the performance changes in the three pillars of E, S, and G of the A-share listed companies over the four years. Figure 16 shows the performance momentum of E, S, and G for CSI 800 constituent companies as a group. It can be seen that the performance of listed companies in all three dimensions, E, S, and G, has improved to a certain extent, with environmental-related performance improving more rapidly than social- and governance-related performance: environmental

performance has improved by 12%, social performance by 6% and governance performance by 5% over the four years.

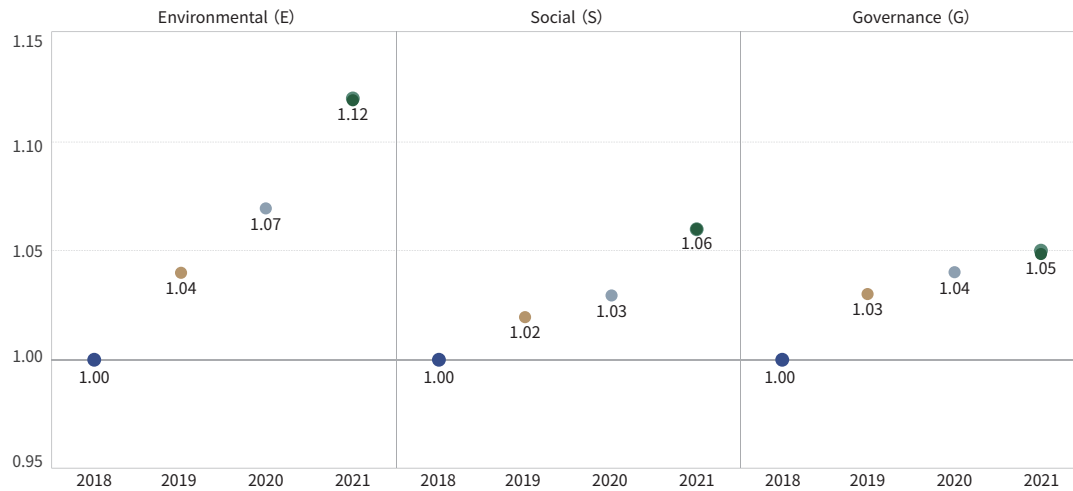


Figure 16 Breakdown of changes in CSI 800 constituent companies' E/S/G performance (2018-2021)

Source: STGF STaR ESG Database

3.3 ESG Performance Analysis of CSI 800 Constituents by Sector

The five sectors⁸ with the highest average overall ESG scores in 2021 are: "transportation, warehousing and postal services", "finance", "mining", "electric, heating, gas and water utilities", and "pharmaceutical manufacturing". The five sectors with the lowest average overall ESG scores are: "real estate", "communication, software and information technology services", "other services", "food and beverage", and "construction". The relative ESG performance of each sector is shown in Figure 17, with the average ESG score of all CSI 800 constituents being used as the baseline.

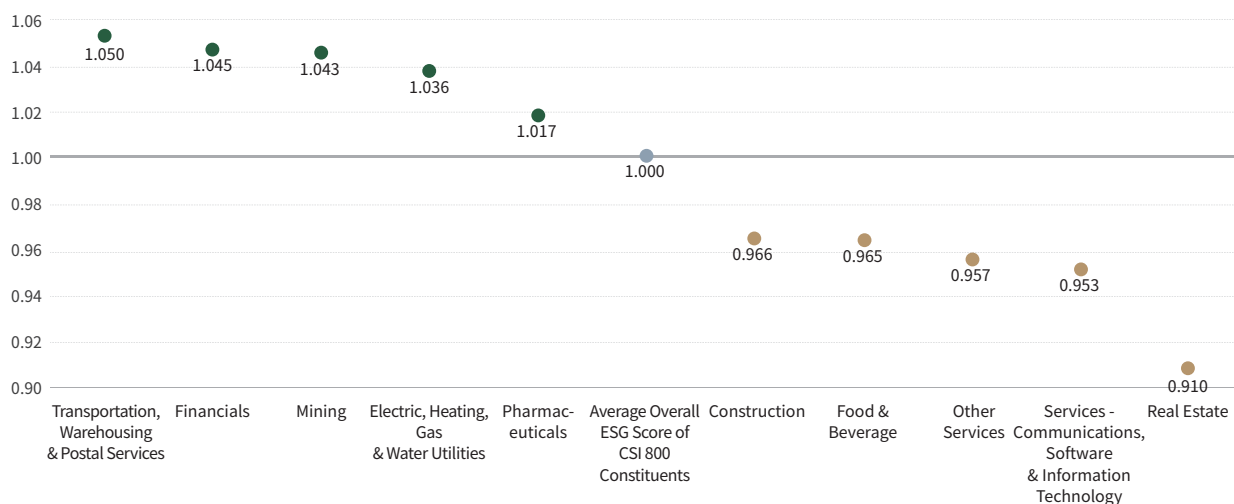


Figure 17 CSI 800 constituent companies' ESG performance by sector (2021)

Source: STGF STaR ESG Database

⁸ To enhance statistical validity, industries with more than 20 listed companies are shown here.

We further analyzed the changes in ESG performance of CSI 800 constituent companies from 2020 to 2021. According to the statistics, the ESG performance of CSI 800 has improved by 3.39% across all sectors on average, and among which the three sectors with the highest improvement rate are: "transportation, warehousing and postal services", "food and beverage", and "mining", while the three sectors with the lowest improvement rate are: "real estate", "transportation equipment and general/specialized equipment manufacturing", and "electric, heating, gas and water utilities". Among them, the "transportation, warehousing and postal services" sector has the highest percentage of ESG management and disclosure improvement of 13.72%, while the "mining" sector has the highest ESG risk score improvement of 3.03%, topping all sectors.

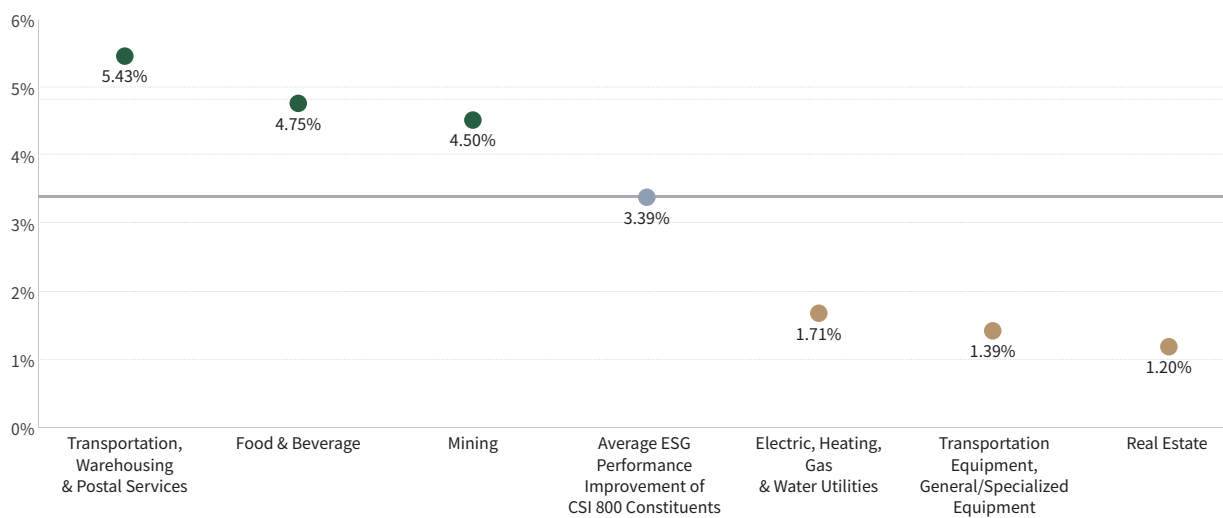


Figure 18 ESG performance improvement by sector for CSI 800 (2020-2021)

Source: STGF STaR ESG Database

4 ESG Risk Analysis of A-share Listed Companies

ESG controversies are indicative in the sense that the loopholes in a company's ESG management have surfaced. Furthermore, studies showed that such incidents have negative impacts on companies' reputations, customer loyalty, and financial performances.

We have conducted some analysis and research on the ESG risk incidents of A-share listed companies based on the **STGF ESG Risk Radar System** data from July 2012 to June 2021.

4.1 A Peek at the ESG Risk Exposures of A-Share Listed Companies

In recent years, controversies related to environmental, social, and corporate governance aspects of listed companies have been repeatedly exposed. According to the ESG controversies of listed companies included in the **STGF ESG Risk Radar System**, from July 2012 to June 2021, a total of 29,712 ESG risk incidents were captured, involving 3,313 listed companies, including 10,953 environmental risk incidents, accounting for 36.9%; 9,297 social risk incidents, accounting for 31.3%; and 9,462 governance risk incidents, accounting for 31.8%.

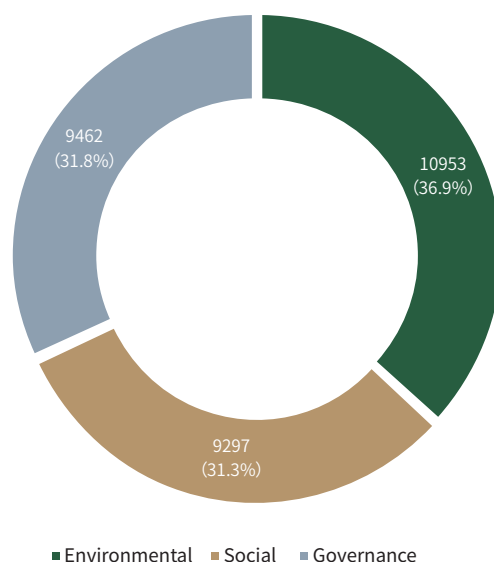


Figure 19 Statistics of historical ESG controversies in A-share companies (July 2012 – June 2021)

Source: STGF Risk Radar System

In-depth analysis of the type of ESG controversies reveals that air pollution, water pollution and other violations of environmental compliance (e.g., procedural violations) are the most common among environmental controversies; among social controversies, controversies related to product (or service) quality, customer rights and employee rights are the most common; and corporate governance, as well as breaches of business ethics, are among the most common controversies in the corporate governance category.

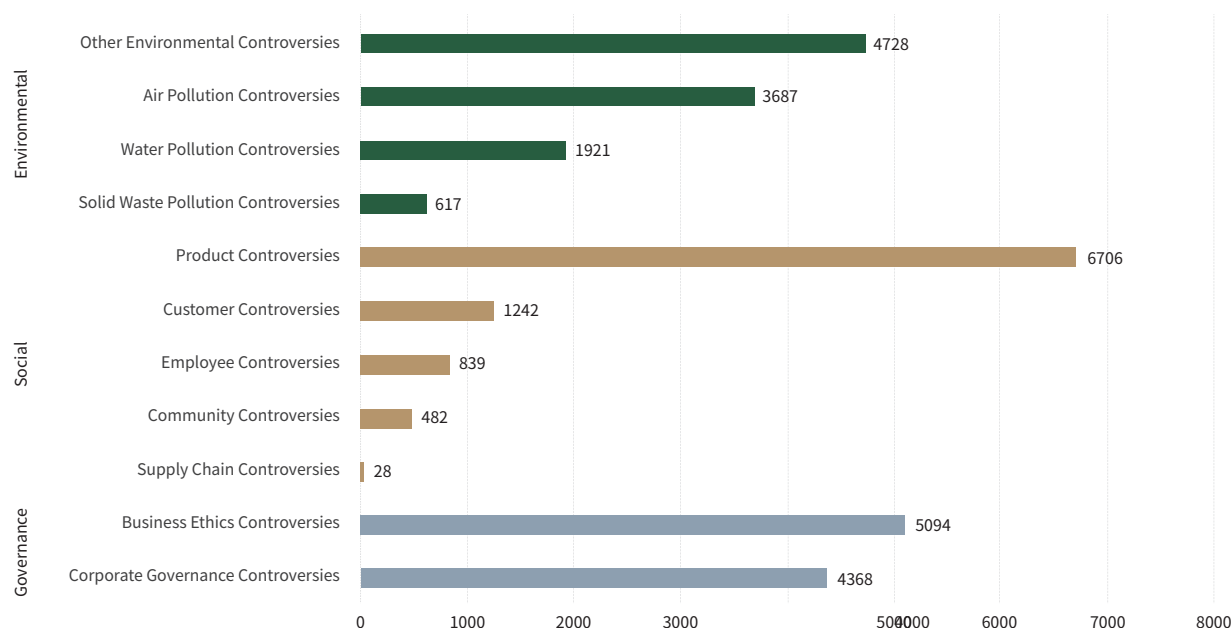


Figure 20 Types of ESG controversies of A-share listed companies (July 2020 – June 2021)

Source: STGF Risk Radar System

4.2 ESG Risk Profile of CSI 800 Constituents and its Momentum

Taking the most recent year (July 2020 to June 2021) of CSI 800 constituent stocks as the statistical interval, during which, **STGF ESG Risk Radar System** recorded 2,625 ESG risk incidents, involving 455 of the total 800 listed companies, accounting for more than 56.9%. Among them, 725 are environmental risk exposures, accounting for 27.6%; 1273 are social risk exposures, accounting for 48.5%; and 627 are corporate governance risk exposures, accounting for 23.9%.⁹ Among the three risk levels of ESG risk controversies, the proportion of medium- and high-risk incidents falls in the "social" and "governance" pillars are found to be relatively higher, accounting for 11.7% and 26%, respectively.

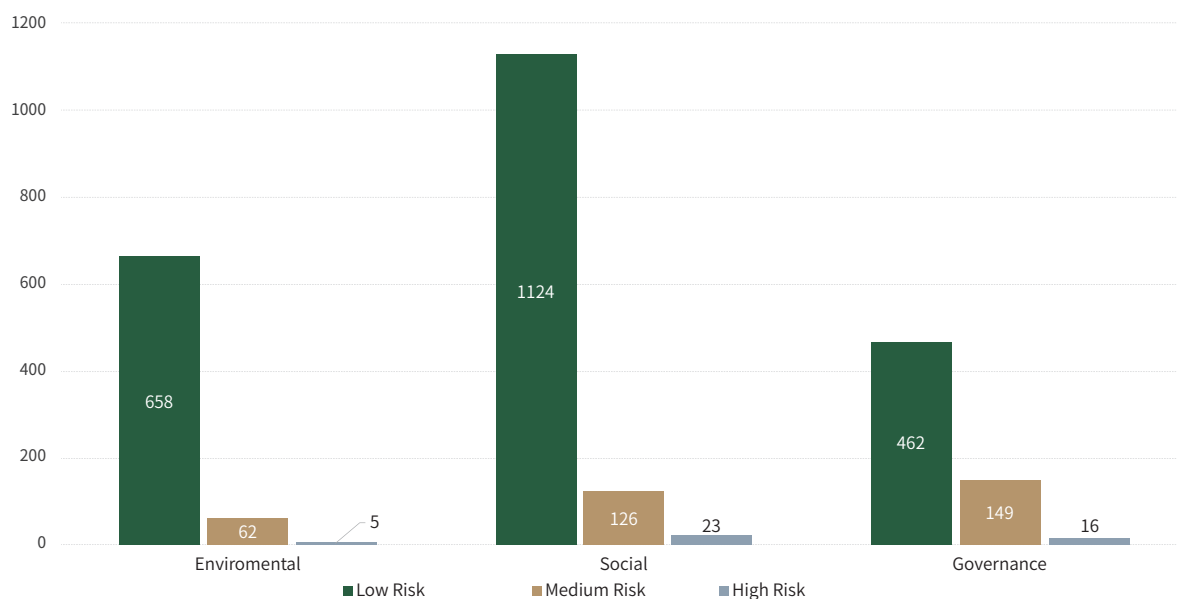


Figure 21 Statistics of ESG controversies of CSI 800 constituent companies (July 2020 – June 2021)

Source: STGF Risk Radar System

⁹ SynTao Green Finance has assessed the risk level of events based on the materiality of the events, taking into account the industry attributes, frequency of occurrence, social impact, corporate responsibility and response, and has classified them into three levels: low risk, medium risk and high risk.

During the previous year (2020.7-2021.6), the types of ESG controversies that occurred to CSI 800 listed companies concentrated in air pollution, other violations of environmental compliance, adverse product (or service) quality, and breach of business ethics.

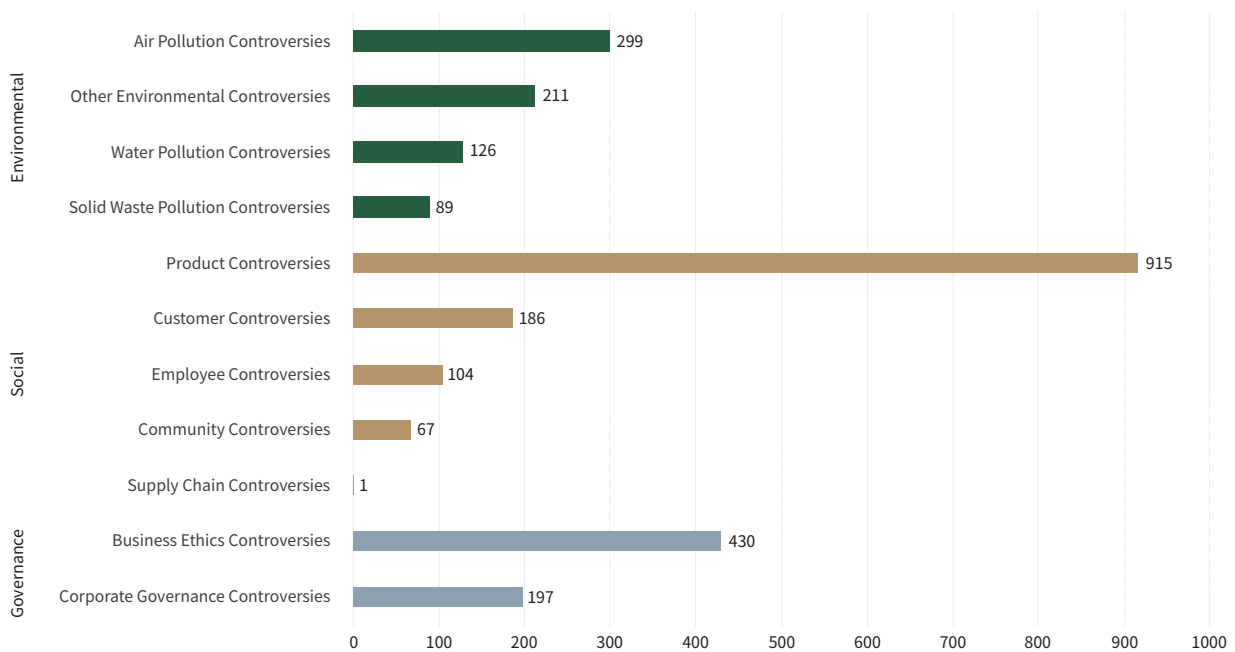


Figure 22 Types of ESG controversies of CSI 800 constituent companies (July 2020 – June 2021)

Source: STGF Risk Radar System

5 Research on the Correlation Between ESG Performance and Stock Prices in A-Share Market

In recent years, more and more investors have recognized that ESG investing could do a better job in terms of tail risk hedging. The outbreak of the COVID-19 pandemic, as well as the frequent occurrence of extreme weather since 2020, has prompted society as a whole, including capital markets, to reflect more deeply on the human-nature relationship and to build a more comprehensive risk control system. Several studies have shown that some degree of positive correlation exists between ESG rating scores of listed companies and corporate resilience, and companies with higher ESG ratings are more likely to have better stock market performance and financial returns than those with lower ESG scores.

To study the correlation between the ESG performance of A-share listed companies and their share prices, we tested the extent to which the A-share market reacts to ESG controversies and the returns of a portfolio of high-ESG performing listed companies, respectively. Using event study methodology, we examined the correlation between high-risk ESG controversies of CSI 800 constituents and changes in company share prices between January 1, 2015, and December 31, 2020, and the results show that the occurrence of medium- and high-risk events in ESG has a significant negative impact on company share prices. In addition, we constructed the "ESG Sector BIC 100" and "ESG + Quality Factor 100" among the constituents of the CSI 300 Index from July 1, 2015, to December 31, 2020, for back-testing. The results show a significant, positive correlation between ESG performance and stock market returns of A-share listed companies.

5.1 Market Reaction to ESG Controversies

To study the stock market reaction to ESG controversies of listed companies, we have applied the event study method to examine the volatility of their share prices (i.e., the cumulative abnormal stock returns) before and after the disclosure of ESG controversies to determine their impacts.

For the event study, the event date (day 0) is set to be the date when a given ESG controversy occurs. In keeping with Krueger (2015)¹⁰, we have also accounted for the possibility that some information may have been released to the public prior to the announcement date by including the five previous trading days and encompass a staggering response by including the following ten trading days. That is, the baseline event window is [-5, 10]. To check whether any run-up exists in stock prices before and after the event window, we have also investigated the time intervals [-20, -11] and [-10, -6] prior to and [11, 20] and [21, 60] after the event window.

¹⁰ Krueger, P., 2015. Corporate goodness and shareholder wealth. *J. Financ. Econ.* 115, 304–329.

The ESG controversy data are taken from the STGF ESG Risk Radar System, which records the announcement date, that is, the day on which the public gets informed of an ESG controversy either from regulators or media reports. The announcement date (as opposed to the occurrence date) is the more relevant date here for the event study since it captures the day when the information is disclosed to the market. We have also excluded certain events from the data sample, including multiple ESG controversies from one single company happening during the window period (i.e., the number of days between two ESG controversies of a company is less than or equal to 10), the event with stock suspension for more than five days during the window period, and the event with stock suspension for more than 23 days during the estimation period. At the same time, data observations that have dividends, reorganizations, etc., within the window period are also removed.

For each company i , we have computed the abnormal returns using the Fama-French five-factor model (Fama & French, 2015). The estimation window (i.e., time period) is set to the interval $[-255, -46]$ using daily returns. In the following model,

$$R_{it} - R_{ft} = \alpha_i + \beta_{i1} \times (R_{mt} - R_{ft}) + \beta_{i2} \times SMB_t + \beta_{i3} \times HML_t + \beta_{i4} \times RMW_t + \beta_{i5} \times CMA_t + \varepsilon_{it}$$

R_{it} is the stock return of company i on day t , R_{ft} is the risk-free rate of return on day t , R_{mt} is the daily market rate of return, SMB_t , HML_t , RMW_t , CMA_t are respectively the size, value, operating profitability, and investment factor, ε_{it} is the residual. All the factor daily returns and risk-free returns are based on the Chinese A-share stock market.¹²

The coefficients α_i , β_{i1} , β_{i2} , β_{i3} , β_{i4} , β_{i5} are then estimated by ordinary least squares (OLS), and the estimated return on the stock of company i on day t is then given by

$$\hat{R}_{it} = \hat{\alpha}_i + \hat{\beta}_{i1} \times R_{mt} + \hat{\beta}_{i2} \times SMB_t + \hat{\beta}_{i3} \times HML_t + \hat{\beta}_{i4} \times RMW_t + \hat{\beta}_{i5} \times CMA_t$$

The abnormal daily return (AR) of company i on day t is calculated as follows:

$$AR_{it} = R_{it} - \hat{R}_{it}$$

Finally, we have calculated the CARs (cumulative abnormal returns) for each time interval by summing up the ARs (abnormal returns) within the specific time window and compute CARs for the time intervals $[-20, -11]$, $[-10, -6]$, $[11, 20]$, and $[21, 60]$ in addition to the event window $[-5, 10]$.

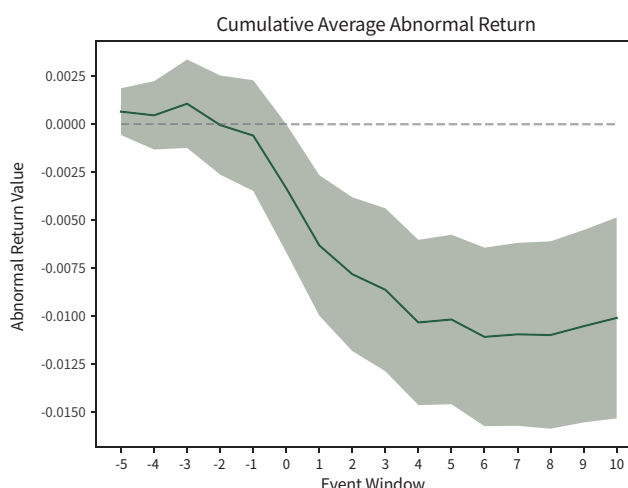
¹¹ Fama, Eugene F. and French, Kenneth R., A five-factor asset pricing model, Journal of Financial Economics, Volume 116, Issue 1, 2015, Pages 1-22.

¹² 详见BetaPlus小组, <https://www.factorwar.com/data/factor-models/>

Table 1.

This table displays the average cumulative abnormal return (CAR) for different time windows around the announcement of ESG controversies. The sample consists of $N = 1,304$ ESG controversies (corresponding to the 1,304 unique company-day observations). *, **, and *** denotes significance at the 10%, 5%, and 1% levels, respectively.

Event time	CAR	Std.err.
[-20, -11]	-0.0028	0.0019
[-10, -6]	-0.0003	0.0013
[-5, 10]	-0.0104***	0.0025
[11, 20]	-0.0028	0.0020
[21, 60]	-0.0190***	0.0048

**Figure 23 [-5,10] Event window cumulative average abnormal returns (CAARs)**

Source: SynTao Green Finance ESG Research

Note: shaded area denotes the confidence interval at 95% for the CAAR line

The event study results are reported in Table 1 and plotted in Figure 23. The sample includes all 1304 issuer-day observations. For each event window, the average CAR (with the corresponding standard error) is reported. As is shown, the average CAR in the event window [-5, 10] is -1.04% and significant at the 1% level.

The result shows that the stock market has a significant and adverse reaction to the company's ESG controversies. That is, after excluding the rate of return brought by the market's daily return rate, scale factor, value factor, profitability factor, and investment factor, ESG controversies are accompanied by the significant plump of the company's stock prices. In addition, in the event window period [-5, 10], there are no significant CARs before the event day 0, indicating that there is no significant information leakage. The study also finds that in other window periods [-20, -11], [-10, -6], [11, 20], CARs are small and insignificant, indicating to a certain extent that the results are not driven by unrelated trends around the event date.

Moreover, although the negative impact of ESG events has gradually subsided after the event window (i.e., in the [11,20] interval), a significant cumulative abnormal return rate reappears in the [21, 60] interval, indicating that the high and moderately-high risk incidents of listed companies can have a long-lasting impact on the company's stock price. This is different from the short-term overreaction of harmful ESG incidents in the US market studied by Cui and Docherty (2020).¹³

¹³ Cui, B. and P. Docherty (2020). Stock price overreaction to ESG controversies. SSRN Working Paper 3559915.

5.2 ESG Ratings/Scores and Stock Portfolio Performance of A-Share Listed Companies

In this section, we have conducted a correlation analysis between the ESG rating of A-share listed companies and their stock market performance. Basically, we have adopted two strategies—constructing portfolios by using the single factor of ESG rating and dual factors of ESG and quality.

For the first portfolio named "ESG Sector BIC 100": the back-testing period is from July 1, 2015, to December 31, 2020, and the parent universe is the constituent stocks of the CSI 300 Index. Then in each CSI tier sector, we have selected the stocks with the highest ESG overall rating scores and constructed a total of 100 stocks in the portfolio. Each stock's weight is set with its free-market cap and is adjusted to be consistent with its industry weight in the CSI 300 Index. As for the performance of the portfolio, the cumulative rate of return exceeds the benchmark (CSI 300) by about 44.55%. The annualized rate of return outperformed the benchmark by about 6.01%, and the annualized volatility outperformed the benchmark by about 1.11%, resulting in the improved Sharpe ratio by about 1.73 times higher than the benchmark.

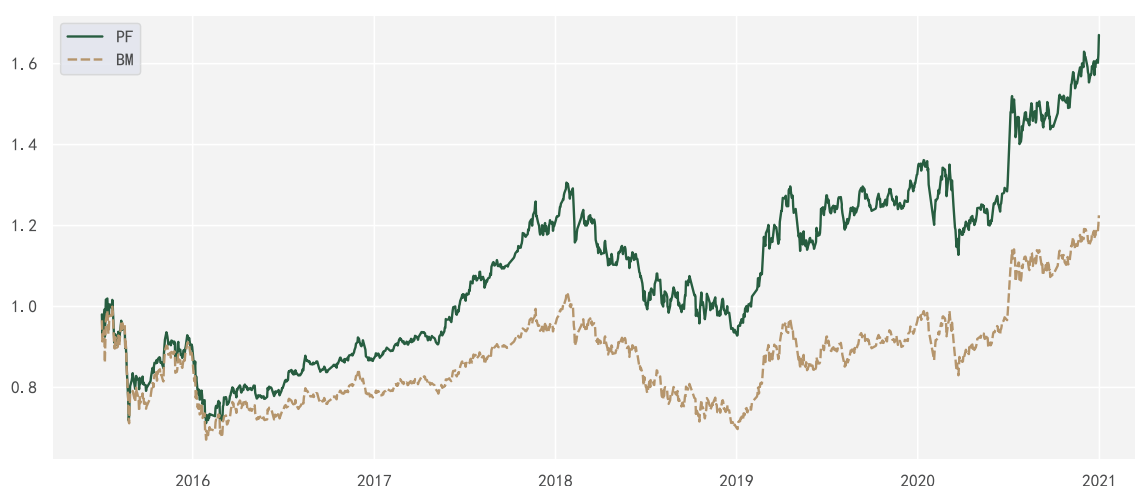


Figure 24 ESG Sector BIC vs. CSI 300 cumulative return curve

Source: SynTao Green Finance ESG Research

The second strategy is mentioned as a Smart Beta strategy, which combines the ESG factor with the classic investing factor, in this case, the Quality factor. The process is first to integrate ESG rating and the Quality factor (return on equity, ROE) into a synthetic factor with equal weight. Then in each CSI tier sector, we have selected stocks with the highest synthetic factor score and constructed a total of 100 stocks in the portfolio. Each stock's weight is set with its free-market cap and is adjusted to be consistent with its industry weight in the CSI 300 Index. The portfolio is reconstructed and rebalanced consistent with CSI 300 with the name "ESG + Quality 100". As of performance, the cumulative rate of return outperforms the benchmark (CSI 300) by about 80.31%. The annualized rate of return outperformed the benchmark by about 9.95% and, the annualized volatility is reduced by about 0.40%, contributing to an enhanced Sharpe ratio increase by about 2.58 times compared to the benchmark.

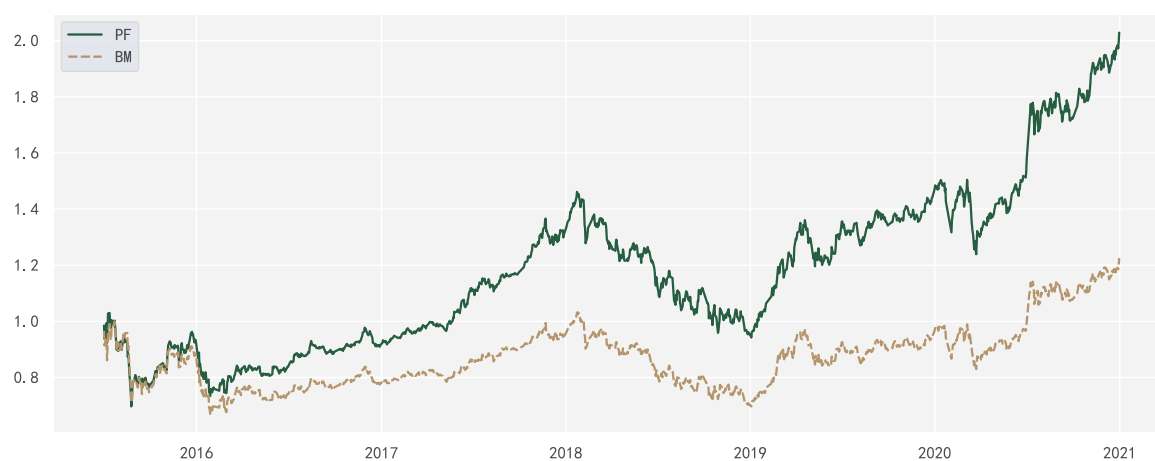


Figure 25 ESG+Quality factors vs. CSI 300 cumulative return curve

Source: SynTao Green Finance ESG Research

To conclude, the above two empirical studies denote a certain degree of positive correlation between the ESG performance of listed companies in the A-share market and their stock prices in the past few years.

6 Summary and Outlook

The detailed analysis of the report reveals that ESG information disclosure of A-share listed companies has improved steadily in quantity and in quality over the past four years. Against the backdrop of global climate change and China's "Dual Carbon" goals, the disclosure of information on climate-related issues and GHG-related data by listed companies was duly improved. However, the ESG risk exposure has continued to expand. The A-share market reacts strongly to ESG risk factors, making ESG risk management an important issue that cannot be ignored. The ESG performance of A-share listed companies and stock prices are shown to be positively correlated.

In recent years, the ESG investment market in China has shown accelerated development¹⁴, with the rising awareness of listed companies, regulatory policy requirements, and the promotion of institutional investors being the main drivers of ESG performance improvement of A-share listed companies. Currently, the ESG performance of Chinese listed companies is in the early stage of rapid development. At this stage, ESG awareness is raised first, i.e., listed companies understand more about the meaning of ESG and start to pay more attention to its importance. We expect that in the coming years, listed companies will gradually shift from mainly raising awareness to the stage of management enhancement, improving ESG management performance in various aspects such as company ESG policy, risk management, information disclosure, and investor relations, etc. The ESG performance of Chinese listed companies will be expected to accelerate, and the companies that view ESG as a significant management issue will expand beyond the leading ones.

Since 2020, the COVID-19 pandemic has brought an enormous impact on the world. The effects of climate change on humanity have been increasing. People have gradually and clearly realized that the environment they depend on for survival is undergoing tremendous changes. For a considerable time in the future, insisting on green and sustainable development will be the unanimous consensus and direction of human society. We believe that these social trends and agreements will drive the rapid growth of global ESG responsible investment and green finance, both of which will also inject necessary momentum into the world's sustainable development.

Research team:

ZHANG Rui, ZHANG Ru, LIU Minyuan, LI Wenqing, JIA Fan, CHEN Qiuzi

¹⁴ For more information on the development of China's ESG investment market, please refer to the "China Sustainable Investment Review 2021" published by SynTao Green Finance

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SynTao Green Finance (STGF) is one of the first Chinese organizations specialized in providing green finance and ESG responsible investment services, starting ESG data collection and research as early as in 2009. STGF ESG data and research on ESG key issues are widely employed to support investment decisions, risk management, policy making, and sustainable finance product innovation. **STGF STaR ESG Database** and **STGF ESG Risk Radar System** cover all A-share market, and Hong Kong stocks in the stock connect schemes, amounting to 5,000 listed companies. In 2020, STGF launched **STGF PANDA Climate Data Platform**, providing carbon emission data of Chinese entities based on GHG protocol. STGF ESG ratings (SynTaoGF-ESG) has been onboarding on Bloomberg Intelligence, making it the first Chinese ESG rating agency to have its data displayed on Bloomberg.

STGF is the first signatory of Chinese service provider joining UN PRI, a member of the first Advisory Council of Green Bond Principles and Social Bond Principles of International Capital Market Association (ICMA), the founding member of China Green Finance Committee, the certified consulting agency for UK Green Investment Bank, the first China based Climate Bonds Standard (CBS) approved verifier, a member of the National Association of Financial Market Institutional Investors (NAFMII).

🖱 www.syntaogf.com

✉ contact@syntaogf.com



Research Institute: SynTao Green Finance

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