Does the level of corporate carbon disclosure affect the audit opinion decision?

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Abstract. Enterprises are battling issues with economic growth and environmental protection while reaping the benefits of low carbon development as the driving force behind China's "Carbon Dafeng Carbon Neutral Target". Will the high degree of carbon information disclosure increase the issue of standard audit opinions under the non-mandatory carbon information disclosure principle? In order to investigate the mechanism of the role of material misstatement risk between the two, this paper chooses A-share listed companies in Shanghai and Shenzhen from 2009 to 2021 and conducts an empirical test of the impact of the level of carbon information disclosure on the issuance of standard audit opinions. It is discovered that for businesses having high quantities of carbon information, auditors are more likely to offer standard audit opinions.

Keywords: dual carbon target, carbon disclosure level, material misstatement risk, audit opinion.

1. Introduction

Environmental regulators, carbon emission trading market, capital market, and financial regulators have proposed the requirement of corporate carbon information disclosure, which provides a legal basis for corporate carbon information, in order to actively and steadily promote carbon peaking and carbon neutrality. Enterprises use auditing as a major motivator to cut emissions. The implementation of "carbon peaking and carbon neutral" and the promotion of the all-encompassing and sustainable development of China's economy and society are required by the provisions of the Audit Law, the Certified Public Accountants Law, the Environmental Protection Law, and the Regulations on Carbon Emission Trading. Auditing institutions are required to actively participate in these implementations.

At the moment, research on the impact on auditors' decision-making by Chinese scholars focuses primarily on audit fees[2] and the motivation, influencing factors, economic consequences, and quality evaluation of enterprises' carbon information disclosure[1]. As the idea of low-carbon development gains ground, information users will pay close attention to how organizations with high carbon emissions disclose their carbon footprints, and auditors will concentrate their auditing on these companies' carbon information status. This study uses data from Chinese A-share listed businesses in Shanghai and Shenzhen from 2009 to 2021 to empirically assess the impact of the level of carbon information disclosure on audit judgments based on the research presented above. The mechanism evaluates whether the level of carbon information disclosure by companies under the non-mandatory disclosure principle can increase their chances of receiving a standard audit opinion. The overall test determines whether this is the case.

2. Theoretical analysis and hypothesis formulation

2.1 Level of carbon disclosure and audit opinion

Corporate carbon disclosure provides auditors with more information resources to undertake their financial reporting assurance work[3], and the type of audit opinion is the concentration of the auditor's independence and degree of prudence, and high-quality audit opinions often have the function of quality assurance, regulatory oversight and social cost savings. Based on the risk-based
audit model, the auditor will fully consider his or her own audit risk and the business risk of the company when issuing an audit opinion[4]. At this time, it becomes a rational choice for auditors to pay full attention to CSR information, especially the carbon information disclosed by enterprises to improve audit efficiency. On the one hand, corporate carbon information disclosure as one of the performance of social responsibility, enterprises in the process of fulfilling social responsibility, strengthen the ability to review the external environment, respond to external changes and crises, can effectively reduce the business risk of enterprises[5], and then reduce the risk of auditors being litigated, and largely improve the probability of auditors to issue a standard audit opinion. On the other hand, according to the resource dependence theory, enterprises disclose carbon information in order to let investors, government and other stakeholders understand CSR information, hoping to build a healthy relationship with government, market and public and other stakeholders, get the trust and recognition from all walks of life i.e. the most invisible and powerful advertisement, reduce the uncertainty of resources needed for future production of enterprises, reduce enterprises' participation in fraudulent financial reporting or misappropriation of This in turn affects the auditor's assessment of the risk of material misstatement and increases the probability of the auditor issuing a standard audit opinion. Accordingly, hypothesis 1 is formulated:

H1: Other things being equal, the auditor is more likely to issue a standard audit opinion for companies with a high level of carbon information disclosure.

2.2 Testing the mechanism of carbon information disclosure level affecting audit opinion

Companies with a higher level of carbon disclosure can reduce the risk of material misstatement in their financial reports to a certain extent, which in turn increases the likelihood of auditors issuing a standard opinion. On the one hand, companies with a high level of carbon information disclosure tend to have a better corporate governance mechanism, which can effectively monitor the self-interest behavior of management who ignore the long-term healthy development of the enterprise in pursuit of their own short-term gains, further reducing the space and opportunities for management to hide negative information[6], creating a good environment for the generation of financial accounting reports, and the probability of misstatement or omission in financial reports is smaller. On the other hand, the company's carbon information disclosure is subject to more attention and supervision by external forces such as media and analysts, and the cost of breach of trust is relatively higher. Therefore, in order to avoid the risk of litigation and maintain the positive image of good environmental performers, the management will be more honest in disclosing accounting information, the opportunist behavior of concealing or whitewashing information will be restrained, the surplus management behavior will be suppressed, and the probability of material financial misstatement or omission will be reduced, which is conducive to the auditor's low risk perception of the company and more inclined to issue a standard audit opinion. Based on this, this paper proposes the following research hypothesis 2:

H2:Material misstatement risk is the mediating path by which the level of carbon disclosure affects the audit opinion.

3. Research design and empirical analysis

3.1 Study design

In this paper, the initial sample of listed companies in Shanghai and Shenzhen A-shares in the Flush database from 2009-2021 is used to measure the level of carbon information disclosure with the help of ESG's E-score in the Huazheng database, and the financial category, ST and -ST samples, samples listed for less than one year, and samples with abnormalities and missing data in the main variables are excluded, while Winsorize tailing is performed on all at the 1% and 99% quartiles. The final result is 32,234 observations for 3,865 samples. The explanatory variable, audit opinion (Aop), is defined as a dummy variable, and the auditor's standard unqualified audit opinion is assigned a value of 1, while the opposite is assigned a value of 0. The explanatory variable,
carbon disclosure level (Cid), is selected from the ESG rating report E score to measure the carbon disclosure level; the mediating variable, risk of material misstatement (Correct), is used as the "whether the listed company The risk of material misstatement (Correct) is measured by the dummy variable "whether listed companies disclose financial restatement reports with data changes", with disclosure of financial restatement reports with data changes assigned a value of 1 and 0 otherwise; the nature of property rights (Property) is assigned a value of 1 and 0 otherwise for state-owned enterprises; the type of industry (Industry) is assigned a value of 1 and 0 otherwise for heavy polluting industries. Eight control variables were selected at firm level, firm level, and other levels, including: firm level: firm size (Size, natural logarithm of total assets), gearing (Lev, total liabilities/total assets), return on assets (Roa, net profit/total assets), growth (Tobinq, firm market value/total assets), loss (Loss, dummy variable, assigned as 1 if net profit is less than 0, otherwise 0), and (1 if net profit is less than 0, 0 otherwise), and firm level: auditor reputation (Big4, 1 if the auditor firm is "Big 4", 0 otherwise); others include industry fixed (Ind) and year fixed (Year) to control the effect of industry and year differences.

Model (1) is built to test whether the level of carbon disclosure has an impact on audit opinion, or hypothesis 1, and models (2) and (3) are built on the basis of model (1)'s formula and in accordance with Zhonglin Wen et al. [7]test method for mediating effect to test whether the risk of material misstatement mediates the relationship between carbon disclosure level and audit opinion, or hypothesis 2. The exact testing procedure is as follows: first, the mediation effect test is suspended if it is determined that the significance of 1 in model (1) is not significant. If 1 is significant, we can proceed to test the mediating impact using models (2) and (3), and if 1 and 2 are significant, we can conclusively say that the mediating effect is significant.

\[ Aopi,t = \alpha_0 + \alpha_1 Cidi,t + \alpha_2 \text{Controlsi}_t, + \Sigma \text{Year} + \Sigma \text{Ind} + \varepsilon_i, t \]  
\[ \text{Correcti}_t = \beta_0 + \beta_1 Cidi,t + \beta_2 \text{Controlsi}_t, + \Sigma \text{Year} + \Sigma \text{Ind} + \varepsilon_i, t \]  
\[ Aopi,t = \gamma_0 + \gamma_1 Cidi,t + + \gamma_2 \text{Correcti}_t, + \gamma_3 \text{Controlsi}_t, + \Sigma \text{Year} + \Sigma \text{Ind} + \varepsilon_i, t \]  

3.2 Empirical tests and analysis of results

3.2.1 Descriptive statistical analysis

According to the descriptive statistics of the primary variables, the median value of the audit opinion Aop is 1, with a mean value of 0.965, meaning that 96.5% of the sampled firms received a normal unqualified audit opinion. The sample enterprises' carbon information disclosure level is at a medium level, and overall, the enterprises' level is rather low, as indicated by the mean value of the carbon information disclosure level Cid, which is 0.600. Cid has a range between 0.453 and 0.802, indicating that the sampled firms' levels of carbon information sharing differ significantly. Other control variables' statistical distributions make more sense.

3.2.2 Empirical analysis

To avoid both the endogeneity issue caused by the time effect and the industry impact. Finally, to improve the reliability of the findings, a stepwise fixed regression is utilized to test the hypotheses in this work together with a two-way fixed effects model of industry time. Through empirical testing, the aforementioned hypotheses are proven true, and the impacts of the other control factors on audit opinions are mostly consistent with previous research. Additionally, the equation's stronger F-statistic shows that the overall coefficient significance of the model regression is good. Table 1 provides specifics:

Model (1): both the explanatory variable (Aop) and the explanatory variable (Cid) are significantly positively correlated at the 1% level with a coefficient of 0.0301, indicating that for every 1 unit increase in Cid, the probability of Aop being 1 increases by 3.01% on average, all else being equal.

Model (2): the mediated variable risk of material misstatement (Correct) is negatively correlated with the explanatory variable (Cid) at 5% level of significance with a coefficient size of -0.0273.
Model (3): The explanatory variable (Aop) is negatively correlated with the mediating variable (Correct) at 1% significance level with a correlation coefficient of -0.0680, according to the results of model (2), so the mediating effect exists and hypothesis 2 is verified.

Table 1: Regression of carbon disclosure level and audit opinion benchmark

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1) Double fixation AOP</th>
<th>(2) Correct</th>
<th>(3) Aop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cid</td>
<td>0.0301***</td>
<td>-0.0273**</td>
<td>0.0283**</td>
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<tr>
<td></td>
<td>(3.95)</td>
<td>(-2.36)</td>
<td>(1.99)</td>
</tr>
<tr>
<td>Correct</td>
<td></td>
<td>-0.0680***</td>
<td>(-6.18)</td>
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<td>Controls</td>
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<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Observations</td>
<td>32,234</td>
<td>32,234</td>
<td>32,234</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.157</td>
<td>0.034</td>
<td>0.160</td>
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<td>Number of groups</td>
<td>3,865</td>
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<tr>
<td>Industry</td>
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</tr>
<tr>
<td>Year</td>
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<td>YES</td>
</tr>
<tr>
<td>F</td>
<td>8.610e+10</td>
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<td>69.93</td>
</tr>
</tbody>
</table>

Robust t-statistics in parentheses*** p<0.01, ** p<0.05, * p<0.1

3.2.3 Robustness tests

According to the test procedure of mediating effect, Sobel test was conducted, and the results of the test showed that the Sobel Z value was 0.0029, which was significant at 1% level, indicating that the risk of corporate material misstatement plays a partial mediating role in the process of carbon information disclosure on audit opinion, and there was a mediating share of 7.05%, and the conclusion was consistent with the initial regression results.

4. Research conclusions and insights

4.1 Research findings

According to the empirical study, auditors are more likely to provide a routine audit opinion for businesses that disclose significant amounts of carbon dioxide. Mechanistic tests indicate that the auditor's ability to issue a standard audit opinion may be facilitated by the amount of carbon disclosure by lowering the firm's risk of substantial misstatement.

4.2 Recommendations

First, government agencies should first create a reliable method for evaluating companies' disclosure of carbon information and adopt a system of rewards and penalties for those companies with varying levels of disclosure, such as tax incentives, bidder priority, and financial support to businesses with high levels of carbon information disclosure, while increasing sanctions for businesses with low levels of disclosure and raising the cost of non-compliance through administrative penalties, tightening loan restrictions, and designing negative lists.

Second, businesses implement the idea of energy conservation, emission reduction, and carbon reduction in the production and management processes. They also disclose more and higher quality carbon information in order to gain an advantage over auditors, gain their respect and trust, reshape their own competitive advantages, and establish a positive social reputation for the business, all of which are expected to result in higher sustainable returns.

Third, auditors should maintain professional sensitivity to the carbon information disclosure information of enterprises under the risk-based audit system, and include the carbon information disclosure of enterprises in the scope of risk assessment, in order to reduce the likelihood that enterprises will improperly disclose false information from the side, ensure the interests of
stakeholders in the carbon trading market, and ensure the efficient operation of the carbon trading market.

References


