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# Green bonds: Financial Support to Promote Corporate Sustainability

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## ABSTRACT

This paper investigates the effect of corporate green bond issuance on ESG performance by Chinese listed companies from 2006 to 2021, and evidence of a significant positive effect is obtained after processing using the CSDID method. Moreover, there is a long-term effect of this effect, which continues to affect the growth of ESG performance of companies. Meanwhile, this article deconstructs ESG into sub-indicators and examines the promotion effect on each sub-indicator, and finds that green bonds have the most obvious promotion effect on environmental performance, followed by governance effect, but no significant promotion effect on social responsibility undertaking. Finally, the article puts forward some relevant suggestions for possible contributions based on the above findings.

## KEYWORDS

Green bond; ESG; CSDID

## 1. INTRODUCTION

The modern ESG framework began to take shape in 2004 with a study by the United Nations Global Compact, and has continued to deepen and evolve along with the intensification of the climate crisis and the awakening of environmentalism on a global scale. 2015 was a milestone year. The Paris Agreement established temperature control targets, the United Nations adopted 17 Sustainable Development Goals (SDGs), and the TCFD Climate Disclosure Framework was launched. Since then, sustainable development has become a worldwide consensus. After China's 2020 “dual-carbon” goal was proposed, the scale of ESG investment grew at an average annual rate of 40%, becoming an important engine for global ESG development. China's carbon emissions are currently the highest in the world, and China's carbon control and reduction, as well as its eventual carbon neutrality goal, are of great significance. As the main actors and carbon emitters in the economy and society, the sustainable development of enterprises is the key task for carbon emission reduction and green transformation of the economy and society, and ESG, as an important indicator in the field of sustainable development, has been implemented in Europe and the United States, and the financial support related to sustainable long-term development is also in a state of continuous growth. China's ESG started relatively late, but is developing rapidly, and as the commitment date for the first phase of China's dual-carbon target approaches, and the development requirements of economic and social green transformation, the necessity of ESG implementation has been further emphasized and valued.

In order to strengthen the financial support for sustainable development, in 2016, the People's Bank of China, the Ministry of Finance and other seven ministries and commissions issued the “Guiding Opinions on Building a Green Financial System”, which put forward China's environmental information disclosure “three-step” strategy and comprehensively deployed the direction of reform

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of green finance, marking the formal entry of China's ESG practice into the "green finance" strategy. This marked the formal entry of China's ESG practice into the exploration period based on "green finance", and basically formed the development mode of "construction of centralized modern environmental governance system and application of ESG theories in the market". In the same year, the two stock exchanges in Shanghai and Shenzhen issued the Notice on the Pilot of Green Corporate Bonds one after another, and since then the volume and scale of companies issuing green bonds have risen year by year. It is of great significance to explore whether innovative green financial instruments can effectively promote the sustainable development of enterprises, therefore, this paper focuses on the trend of ESG performance after the issuance of green bonds, and explores the possible impacts.

## 2. LITERATURE REVIEW AND THEORETICAL ASSUMPTION

### 2.1. Relevant Studies on Green Bond

Although Chinese companies have officially started to issue green bonds since 2016, there are still some valuable studies in the existing literature as the number of companies issuing such bonds is still small, and the scope of the impact of green bonds is much narrower compared to other financial instruments and policy interventions. Wu et al. (2022) found that green bonds have a significant impact on the environmental performance of enterprises, but overall did not significantly promote the progress of green technological innovation and value enhancement, for the promotion of these two key factors need to be integrated policy and technology level of the integrated manifestation of the study of Wang et al. (2022) and other research has pointed out that the green bond for the development of enterprise innovation exists dynamic continuity, promote the continuous progress of enterprise green innovation. In these studies, it is pointed out that the role of resources and supervision contained in green bonds is an important mechanism to promote the sustainable development of enterprises. In addition, this positive effect will have a spillover effect among the same industry, and the effect varies with the different characteristics of enterprises (Wu et al., 2022).

### 2.2. Relevant Studies on ESG

The development of ESG has received a lot of attention from various parties, and the existing literature suggests that enterprises can reduce information asymmetry and strengthen internal and external monitoring and governance functions by conveying the achievements of environmental performance, social responsibility and corporate governance to the outside world through ESG (Qiu et al.,2019). At the same time, better ESG performance will also convey competitive advantages and demonstrate its own value creation ability, and this value output covers economic value and environmental and social ethical value, which can strengthen and expand the bond with stakeholders, establish a wider and more robust interest link (Wen et al.,2014), realize a win-win situation for the interests of stakeholders and shareholders, and help enterprises obtain financing and other advantages. In addition, improved corporate governance capabilities and ethical dividends will also have an impact on corporate workers, enhancing human capital and corporate efficiency. There is also some literature pointing out the possible deficiencies in terms of the current ESG system, potential short-sighted behavior (Liu et al., 2023) and insufficient market pressure (Liu et al., 2022), which will constitute an important obstacle affecting the sustainable development of enterprises.

### 2.3. Hypothesis Development

Green bonds, as an innovative green financial instrument, mainly guide the sustainable development of enterprises through market means, overcoming the defects of government intervention in hard regulation such as administrative orders, and providing a more diversified choice of financing channels with lower capital costs for the sustainable development of enterprises. The possible facilitating mechanisms of corporate green bond issuance on ESG performance lie in (1) lowering the burden of capital cost and alleviating financing constraints. The investment projects pointed out by green bonds are closely related to the sustainable development of the company, and in the macro environment of strong two-way support from the government and the market, investors face less investment risk, so compared to the same period of bonds, the interest rate cost of green bonds is usually lower, and this lower cost of capital burden on the one hand reduces the long-term investment pressure of the enterprise in sustainable development projects, and on the other hand reduces the loss risk of project failure, which is conducive to improving the financing constraints. On the other hand, it also reduces the loss risk of project failure, which is conducive to improving the willingness of enterprises to bear risks in long-term projects, and thus promoting sustainable development. (2) Strengthening internal and external regulatory effects. After the issuance of bonds for the protection of creditors, usually contains relevant routine protection provisions, general protection provisions and special protection provisions, these provisions of the enterprise's business behavior, financial status, corporate governance and other aspects of strict constraints, the enterprise issued green bonds for the bonds to comply with the rules will be conducive to the implementation of the sustainable development project, and the disclosure of information related to the green bonds will further strengthen external stakeholders' understanding of the enterprise, and thus promote sustainable development. The disclosure of information related to green bonds will also further strengthen the supervision of enterprises by external stakeholders. In addition, the strengthening of internal and external supervision will bring other benefits. It has been pointed out that the government's supportive funds to enterprises may be the purpose of enterprises' false information transmission, and the information barrier between the government and enterprises is a key factor in the occurrence of this risky behavior. Therefore, through the issuance of green bonds, the government's regulatory pressure will be released, part of which will be turned into the pressure of capital cost of the enterprise's own project investment, to promote the enterprise to improve the rate of return of the sustainable development project, and to avoid the emergence of the low-quality, low-return strategic project investment behavior, and the other part of which will be released to stakeholders, to alleviate the degree of opacity of information by using the market mechanism, and to inhibit the enterprise's possible use of the information The short-term tendency that enterprises may have to use the information masking effect to seize benefits. Based on the above analysis, this paper puts forward the hypothesis:

Hypothesis: enterprises will effectively promote ESG performance after issuing green bonds.

# 3. RESEARCH DESIGN

## 3.1. Data and Source

In this paper, listed companies are selected as samples from 2006-2021. Drawing on the practice of existing studies, we exclude ST, delisted and IPO listed companies, financial, insurance and real estate listed companies, and companies with missing variable data. Meanwhile, in order to minimize the impact of extreme values, the main continuous variables used are trimmed down at 1% and 99% levels. Finally, a total of 1616 “company-year” data were obtained.

## 3.2. Variable Description and Measurement

(1) Explained variable: ESG performance. Currently, there are many third-party organizations for corporate ESG ratings, including MSCI ESG, Bloomberg ESG, Wind ESG, and SynTao Green Finance, etc. Since the research object of this paper is the impact of green bonds on ESG, and the issuance of green bonds by Chinese enterprises is basically after 2016, so the ESG data is required to have a longer window period, so this paper chooses Bloomberg's ESG scores. Bloomberg's ESG score as an explanatory variable.

(2) Explanatory variables: based on the green bond information and basic bond information in the CSMAR database, and after further hand-arranging, we get the relevant information about green bond issuance by enterprises.

(3) Control variables: Referring to the existing literature, this paper selects total asset turnover ratio, net equity interest rate, current asset ratio, financial leverage, and the proportion of shares held by the first largest shareholder as the control variables, and the relevant data come from the CSMAR database. The codes and definitions of the relevant variables are listed in the table below:

**Table 1.** Variable and definition

| Variable type | Variable symbol | Definitions |
|---|---|---|
| Explained variable | ESG | Bloomberg ESG scoring |
| Explanatory variables | Greenbond | The year issuing green bond |
| Control variables | TAT | Total assets turnover |
| | ROE | Return on equity |
| | LA | Liquid asset |
| | Lev | Leverage (asset-liability ratio) |
| | Top1 | Percentage of shares held by the largest shareholder |

### 3.3. Method

Referring to the method of Callaway and Sant'Anna (2021), this paper utilizes the CSDID method to deal with multi-temporal DID. samples that have never been processed are used as the control group and are based on the doubly robust DID estimates obtained from the inverse probability weighted least squares method.

## 4. EMPIRICAL INVESTIGATION

### 4.1. Descriptive Statistics

**Table 2.** Descriptive statistics

| VarName | Obs | Mean | SD | Min | Median | Max |
|---|---|---|---|---|---|---|
| ESG | 1616 | 31.556 | 11.316 | 9.909 | 30.475 | 64.380 |
| LA | 1102 | 0.340 | 0.238 | 0.000 | 0.305 | 0.985 |
| Lev | 1398 | 0.644 | 0.192 | 0.068 | 0.645 | 0.966 |
| ROE | 1398 | 0.094 | 0.119 | -3.296 | 0.092 | 0.524 |
| Top1 | 1358 | 38.132 | 17.962 | 5.870 | 35.660 | 86.350 |
| TAT | 1324 | 0.421 | 0.484 | 0.011 | 0.271 | 5.453 |

The descriptive statistical analysis in the above table shows that the overall ESG level of Chinese firms is still at a low level, and since the ESG ratings have been normalized once for the industry, the above table shows that there is still a wide range of fluctuation between ESG ratings, indicating that there is a large difference between firms. The rest of the control variables situation is consistent with the studies in the existing literature.

## 4.2. Analysis of Empirical Results

**Table 3.1.** CSDID calculation process

| | Coefficient | Std.err. | z | P>\|z\| | [95% conf. interval] | |
|---|---|---|---|---|---|---|
| g2016 | | | | | | |
| t_2009_2010 | -4.173 | 2.717 | -1.540 | 0.125 | -9.498 | 1.151 |
| t_2010_2011 | -4.323 | 6.011 | -0.720 | 0.472 | -16.105 | 7.459 |
| t_2011_2012 | -1.688 | 2.900 | -0.580 | 0.561 | -7.372 | 3.996 |
| t_2012_2013 | 2.114 | 1.055 | 2.000 | 0.045 | 0.046 | 4.182 |
| t_2013_2014 | -0.489 | 0.962 | -0.510 | 0.611 | -2.374 | 1.396 |
| t_2014_2015 | 2.449 | 3.507 | 0.700 | 0.485 | -4.425 | 9.322 |
| t_2015_2016 | 3.310 | 2.873 | 1.150 | 0.249 | -2.321 | 8.941 |
| t_2015_2017 | 3.379 | 3.504 | 0.960 | 0.335 | -3.489 | 10.248 |
| t_2015_2018 | 4.061 | 3.189 | 1.270 | 0.203 | -2.189 | 10.311 |
| t_2015_2019 | 2.623 | 3.053 | 0.860 | 0.390 | -3.360 | 8.607 |
| t_2015_2020 | 2.182 | 3.718 | 0.590 | 0.557 | -5.105 | 9.468 |
| t_2015_2021 | 5.329 | 3.536 | 1.510 | 0.132 | -1.601 | 12.260 |
| g2017 | | | | | | |
| t_2009_2010 | 0.746 | 1.062 | 0.700 | 0.482 | -1.336 | 2.827 |
| t_2010_2011 | -0.352 | 1.391 | -0.250 | 0.800 | -3.078 | 2.375 |
| t_2011_2012 | 2.532 | 1.002 | 2.530 | 0.011 | 0.569 | 4.495 |
| t_2012_2013 | -1.316 | 1.243 | -1.060 | 0.290 | -3.752 | 1.121 |
| t_2013_2014 | 0.469 | 1.011 | 0.460 | 0.643 | -1.513 | 2.451 |
| t_2014_2015 | 0.982 | 2.110 | 0.470 | 0.642 | -3.154 | 5.118 |
| t_2015_2016 | 0.083 | 1.671 | 0.050 | 0.960 | -3.191 | 3.358 |
| t_2016_2017 | 4.816 | 1.818 | 2.650 | 0.008 | 1.254 | 8.378 |
| t_2016_2018 | 4.157 | 2.271 | 1.830 | 0.067 | -0.293 | 8.607 |
| t_2016_2019 | 7.404 | 2.662 | 2.780 | 0.005 | 2.186 | 12.622 |
| t_2016_2020 | 6.100 | 2.725 | 2.240 | 0.025 | 0.759 | 11.441 |
| t_2016_2021 | 7.077 | 3.683 | 1.920 | 0.055 | -0.142 | 14.296 |
| g2018 | | | | | | |
| t_2009_2010 | 2.105 | 1.223 | 1.720 | 0.085 | -0.292 | 4.502 |
| t_2010_2011 | -1.283 | 2.261 | -0.570 | 0.570 | -5.714 | 3.149 |
| t_2011_2012 | 2.926 | 2.030 | 1.440 | 0.150 | -1.054 | 6.905 |
| t_2012_2013 | 0.079 | 0.934 | 0.080 | 0.933 | -1.751 | 1.909 |
| t_2013_2014 | 3.494 | 1.414 | 2.470 | 0.013 | 0.722 | 6.265 |
| t_2014_2015 | -1.850 | 1.191 | -1.550 | 0.120 | -4.184 | 0.484 |
| t_2015_2016 | 1.216 | 1.542 | 0.790 | 0.430 | -1.807 | 4.239 |
| t_2016_2017 | -0.261 | 1.055 | -0.250 | 0.804 | -2.329 | 1.807 |
| t_2017_2018 | 0.614 | 1.197 | 0.510 | 0.608 | -1.733 | 2.960 |
| t_2017_2019 | 1.010 | 1.895 | 0.530 | 0.594 | -2.703 | 4.724 |
| t_2017_2020 | 2.269 | 1.930 | 1.180 | 0.240 | -1.513 | 6.052 |
| t_2017_2021 | 4.404 | 2.682 | 1.640 | 0.101 | -0.853 | 9.661 |

**Table 3.2.** CSDID calculation process

| | Coefficient | Std.err. | z | P>\|z\| | [95% conf. interval] | |
|---|---|---|---|---|---|---|
| g2019 | | | | | | |
| t_2009_2010 | -0.334 | 0.862 | -0.390 | 0.699 | -2.024 | 1.356 |
| t_2010_2011 | -1.844 | 1.365 | -1.350 | 0.177 | -4.520 | 0.831 |
| t_2011_2012 | 0.153 | 1.413 | 0.110 | 0.914 | -2.617 | 2.924 |
| t_2012_2013 | -1.805 | 1.241 | -1.450 | 0.146 | -4.238 | 0.627 |
| t_2013_2014 | 1.272 | 1.455 | 0.870 | 0.382 | -1.579 | 4.124 |
| t_2014_2015 | 1.001 | 2.526 | 0.400 | 0.692 | -3.949 | 5.951 |
| t_2015_2016 | -0.349 | 0.871 | -0.400 | 0.689 | -2.057 | 1.358 |
| t_2016_2017 | -1.199 | 1.527 | -0.790 | 0.432 | -4.193 | 1.794 |
| t_2017_2018 | 1.335 | 1.454 | 0.920 | 0.358 | -1.514 | 4.184 |
| t_2018_2019 | -0.509 | 1.424 | -0.360 | 0.721 | -3.301 | 2.282 |
| t_2018_2020 | 1.992 | 3.145 | 0.630 | 0.526 | -4.171 | 8.155 |
| t_2018_2021 | 5.031 | 3.146 | 1.600 | 0.110 | -1.135 | 11.197 |
| g2020 | | | | | | |
| t_2009_2010 | 0.000 | (omitted) | | | | |
| t_2010_2011 | -0.231 | 1.532 | -0.150 | 0.880 | -3.233 | 2.771 |
| t_2011_2012 | 2.424 | 3.370 | 0.720 | 0.472 | -4.181 | 9.030 |
| t_2012_2013 | -1.399 | 1.154 | -1.210 | 0.225 | -3.660 | 0.862 |
| t_2013_2014 | 0.372 | 1.493 | 0.250 | 0.803 | -2.554 | 3.298 |
| t_2014_2015 | -0.820 | 2.025 | -0.400 | 0.686 | -4.789 | 3.149 |
| t_2015_2016 | 1.994 | 1.814 | 1.100 | 0.272 | -1.562 | 5.550 |
| t_2016_2017 | -3.094 | 1.021 | -3.030 | 0.002 | -5.095 | -1.093 |
| t_2017_2018 | -1.078 | 0.484 | -2.230 | 0.026 | -2.028 | -0.129 |
| t_2018_2019 | 0.679 | 0.880 | 0.770 | 0.441 | -1.046 | 2.403 |
| t_2019_2020 | 1.078 | 2.356 | 0.460 | 0.647 | -3.540 | 5.695 |
| t_2019_2021 | -1.682 | 2.288 | -0.740 | 0.462 | -6.166 | 2.803 |
| g2021 | | | | | | |
| t_2009_2010 | -1.496 | 1.012 | -1.480 | 0.139 | -3.479 | 0.488 |
| t_2010_2011 | -1.032 | 1.184 | -0.870 | 0.383 | -3.352 | 1.288 |
| t_2011_2012 | 3.301 | 1.445 | 2.280 | 0.022 | 0.469 | 6.134 |
| t_2012_2013 | -0.579 | 1.516 | -0.380 | 0.703 | -3.550 | 2.393 |
| t_2013_2014 | 0.440 | 0.855 | 0.510 | 0.607 | -1.236 | 2.116 |
| t_2014_2015 | -0.883 | 1.629 | -0.540 | 0.588 | -4.076 | 2.311 |
| t_2015_2016 | 0.479 | 1.194 | 0.400 | 0.688 | -1.861 | 2.819 |
| t_2016_2017 | -1.238 | 1.383 | -0.900 | 0.370 | -3.949 | 1.472 |
| t_2017_2018 | 1.168 | 0.653 | 1.790 | 0.073 | -0.111 | 2.448 |
| t_2018_2019 | 1.472 | 1.123 | 1.310 | 0.190 | -0.729 | 3.673 |
| t_2019_2020 | 0.544 | 1.167 | 0.470 | 0.641 | -1.743 | 2.831 |
| t_2020_2021 | 0.587 | 1.180 | 0.500 | 0.619 | -1.727 | 2.900 |

**Table 4.** ATT

| | Coefficient | Std.err. | z | P>\|z\| | [95% conf. interval] | |
|---|---|---|---|---|---|---|
| ATT | 2.699 | 0.976 | 2.77 | 0.006 | 0.786 | 4.612 |

The table demonstrates the calculation process of CSDID method in each year, and further utilizing the weighting method provided by cs, the average treatment effect shown in the above table is finally obtained, with a coefficient of 2.699, which is significantly positive at 1% level, and there is a significant enhancement in ESG disclosure of enterprises after the issuance of green bonds, which indicates that the green bonds have a significant promotional effect on the development of ESG of the enterprises, and the hypotheses are proved.

**Table 5.** ATT by group

| | Coefficient | Std.err. | z | P>\|z\| | [95% conf. interval] | |
|---|---|---|---|---|---|---|
| GAverage | 1.783 | 0.821 | 2.170 | 0.030 | 0.172 | 3.393 |
| G2016 | 3.481 | 2.985 | 1.170 | 0.244 | -2.369 | 9.331 |
| G2017 | 5.911 | 2.343 | 2.520 | 0.012 | 1.318 | 10.504 |
| G2018 | 2.074 | 1.479 | 1.400 | 0.161 | -0.824 | 4.973 |
| G2019 | 2.171 | 2.254 | 0.960 | 0.335 | -2.247 | 6.589 |
| G2020 | 0.158 | 2.223 | 0.070 | 0.943 | -4.200 | 4.516 |
| G2021 | 0.587 | 1.180 | 0.500 | 0.619 | -1.727 | 2.900 |

The average treatment effect is further calculated by grouping tests for companies that issued green bonds in different groups, and the table above shows that the promotion effect is significantly higher for companies that issued green bonds in earlier years than in later years, indicating that the promotion effect of green bonds on corporate ESG performance is effective in the long run, and that the issuing companies are able to achieve higher ESG scores in later years.

**Table 6.** ATT by calendar period

| | Coefficient | Std.err. | z | P>\|z\| | [95% conf. interval] | |
|---|---|---|---|---|---|---|
| CAverage | 2.921 | 1.158 | 2.520 | 0.012 | 0.652 | 5.191 |
| T2016 | 3.310 | 2.873 | 1.150 | 0.249 | -2.321 | 8.941 |
| T2017 | 4.277 | 1.760 | 2.430 | 0.015 | 0.827 | 7.728 |
| T2018 | 2.367 | 1.196 | 1.980 | 0.048 | 0.024 | 4.711 |
| T2019 | 2.038 | 1.253 | 1.630 | 0.104 | -0.417 | 4.493 |
| T2020 | 2.694 | 1.372 | 1.960 | 0.049 | 0.006 | 5.383 |
| T2021 | 2.842 | 1.177 | 2.410 | 0.016 | 0.535 | 5.148 |

And in the grouping test according to the time period, the empirical results in the above table show that the promotion effect in 2016 and 2017 is higher than that in the subsequent four years, while there is no obvious trend of change between the promotion effects in the subsequent four years, but the promotion effect is mostly significant, which this paper believes may be due to the fact that the effect of the new policy is greatest in the initial stage, and over time, the policy effectiveness is still but gradually no longer as high as it was at the beginning of the process degree.

**Table 7.** ATT of E/S/G

| | Coefficient_E | Std.err. | z | P>\|z\| | [95% conf. interval] | |
|---|---|---|---|---|---|---|
| ATT | 5.981 | 2.090 | 2.86 | 0.004 | 1.885 | 10.077 |
| | Coefficient_S | Std.err. | z | P>\|z\| | [95% conf. interval] | |
| ATT | 0.505 | 1.260 | 0.40 | 0.689 | -1.965 | 2.975 |
| | Coefficient_G | Std.err. | z | P>\|z\| | [95% conf. interval] | |
| ATT | 1.612 | 0.639 | 2.52 | 0.012 | 0.360 | 2.865 |

The test results in the above table show that among the promotion effects of green bonds on ESG, the promotion effect on corporate environmental performance is the highest and the most significant, and there is also a certain promotion effect on corporate governance, but there is no significant promotion effect on corporate social responsibility construction. The possible reason is that the promotion effect of green bonds is manifested in alleviating financing constraints and strengthening internal and external regulation, which is most closely related to environmental performance, and thus the enhancement of environmental performance is the most obvious, and at the same time, the disclosure requirements of green bonds and the possible protective clauses constrain the enterprises to improve the efficiency of their own management and to strengthen the internal control and governance, and thus have a significant promotion effect on the disclosure scores of governance. obvious promotion effect. However, green bonds do not directly promote the construction of corporate social responsibility, so there is no significant promotion effect. Of course, from the perspective of neoclassical economics, the sustainable development of enterprises is already a great contribution to social responsibility, and is not limited to the indicators set in the ESG framework.

## 5. CONCLUSION AND ADVICE

Exploring innovative green financial instruments to promote corporate sustainable development is an important way to realize China's dual-carbon goal. Based on the data of listed companies in China, this paper empirically examines the impact of corporate issuance of green bonds on ESG performance. The average treatment effect obtained using the CSDID method shows that green bonds have an obvious promotion effect on ESG performance, and this effect has a long-term effect. At the same time, the promotion effect on each subcomponent of ESG performance is inconsistent, with the most obvious promotion on environmental performance, followed by corporate governance, while there is no significant promotion effect on its corporate social commitment.

Based on the above findings and analysis, the possible relevant recommendations are:

(1) Establish a globally unified green bond classification standard and ESG disclosure framework. Promote international organizations to take the lead in formulating the Global Green Bond Classification Catalogue, clarifying the scope of ESG-compliant projects, such as exclusion of fossil energy clean-up projects, and linking them to the emission reduction targets of the Paris Agreement. Integrate the EU's Sustainable Finance Taxonomy with China's Green Bonds Catalogue of Supported Projects, and harmonize them in non-controversial areas such as “renewable energy” and “biodiversity conservation”. Require green bond issuers to disclose carbon emission reductions and social benefits and governance risks of the use of funds in accordance with the TCFD framework.

(2) Strengthen third-party certification and dynamic supervision to curb the risk of “greenwashing”. Introduce an independent certification system, requiring all green bonds to be certified by ESG rating agencies before issuance, and review the use of funds on a regular basis; and implement “license management” for certification agencies to avoid conflicts of interest. Promote blockchain technology to track the flow of funds, establish a public ESG database, and make it mandatory to disclose the environmental impact data of the entire life cycle of the project.

(3) Build ESG-oriented incentive mechanisms to expand participation in the green bond market. Reduce or waive interest income tax for green bond investors; provide interest subsidies to issuers to reduce financing costs. Prioritize the allocation of ESG-compliant green bonds; the central bank will incorporate green bonds into monetary policy tools. Cultivating long-term investors: requiring pension funds and insurance funds to issue “universal green bonds” in proportion to ESG asset allocation, and allowing individuals to subscribe through carbon accounts.

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