The Relationship Between ESG Information Disclosure Level and Enterprise Value: Empirical Evidence from Chinese Listed Companies

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Abstract: Under the initiative of global sustainable development, ESG has attracted more and more attention. Based on a sample study of 708 non-financial listed companies in China's A-share market from 2015 to 2020, this paper provides empirical evidence of the relationship between ESG information disclosure and corporate value. It is found that the level of ESG disclosure has a significant positive impact on corporate value. There is a significant positive correlation between environmental dimension disclosure and corporate value, while governance and social dimension have no significant impact on corporate value. This paper also found that for non-state-owned enterprises, family enterprises and non-high-pollution and -energy -consumption enterprises, the positive impact of ESG disclosure on enterprise value is more obvious. This paper can provide reference for government and financial institutions to make relevant policies.

Keywords: ESG disclosure, enterprise value, ownership nature, industry nature

1 Introduction

The concept of ESG arose in the 1970s and developed rapidly from the beginning of the 21st century. Especially after the 2008 financial crisis, investors of all kinds gradually realized that financial indicators were not the only standard to measure enterprises, and they needed to explore other dimensions to evaluate the overall risk level of enterprises (Wei Bin, 2021)[1]. ESG includes environmental (E), social (S) and governance (G) aspects. E (environment) mainly includes climate change, carbon emissions, pollution prevention and control, biodiversity and other factors; S (society) mainly includes human rights, labor standards, working environment, employee education, etc.; G (governance) mainly includes corporate governance, anti-corruption, rule of law, disclosure transparency, etc.

At present, China is still in the initial stage of ESG development, and investors and enterprises are not clear about the specific impact of ESG activities on enterprise value, nor the mechanism of action between ESG activities and enterprise value (Ruan Lei and Liu Heng, 2021)[2].On the other hand, most domestic studies on ESG are focused on the impact of ESG performance on enterprises and the market, and few studies focus on enterprises' ESG transparency and the amount of ESG disclosure (Ellen Pei- Yi Yu, 2018)[3].The analysis in this paper is based on the extent of ESG disclosure, rather than the actual performance of enterprises on ESG issues. At present, there are different research results on the impact of ESG information disclosure level on enterprise value. In previous studies, non-financial information

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disclosure has a positive impact on companies, such as improving corporate performance, reducing information asymmetry, improving corporate reputation and reducing capital cost (Sharfman, M.P., 2008; Dhaliwal, D., 2014; La Rosa, F, 2018)[4 5 6]. Some scholars also believe that the cost associated with ESG disclosure level is very high (Aggarwal & Dow, 2011; Hainmueller & Hiscox, 2012)[7 8], this high cost does not bring higher enterprise value. This paper believes that the reason for this difference may be that the disclosure standards and scope of ESG vary among countries, industries and sectors (Almeyda, R, 2019; De Silva Lokuwaduge, C.S., 2020)[9 10] and differences in development stages in different countries. However, existing researches mostly focus on developed markets, and few on emerging markets (Ruan Lei and Liu Heng, 2021)[2]. This paper aims to analyze the relationship between ESG disclosure level and enterprise value in The Chinese market.

The following research is divided into four parts. The second part includes literature review and research hypothesis. The third part is sample selection and model construction. The fourth part reports the empirical results, including regression results and robustness tests. The last part is the summary of the whole paper.

2 Research hypothesis

2.1 ESG disclosure level and enterprise value

Most studies support that ESG information disclosure reduces financing costs and improves company value. Friede et al. (2015)[11] reviewed over 2000 papers on ESG and enterprise value and found that more than 90% of the papers showed that ESG improved a company's financial position and enterprise value. However, some studies believe that there is no or negative correlation between ESG information disclosure and corporate value. From a geographical perspective, studies on European and American markets confirm the positive impact of ESG disclosure, but studies on emerging markets (such as southeast Asian markets) are inconclusive (Yang Yue xiang et al., 2021)[12]. As China's ESG market is still in its infancy and the benefits brought by ESG disclosure are prominent, this paper proposes the first research hypothesis:

H1: The improvement of ESG information disclosure can improve enterprise value.

In addition, some scholars have found that overall ESG and separate environmental and governance disclosure can reduce the cost of capital (Ould Daoud Ellili Nejla, 2020)[13], while social disclosure is not significant. Therefore, it is necessary to analyze the impact of ESG information disclosure on enterprise value from different dimensions.

In terms of environmental performance, Zhang Zhaoxia (2018)[14] took environment-sensitive enterprises listed in Shanghai and Shenzhen A-shares as samples and found that the quality of environmental accounting information disclosure is significantly positively correlated with enterprise value. Li Mi (2021)[15] tested the relationship between environmental information disclosure, cost of equity capital, expected cash flow, and enterprise value, and found that the improvement of the quality of environmental information disclosure would increase the expected cash flow and reduce the cost of equity capital of enterprises, thus improving enterprise value. However, some scholars believe that environmental information disclosure will increase the cost of enterprise information disclosure and environmental protection.

Therefore, this paper puts forward the assumption of environmental disclosure H1a:

H1a: The improvement of environmental information disclosure can improve enterprise value.

Corporate social responsibility (CSR) has been concerned by researchers around the world earlier. Taking A-share listed companies as samples, Wang Qun (2019)[16] found that corporate social responsibility transparency is significantly positively correlated with corporate value. However, some scholars believe that there is no relationship between corporate social responsibility disclosure and corporate value, and even the assumption of social responsibility may reduce corporate value (Xu Ming yu et al., 2021)[17]. In view of this problem, this paper proposes the hypothesis of social dimension H1b:

H1b: The improvement of social information disclosure can improve enterprise value.

In terms of corporate governance, some scholars believe that the governance structure of listed companies is related to its own value, but the relationship between different dimensions of corporate governance and corporate value is different. Ma Yin and Li Yan (2019) [18]found that the size of the board of directors, the shareholding ratio of the board of directors and the shareholding ratio of the board of supervisors are significantly positively correlated with enterprise value, while the size of independent directors is significantly negatively correlated with enterprise value. Based on previous research results on the relationship between corporate governance and enterprise value, we find that enterprises with good corporate governance performance are more willing to disclose governance information, so we propose corporate governance hypothesis H1c:

H1c: The improvement of information disclosure in governance can improve enterprise value.

2.2 The moderating effect of industry and equity nature

2.2.1 State-owned and non-state-owned enterprises

As the pillar of national economy, state-owned enterprises enjoy more preferential policies and greater credit guarantee, so the default risk and bankruptcy risk of state-owned enterprises are less than that of non-state-owned enterprises. On the other hand, non-state-owned enterprises rely more on information disclosure to send positive signals to the outside world to improve their competitiveness in the capital market (Yang Yue xiang et al., 2021)[12]. Therefore, we believe that the level of information disclosure of ESG is more important for non-state-owned enterprises, and its promotion effect on enterprise value is stronger. Therefore, we propose the first hypothesis of the moderating effect:

H2a: Compared with state-owned enterprises, ESG disclosure level of non-state-owned enterprises improves enterprise value to a greater extent.

2.2.2 Family business and non-family business

The biggest characteristic of family business is the high degree of family ownership. Most family members are major shareholders, while other investors are minority shareholders. Some scholars have found that family enterprises have agency problems between major shareholders and minority shareholders. Major shareholders can rely on their own information advantages to seek benefits for themselves to a greater extent, this process may damage the interests of minority shareholders, which may lead to the exacerbation of the agency problem

in family enterprises. Under such circumstances, ESG information disclosure can help family businesses reduce information asymmetry and thus increase corporate value. Therefore, the second hypothesis of the moderating effect is proposed in this paper:

H2b: Compared with non-family enterprises, family enterprises have a stronger positive relationship between ESG information disclosure and enterprise value.

2.2.3 High-pollution and -energy-consumption industries and non-high-pollution and -energy-consumption industries

Referring to the research of Yang Yue xiang et al. (2021)[12], we divide industries into high-pollution and energy-consuming industries (power, heat, gas and water production and supply; Construction; Mining and energy consumption industries) and 17 other non-polluting and energy-intensive industries. Industries with high pollution and high energy consumption will be subject to more supervision and restrictions due to the close correlation between their production and environmental protection. In order to break through such restrictions and meet regulatory requirements, some enterprises may release reports containing false information, which reduces the promotion effect of information disclosure on enterprise value. Therefore, this paper believes that in high-pollution and energy-consuming industries, the relationship between ESG information disclosure and enterprise value will be weak, while in non-high-pollution and energy-consuming industries, the relationship will be stronger. The third hypothesis of the moderating effect is proposed in this paper:

H2c: Compared with high-pollution and energy-consuming enterprises, non-high-pollution and energy-consuming enterprises have a stronger positive relationship between ESG information disclosure and enterprise value.

3 Research design

3.1 Data and samples

This paper collected the data of A-share listed companies in Shanghai and Shenzhen from 2015 to 2020. The ESG transparency data came from Bloomberg database. Other data related to the company comes from CSMAR database and wind database. After removing the samples with missing values and the samples of financial insurance companies, 3865 valid observations were collected in this paper. In order to exclude the influence of extreme values on the estimation results, The main continuous variables in the sample were winsorize 1% and 99%.

3.2 Model building

3.2.1 The main regression

Based on the results of Hausman's test, we adopted the fixed effects model for regression, and rejected mixed OLS and random effects regression. Referring to previous studies by scholars (Khaldoon Albitar et al.,2020)[19], TobinQ is used in this paper to measure enterprise value. TobinQ represents the expected profits of enterprises in the future, which can well reflect the future growth prospects of enterprises and objectively and truly reflect the actual performance

of listed companies. Therefore, TobinQ was taken as the explained variable, ESG disclosure was taken as the explanatory variable to construct model (1), and disclosure of each dimension of ESG was taken as the explanatory variable to construct model (2). The same control variables were introduced into the two models. Based on the above analysis of the relationship between ESG disclosure level and enterprise value in the Chinese market, we constructed the master regression model as follows:

$$TobinQ_{i,t}=\beta_0+\beta_1 ESG\_D_{i,t}+AllControls + Yd + Ind + \varepsilon \quad (1)$$

$$TobinQ_{i,t}=\beta_0+\beta_1 ESG\_E\_D_{i,t}+\beta_2 ESG\_S\_D_{i,t}+\beta_3 ESG\_G\_D_{i,t}+AllControls + Yd + Ind + \varepsilon \quad (2)$$

Among them, the dependent variable TobinQ measures enterprise value, ESG_D represents the total disclosure level of ESG, ESG_E_D represents the disclosure level of environmental dimension, ESG_S_D represents the disclosure level of social dimension, ESG_G_D represents the level of governance dimension disclosure. This paper refers to the research of Ruan Lei and Liu Heng (2021)[2] and Xu Mingyu et al. (2021)[17], and many variables are controlled in the model. The meanings of variables are shown in Table 1.

Table 1 Variable definitions

Variable	Variable abbreiations	explanation
Tobin Q value	TobinQ	Market value/replacement cost of assets
Total ESG disclosure	ESG_D	Bloomberg ESG disclosure levels
ESG environmental dimension disclosure	ESG_E_D	Bloomberg ESG environmental dimension disclosure level
ESG social dimension disclosure	ESG_S_D	Bloomberg ESG social dimension disclosure level
ESG governance dimension disclosure	ESG_G_D	Bloomberg ESG governance dimension disclosure level
The company size	Lnsize	The natural log of the company's total assets
Ownership concentration	Top10	Shareholding ratio of top 10 shareholders
Institutional shareholding	Ins_own	The percentage of total shares held by institutions
Age of listing	Age	Listed year as of the observation date
Ratio of cash to total assets	CF	Net cash flow from operating activities/Total assets at year-end
Return on total assets	ROA	(Net profit/Average total assets)×100%
Total asset turnover	Asset_tur	Sales revenue/Total assets
Nature of ownership 1	Property1	1 is a state-owned enterprise, 0 is a non-state-owned enterprise
Nature of ownership 2	Property2	1 is family business, 0 is non-family business

3.2.2 Further testing

Firstly, considering the moderating effect of state ownership (SOC), a multiple regression model was constructed to incorporate the moderating effect of state ownership (ESG × SOC). Model (3) is as follows:

$$TobinQ_{i,t}=\beta_0+\beta_1 ESG\_D_{i,t}+\beta_2 ESG\_D_{i,t}\times SOC_{i,t}+ All\ Controls + Yd + Ind + \varepsilon \quad (3)$$

Secondly, considering the different characteristics of family enterprises and non-family enterprises, a multiple regression model of the moderating effect of adding (ESG × Fam) was constructed, and model (4) was constructed as follows:

$$TobinQ_{i,t}=\beta_0+\beta_1 ESG\_D_{i,t}+\beta_2 ESG\_D_{i,t}\times Fam_{i,t} + All\ Controls + Yd + Ind + \varepsilon \quad (4)$$

Finally, Considering the difference between high -pollution and -energy-consumption enterprises and non-high-pollution and -energy-consumption enterprises, a multivariate regression model with (ESG × High_P_E) saving effect is established. Model 5 is as follows:

$$TobinQ_{i,t}=\beta_0+\beta_1 ESG\_D_{i,t}+\beta_2 ESG\_D_{i,t}\times High\_P\_E_{i,t} + All\ Controls + Yd + Ind + \varepsilon \quad (5)$$

4 Results and Discussions

4.1 Descriptive statistics

Table 2 Descriptive statistics of variables

variables	No.of Ob	mean	Std.D.	min	max
TobinQ	3,865	1.951	1.474	0.798	9.526
ESG_D	3,865	22.73	6.96	12.81	47.52
ESG_E_D	3,865	11.53	8.713	1.55	44.96
ESG_S_D	3,865	25.68	9.732	8.772	57.89
ESG_G_D	3,865	45.98	5.08	33.93	58.93
ROA	3,865	0.0372	0.0552	-0.194	0.214
Age	3,865	14.84	6.629	0	30
CF	3,865	0.0526	0.0623	-0.118	0.241
Top10	3,865	47.92	20.4	4.618	89.37
Asset_tur	3,865	0.617	0.446	0.0762	2.534
Ins_own	3,865	50.96	21.58	1.971	91.15
lnsize	3,865	23.49	1.347	20.75	27.29
High_P_E	3,865	0.122	0.327	0	1
Fam	3,865	0.387	0.487	0	1
SOC	3,865	0.571	0.495	0	1

The results show that the maximum value of TobinQ is 9.526 and the minimum value is 0.798, indicating that the value difference between enterprises in the sample is relatively large. From the score of ESG_D, the average value of ESG_D is 22.73, the maximum value is 47.52, and the minimum value is 12.81, indicating that the ESG_D of the overall enterprise is good, but the difference is large. The ESG_G_D is the highest, and that of environmental dimension is the lowest. The maximum shareholding ratio of the top ten shareholders is 19.35 times of the minimum, and there is a great difference in ownership concentration. Similarly, the maximum

institutional shareholding ratio is 46.25 times of the minimum, and the institutional shareholding ratio varies greatly among different enterprises. The mean value of index variable of enterprises with high pollution and high energy consumption is 0.122, indicating that 12.2% of enterprises are enterprises with high pollution and high energy consumption. The mean value of index variable of family enterprises is 0.387, indicating that 38.7% of the enterprises in the sample are family enterprises and 61.2% are non-family enterprises. The mean value of the index variable of state-owned enterprises was 0.571, and state-owned enterprises accounted for a large proportion.

4.2 Multicollinearity analysis

In this paper, variance inflation factor is used to analyze whether multicollinearity exists among variables. For VIF, table 3 shows that there is no multicollinearity since all values are less than 10.

Table 3 Multicollinearity analysis

Variable	ESG_D	ROA	Age	CF	Top10	Asset_tur	Ins_own	lnsize
VIF	1.29	1.37	1.16	1.22	3.19	1.06	3.49	1.82
1/VIF	0.78	0.78	0.92	0.83	0.33	0.94	0.29	0.67

4.3 Regression results

Table 4 shows the regression results of each model. Clustering standard error is used in this paper to solve the possible problems of autocorrelation and heteroscedasticity. In regression (1), the coefficient of the total disclosure of the explanatory variable ESG is 0.0147, which is significant at the statistical level of 5%, indicating that there is a significant positive correlation between the total disclosure of ESG and enterprise value, which verifies hypothesis 1 in this paper. Regression (2) further discusses the relationship between disclosure level and enterprise value of each sub-dimension of ESG. The regression results show that only the disclosure level of environmental dimension has a significant relationship with the home of enterprise value, verifying the hypothesis H1a.

In terms of control variables, regression (1) and regression (2) have very similar results, ROA, CF and Asset_tur are significantly positively correlated with enterprise value. Top10 is significantly negatively correlated with enterprise value, and too high ownership concentration may lead to the decrease of enterprise value. There is a significant positive correlation between Ins_own and corporate value. On the one hand, institutional investors can better monitor the behavior of management and improve the quality of corporate information disclosure and corporate governance. On the other hand, institutional investors tend to choose enterprises with high corporate value when choosing investment targets, so as to obtain higher investment returns; There is a significant negative correlation between Lnsize and enterprise value. For large enterprises, the growth rate of their asset profitability may be lower than that of their asset scale expansion, thus the growth of the company size instead reduces the enterprise value (Xu Mingyu, 2021)[17]. The smaller the size of the enterprise, the greater the potential for future development, so the value of the enterprise is also higher; The older the listed company is, the lower its enterprise value is, which may be because the younger the established company may have greater development potential.

Table 4 Analysis of regression results

variables	Reg (1) TobinQ	Reg (2) TobinQ	Reg (3) TobinQ	Reg (4) TobinQ	Reg (5) TobinQ
ESG_D	0.0147***		0.0230***	0.0114**	0.0170***
	(3.07)		(5.73)	(2.40)	(4.76)
ESG_E_D		0.0115***			
		(3.75)			
ESG_S_D		0.000443			
		(0.08)			
ESG_G_D		(0.01)			
		(-0.90)			
ESG_D*SOC			-0.0114***		
			(-3.94)		
ESG_D*Fam				0.00928***	
				(3.11)	
ESG_D*High_P_E					-0.0127***
					(-2.96)
ROA	3.290***	3.298***	4.053***	3.252***	4.144***
	(4.23)	(4.25)	(12.61)	(4.36)	(12.91)
Age	-0.130***	-0.131***	-0.0442***	-0.129***	-0.0497***
	(-6.87)	(-6.93)	(-7.86)	(-6.91)	(-9.13)
CF	0.652*	0.642*	0.975***	0.651*	1.001***
	(1.86)	(1.82)	(3.60)	(1.84)	(3.70)
Top10	-0.0139***	-0.0138***	-0.0156***	-0.0140***	-0.0157***
	(-4.84)	(-4.80)	(-9.86)	(-4.85)	(-9.91)
Asset_tur	0.291***	0.297***	0.07	0.291***	0.05
	(3.34)	(3.24)	(1.13)	(3.37)	(0.71)
Ins_own	0.0225***	0.0225***	0.0199***	0.0227***	0.0191***
	(7.07)	(6.94)	(11.42)	(7.22)	(11.05)
lnsize	-0.870***	-0.868***	-0.590***	-0.875***	-0.590***
	(-4.98)	(-5.01)	(-22.33)	(-4.96)	(-22.31)
Constant	23.48***	24.01***	16.23***	23.58***	16.38***
	(5.65)	(5.57)	(27.63)	(5.63)	(28.08)
Year	YES	YES	YES	YES	YES
Ind	YES	YES			
R-squared	0.39	0.39	0.38	0.39	0.38
Observations	3865.00	3865.00	3865.00	3865.00	3865.00

T-statistics are in brackets. *, **, and *** indicate that the correlation is significant at 10%, 5%, and 1% levels, respectively. R-square is the goodness of fit within the group, Observations are sample size.

Regression (3) introduces interaction term (ESG_D*SOC) on the basis of (1), and discusses the moderating effect of state ownership (SOC) on the relationship between ESG disclosure and enterprise value. The interaction coefficient is -0.0114, which is significant at the 1% level, indicating that non-state-owned enterprises' ESG information disclosure will have a greater impact on enterprise value, which verifies hypothesis H2a. This may be because non-state-owned enterprises are more dependent on the disclosure of ESG information than

state-owned enterprises to obtain lower financing costs, so as to greatly improve the value of the company.

In regression (4), the interaction term (ESG_D*Fam) was introduced on the basis of (1), and the moderating effect of family ownership nature (Fam) on the relationship between ESG disclosure and enterprise value was discussed. The interaction coefficient is 0.00928 and is significant at 1% level, indicating that family enterprises' ESG information disclosure level will have a greater impact on enterprise value, which verifies hypothesis H2b. This result may be because the information asymmetry of family enterprises is more obvious than that of non-family enterprises, so the information disclosure of ESG plays a more significant role in enhancing the value of family enterprises

Based on (1), the interaction term (ESG_D*High _P_E) is introduced to explore the moderating effect of industry characteristics on the relationship between ESG disclosure and enterprise value. The samples were grouped by high-polluting and -energy-consuming industries (High _P_E = 1) and non-high-polluting and -energy-consuming industries (High _P_E = 0). The interaction coefficient is -0.0127, which is significant at 1% level, indicating that the ESG information disclosure level of non-high-pollution and -energy-consuming enterprises will have a greater impact on enterprise value, which verifies the hypothesis H2c. The possible reason for this result is that the national regulations on information disclosure of high pollution and high energy consumption industries are stricter. These enterprises must release some non-financial information reports, and sometimes even release some false reports to meet regulatory requirements, which reduces the quality of reported information. This tends to reduce the promotion effect of ESG disclosure on enterprise value.

4.4 Robustness test

4.4.1 Substitution variables

In order to test the robustness of the regression results, this paper adopts the logarithm of the company's market value to measure the company value, replacing TobinQ for the robustness test of the main regression.

Table 5 Robustness test

variables	Reg (1)	Reg (2)	SOC=1	SOC=0	Fam=1	Fam=0	High_P_E =1	High_P_E =0
	LnCap	LnCap	TobinQ	TobinQ	TobinQ	TobinQ	TobinQ	TobinQ
ESG_D	0.00351***		0.00791	0.0211***	0.0222***	0.00836*	0.00006	0.0170**
	(3.81)		(1.71)	(4.74)	(5.34)	(1.94)	(0.08)	(3.07)
ESG_E_D		0.00349***						
		(5.89)						
ESG_S_D		-0.001						
		(-0.87)						
ESG_G_D		-0.0021						
		(-0.53)						
ROA	0.765***	0.769***	1.273	4.074***	4.118***	0.994	1.354	3.387***

	(6.85)	(7.01)	(1.01)	(4.99)	(7.97)	(0.94)	(0.63)	(4.09)
Age	-0.0583***	-0.0586***	-0.0979***	-0.195***	-0.206***	-0.0960***	-0.0841**	-0.140***
	(-9.98)	(-9.75)	(-7.23)	(-4.21)	(-4.80)	(-6.66)	(-9.30)	(-6.15)
CF	0.252***	0.248***	0.168	1.636*	1.800*	0.298	-0.501***	0.831*
	(4.45)	(4.44)	(0.68)	(1.98)	(2.15)	(1.24)	(-10.7)	(1.94)
Top10	0.00083	0.00088	-0.0078***	-0.0183***	-0.0176***	-0.00789***	-0.00039	-0.0152***
	(1.09)	(1.17)	(-3.20)	(-5.51)	(-4.76)	(-3.71)	(-0.43)	(-4.59)
Asset_tur	0.101***	0.102***	0.166**	0.443	0.416	0.188**	0.355	0.288**
	(3.87)	(3.75)	(2.84)	(1.54)	(1.35)	(2.52)	(1.36)	(3.09)
Ins_own	0.00727***	0.00726***	0.0155***	0.0265***	0.0257***	0.0156***	0.00151	0.0238***
	(8.45)	(8.28)	(3.47)	(8.86)	(8.61)	(4.33)	(0.63)	(7.87)
lnsize	0.784***	0.785***	-0.635***	-0.821***	-0.841***	-0.664***	-0.617***	-0.876***
	(25.40)	(25.68)	(-4.31)	(-3.70)	(-3.88)	(-5.65)	(-15.52)	(-4.75)
Constant	5.875***	6.026***	17.73***	22.88***	23.40***	18.38***	17.34***	23.75***
	(7.97)	(7.51)	(5.28)	(4.84)	(4.34)	(6.82)	(18.84)	(5.38)
Year	YES	YES	YES	YES	YES	YES	YES	YES
Ind	YES	YES	YES	YES	YES	YES	YES	YES
R-squared	0.615	0.616	0.323	0.467	0.475	0.325	0.608	0.399
Observations	3865	3865	2206	1659	1496	2369	472	3393

T-statistics are in brackets. *, **, and *** indicate that the correlation is significant at 10%, 5%, and 1% levels, respectively. R-square is the goodness of fit within the group, Observations are sample size.

The results in Table5 are consistent with the above. The ESG_D coefficient in regression (1) is 0.00351 and significant at 1%. In regression (2), ESG_E_D was significantly positively correlated with company value at 1% level. Among the control variables, the symbols of Top10 and Lnsize variables are opposite to the above results, which may cause the difference in meaning and nature between TobinQ and market value index. TobinQ is a relative number, which depends on the difference between the growth rate of market value and total assets. The logarithm of market value belongs to absolute logarithm (Xu Mingyu et al., 2021)[17]. The expansion of enterprise scale will increase the market value of an enterprise, but the ratio of market value to total assets may decrease.

4.4.2 Regression by groups

In this paper, the robustness of the three moderating effects was tested by grouping regression, that is, the samples were successively divided into high-pollution and -energy -consumption group and non-high-pollution and -energy -consumption group, family enterprise group and non-family enterprise group, state-owned enterprise group and non-state-owned enterprise group for regression respectively. The regression results are shown in Table 5. Columns 8 and 9 of Table 5 show the regression results of the high-pollution and -energy-consumption group

and the non-high-pollution and -energy-consumption group. The results show that the ESG_D coefficient of High _P_E=0 group is significantly positive and larger than that of High _P_E=1 group, indicating that in non-high-pollution and energy-consuming industries, ESG disclosure level has a greater impact on enterprise value, which is consistent with the previous regression results. Columns 6 and 7 of Table 5 show the regression results for the family business group and the non-family business group. The results show that the coefficient of ESG_D in family enterprises is higher and more significant than that in non-family enterprises, indicating that in family enterprises, The level of ESG disclosure has a greater impact on enterprise value, which is consistent with the previous results. Columns 4 and 5 show the regression results of SOC=1 group and SOC=0 group. The results show that the ESG_D coefficient of non-state-owned enterprises is significantly positive and larger than that of state-owned enterprises. This indicates that in non-state-owned enterprises, ESG disclosure level has a greater role in promoting enterprise value, which is consistent with the previous research results.

5 Conclusions and Reflections

Based on a sample study of 708 non-financial listed companies in China's A-share market from 2015 to 2020, this paper provides empirical evidence of the relationship between ESG information disclosure and corporate value. This study finds that ESG disclosure level can promote the improvement of enterprise value, in which the environmental dimension disclosure level can significantly promote the improvement of enterprise value, while the governance dimension and social dimension have no significant impact. In addition, in non-state-owned enterprises, family enterprises and non-high pollution and high energy consumption enterprises, ESG information disclosure can better promote the improvement of enterprise value. On this basis, the robustness test of regression results was carried out through substitution variables and grouping regression method, and the test results were consistent with the previous study, indicating that the conclusions of this study have a certain reliability.

From the perspective of research significance, this paper has conducted in-depth discussion on the relationship between ESG disclosure level and enterprise value, and enriched the domestic research in the field of ESG disclosure. This will help Chinese government departments and financial regulators to have a deep understanding of the impact of ESG information disclosure on various market players, and provide reference for the formulation of relevant policies. In addition, non-state-owned enterprises, family enterprises and non-high-polluting and energy-consuming enterprises should actively disclose more ESG information to the market, so as to gain recognition from more stakeholders and improve their own value.

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