

Environmental, Social and Governance Reporting in China

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ABSTRACT

What is the current state of environmental, social and governance (ESG) reporting and what is the relation between ESG reporting and the financial performance of Chinese companies? This study analyses corporate ESG disclosure in China between 2005 and 2012 by analysing the members of the main indexes of the biggest Chinese stock exchanges. After discussing theories that explain the ESG performance of firms such as institutional theory, accountability and stakeholder theory we present uni- and multivariate statistical analyses of ESG reporting and its relation to environmental and financial performance. Our results suggest that ownership status and membership of certain stock exchanges influence the frequency of ESG disclosure. In turn, ESG reporting influences both environmental and financial performance. We conclude that the main driver for ESG disclosure is accountability and that Chinese corporations are catching up with respect to the frequency of ESG reporting as well as with respect to the quality. Copyright © 2013 John Wiley & Sons, Ltd and ERP Environment

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Keywords: ESG reporting; corporate social responsibility; China; financial performance; sustainability; environmental disclosure

Background

THE CHINESE ECONOMY IS GROWING SIGNIFICANTLY, THOUGH THE STRONG INCREASE HAS COOLED DOWN A LITTLE IN 2012. A drawback of economic success is the negative environmental impact. Actually China is the world's largest emitter of greenhouse gases with more than 23% of global emissions. The main contributors to environmental impacts in China are corporations and their energy use (Olivier, Janssens-Maenhout, & Peters, 2012).

Though Chinese companies have a significant environmental impact, the perception of the benefit of corporate social responsibility (CSR) and the level of environmental management and of environmental, CSR or sustainability reporting is still relatively low (Wong, Long, & Elankumaran, 2010). Until recently the majority of Chinese firms did not disclose any environmental information or publish environmental reports (Liu & Anbumozhi, 2009) and research on environmental, social, and governance (ESG), CSR or environmental reporting is relatively new (Fifka, 2011). The advantages of connecting CSR issues with economic success have recently been acknowledged by Chinese companies (Liu, Liu, Shishime, Yu, Bi and Fujitsuka, 2010). Like in other regions, sustainability and business success are still seen as trade-offs (Hahn, Figge, Pinkse, & Preuss, 2010; Winn, Pinkse, & Illge, 2012) rather than a win–win situation. Furthermore, motivations to adopt a CSR or sustainability strategy can be manifold (Weber, 2005).

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A group of rationales for explaining corporate ESG reporting is based on institutional theory. This theory emphasizes the influence of impacts outside the organization (DiMaggio & Powell, 1983). It argues that rules, laws, regulations, norms or cultures determine the behaviour of firms more than other influences, such as competitive factors (Zhilong, Hafsi, & Wei, 2009). Many scholars emphasize the benefit of regulations and the influence of the government on ESG reporting and performance (Cheung, Welford, & Hills, 2009; Dobers & Halme, 2009; Dutta, Lawson, & Marcinko, 2012; Xun, 2012). This goes hand in hand with findings based on institutional theory, suggesting that organizations respond to institutional pressures toward CSR (Oliver, 1991; Shrivastava, 1995). However, some scholars argue that the institutional pressure for demonstrating CSR is rather low in China. Liu and Anbumozhi (2009) report that external factors like regulatory pressure, competitive mechanisms and pressure from non-government organizations are lower in China than in other countries. On the other hand there is external pressure from business clients outside China, especially in business-to-business relations (Yu, Welford, & Hills, 2006). Because, for instance, ISO 14000 demands the integration of suppliers into the environmental management process, international clients of Chinese firms have an impact on the willingness of Chinese companies to report their environmental performance (Guoyou, Saixing, Chiming, Haitao, & Hailiang, 2011). Hence, factors like multinational customers and ownership may increase the self-regulation of firms with respect to their sustainability performance (Christmann & Taylor, 2001) and sustainability reporting.

Another reason for publishing environmental or sustainability reports is accountability (Schwartz & Carroll, 2008). Accountability is defined as 'being responsible to an audience with reward or sanction power' (Beu & Buckley, 2001, p. 58). Because firms are accountable to their stakeholders, such as government, employees and shareholders, ESG reports are a way to express the responsibility *vis-à-vis* the stakeholders. Only if practices, policies and operations and their consequences are transparent, can accountability be achieved.

A third explanation for publishing ESG reports is stakeholder management. This is defined as achieving outcomes that are beneficial to stakeholders of corporations (Epstein, 1987). Stakeholders can be defined as groups or individuals who can affect or can be affected by any activities of corporations (Freeman, 1984). Firms may publish ESG information to meet the needs of their shareholders with respect to information about their CSR performance. Stakeholders may need this information because they assume a relation between CSR performance and the financial returns of their investment – a relation that is often found in the literature (Busch & Hoffmann, 2011; Margolis & Walsh, 2003; Weber, Koellner, Habegger, Steffensen, & Ohnemus, 2008). However, environmental strategies are generally less motivated by stakeholders than by the firm's environmental risks (Sprengel & Busch, 2011). But CSP may contribute to environmental and financial performance as well as to stakeholder satisfaction (Orlitzky & Swanson, 2008) because it reduces costs (Delmas & Blass, 2010; Hart & Ahuja, 1996; King, 2007) or attracts clients (Matute-Vallejo, Bravo, & Pina, 2011). In the Chinese context relations with foreign clients in the supply chain could be positively affected by ESG reporting (Guoyou *et al.*, 2011). But domestic stakeholders also find the environmental performance of corporations increasingly important (Welford, Chan, & Man, 2008).

Generally, CSR reporting is seen as an important tool to improve ESG or CSP (Sumiani, Haslinda, & Lehman, 2007). But CSP or ESG performance often does not come free of costs. Both stakeholder management and environmental management require significant resources (Orlitzky, Siegel, & Waldman, 2011). This seems to be the case for Chinese corporations as well (Zeng, Xu, Dong, & Tam, 2010). Therefore firms only publish voluntary ESG reports if they assume that there will be a benefit at least in the long-term. Hence, Clarkson, Li, Richardson, and Vasvari (2008) found a positive association between environmental performance and the level of discretionary environmental disclosures. In contrast to this, Patten (2002) indicated that there is a significant negative relation between performance and disclosure in his sample.

In this study we want to test whether there is a positive relation between ESG disclosures of Chinese firms and their financial return. We base our analysis on the assumption that environmental disclosure is the basis for environmental management. Because CSR management in Chinese corporations is mainly externally driven (Wing-Hung Lo, Fryxell, & Tang, 2010; Wong, 2009) we assume that environmental and sustainability management is conducted to increase shareholder return. However, CSR has generally been perceived more positively over the last years by the Chinese population (Wang & Juslin, 2011) and by domestic suppliers (Tsoi, 2010) as well.

This paper analyses whether ESG reporting leads to higher financial returns and how it is influenced by external factors such as government, regulations or company size (Brammer & Pavelin, 2008). The analysis is conducted for securities of Chinese corporations that are traded at one or more of the main Chinese stock exchanges, the Hong Kong, Shanghai and Shenzhen stock exchange.

The Current Situation of Environmental Reporting in China

It is often argued that CSR performance cannot be easily compared between firms from different countries (Carnevale, Mazzuca, & Venturini, 2011; Ioannou & Serafeim, 2010) because firms react to different institutional pressures (Scott, 1987). Cultural, development, market and political influences play an important role in firms' activities and this is valid for environmental reporting as well (Husted & Allen, 2006; Jennings & Zandbergen, 1995).

But there is evidence that CSR in line with ESG reporting is a growing management issue in China (Moon & Shen, 2010) though environmental reporting has a much longer history in other regions because of stakeholder pressure or regulations (Kolk, 1999, 2003). Since 2001, companies applying for listing on Chinese stock exchanges have to show their environment-related risks in the prospectus for their initial public offering. Before 2005, companies were required to prepare a corporate environmental report for local environmental administrations. Since 2004 highly polluting corporations have been required to publish an environmental report and other sectors are encouraged to follow as well (Xiao, 2006). Furthermore, since 2005 the corporate environmental performance of Chinese companies has been rated and published by a national programme (Liu & Anbumozhi, 2009).

Since 2006 Chinese company law has required companies to operate social responsibility in their businesses, and in 2008 the state-owned Assets Supervision and Administration Commission of the State Council published a guideline on CSR for enterprises that are controlled by the central government. The guideline affects about 150 state-owned enterprises (Lin, 2010).

The Shenzhen Stock Exchange and the Shanghai Stock Exchange have published guidelines on ESG disclosure for listed companies (Lin, 2010; Siddi, 2009). The Shenzhen Stock Exchange introduced social responsibility instructions for listed companies in 2006 and the Shanghai Stock Exchange followed in 2008 (Noronha, Tou, Cynthia, & Guan, 2012). The Hong Kong Stock Exchange introduced an ESG reporting guideline on 1 January 2013 (Hong Kong Stock Exchange, 2012).

Kimber and Lipton (2005) analysed the corporate governance and business ethics of Asian Pacific firms and compared the situation in China with other Asian Pacific countries. They found that the political situation and the fact that many companies were and still are state owned influenced their corporate governance and business ethics performance. Because of limited foreign investment, the influence of stakeholders from abroad was low as well. Furthermore they state that securities are less traded in China than in other countries. These issues could indicate the relatively low influence of stakeholder pressure, though differences in investor activism occur between Hong Kong and other Chinese cities (Kimber & Lipton, 2005). Nevertheless China acknowledges the role of stakeholders and defines them as those that have a direct financial interest in a corporation, such as shareholders, banks and other creditors, employees or suppliers but also mentions the community and other stakeholders in its national code on corporate governance (Kimber & Lipton, 2005).

International communities and guidelines are gaining more influence in China as well. Actually 119 Chinese companies have reported their sustainability performance using the Global Reporting Initiative (GRI) framework. This is about 4% of all reporting organizations worldwide. Generally CSR reporting in Asia is on the rise. According to the 2010 CG Watch of the Asian Corporate Governance Association the number of CSR reports in Asia increased significantly, and Asia accounts for more than 20% of global CSR reports (Gill, Allen, & Powell, 2010). The same report attested significant advancements in China regarding corporate governance including CSR on the one hand but still notices a gap to the global benchmark on the other hand.

With respect to environmental reporting and environmental performance the growing environmental pressure in China and the need for an efficient use of resources have caused a change in the attitudes from pure financial goals to a more integrated model of growth that integrates environmental risks. However, there is still a gap to western economies (Chan & Welford, 2005). The lower transparency reflected by the relatively low amount of ESG reporting in China is explained by a conflict between transparency and general business strategies such as prize secrecy (Kimber & Lipton, 2005). Certainly, because of the extremely fast economic development in China analyses that rank China below other countries with respect to accounting and corporate governance principles such as the study from the Asian Corporate Governance Association (2003) could often be outdated. This is especially valid in light of the significant development of corporate laws and corporate governance guidelines over the last years.

Recently, Liu and Anbumozhi (2009) identified the determinant factors affecting the disclosure level of corporate environmental information, and gave an empirical observation on Chinese listed companies. They found that the

corporate reporting level appears to be mediocre. Nearly 40% of the sampled companies did not disclose substantial environmental data to the public. Another interesting finding was that the sampled companies are selectively disclosing their environmental information. Companies operating in eastern coastal regions, where the economy is developed, more often disclosed emission-related data. The better the company's economic performance, the more information on environmental investment and pollution control cost was disclosed. Another study found that the ESG reporting of Chinese corporations is still of relatively low quality (Kuo, Yeh, & Yu, 2011; Noronha *et al.*, 2012). However, we assume that both the frequency and the quality of ESG reporting in China are increasing significantly over time because of a number of governmental and private initiatives to foster ESG reporting.

The Association Between ESG Reporting and ESG Performance

ESG reporting is a measure to achieve transparency about the respective performance of a firm and a means of communication to stakeholders such as shareholders or investors (Chan & Welford, 2005; Ziek, 2009), employees, clients or communities. Therefore their reliability, consistency and relevance (Kolk, 1999) is uncertain. Often they are created to communicate what the company wants to be (Niskanen & Nieminen, 2001; Spence, 2009). Nevertheless the reports are useful tools for both the reporting firm and stakeholders and are clearly an indicator of the importance of ESG issues in a firm.

With regard to China, Liu, Yu, *et al.* (2010) found that companies publishing environmental information under the government-oriented disclosure programme improved their environmental performance because the publication encourages the corporations to manage their environmental problems. However, other studies suggest that reports published for Chinese stakeholders still concentrate less on environmental and rather on the economic consequences of CSR (Kolk, Hong, & van Dolen, 2010).

Furthermore, frameworks such as the GRI and third-party verification contribute to the quality of reports (Fonseca, 2010; Lober, Bynum, Campbell, & Jacques, 1997) and to their transparency (Kolk & Perego, 2010).

Sample

We analysed Chinese companies that are listed in one or more indexes of the three biggest Chinese stock exchanges:

- SZSE Component Index: 40 stocks traded at the Shenzhen Stock Exchange
- Hang Seng Index: 40 stocks traded at the Hong Kong stock market
- SSE Composite Index: 50 stocks traded at the Shanghai Stock Exchange.

Overall we analysed 75 companies (see the Appendix). Some companies are listed in more than one index and for some of them financial data for the years 2005 to 2009 were not available. Data about reporting was gathered directly from company websites. This was possible because of the involvement of Chinese research assistants. Financial data was gathered from Compustat.

Additionally we used information about the ownership (government controlled versus non-government controlled) as a control variable. Furthermore we analysed whether the companies were ranked in the China Top 100 Green Companies Report (China Entrepreneur Club, 2012) to find out whether there is a correlation between environmental disclosure and environmental performance. The China Entrepreneur Club awards Chinese corporations for their environmental performance. It uses a comprehensive method to analyse economic, social, environmental, innovation and transparency indicators of corporations. An independent group of Chinese and international experts ranks the companies using a set of 18 weighted indicators. We used the China Top 100 Green Companies ranking because it uses a comprehensive method, independent experts and gathers information not only from corporate reports but from other independent sources and media as well.

Methods

In addition to descriptive statistics, *t*-tests and analyses of variance (ANOVA) we used linear panel regression to find out whether firms that publish environmental reports achieve higher financial returns. In our analysis we controlled for the natural logarithm of the market cap, and financial risk (Ullmann, 1985; Waddock, Graves, & Gorski, 2000). Financial risk was operationalized by the covariance between a firm and the total sample. Furthermore we analysed the influence of the industry because often polluting industries disclose more environmental information than others (Kolk, Walhain, & van de Watteringen, 2001), and government ownership that plays a strong role in China. We used financial data for the years 2008 to 2010.

Results

In this section we will present the results of our analysis. We will start with the descriptive statistics followed by an analysis of control variables. In a third step we will illustrate the development of ESG reporting over time. Fourth, we will present a multivariate analysis of the relation between ESG reporting and financial market returns.

Descriptive Statistics

The sector distribution of the sample is presented in Table 1. Industrials and the financial sector have the highest frequency. This could be expected especially for the industrials, being an important sector of the Chinese economy. However, the small number of companies in the other sectors exacerbates the analysis of the sector influence on environmental reporting.

Descriptive information about the financial data is presented in Table 2. We present the annual and overall average, standard deviation (SD), skewness and kurtosis for the stock market returns, market capitalization and covariance. The standard deviation represents the deviation from the average and can be used as an indicator of risk (Hoti, McAleer, & Pauwels, 2007). Skewness and kurtosis are used to describe the form of the sample distribution. Skewness is an indicator for the symmetry of a distribution (Joanes & Gill, 1998). Negative values indicate distributions that have a longer left tail. Kurtosis describes the shape of a probability distribution. All results are positive, indicating a sharper peak and longer, fatter tails of the distribution compared to a normal distribution (Joanes & Gill, 1998). However, skewness/kurtosis tests for normality resulted in $P=0.324$ for the stock market returns, suggesting that the returns are normally distributed. Because of that we will be able to use linear models in order to analyse the stock market returns. In 2008 the Chinese stock market experienced negative returns influenced by the global financial crisis.

GICS	<i>n</i>
Energy	1
Materials	9
Industrials	16
Consumer discretionary	3
Consumer staples	5
Health care	3
Financials	27
Information technology	1
Telecommunication	3
Utilities	7

Table 1. Distribution of the companies in the sample with respect to their Global Industry Classification Standard (GICS)

Year	Indicator	Stock market return	Market cap	Covariance
2007	Average	-3.27%	24.58	0.00002
	SD	2.23%	1.72	0.00002
	Skewness	-0.24	-0.63	0.69204
	Kurtosis	2.28	3.10	3.40348
2008	Average	3.03%	24.58	0.00001
	SD	2.09%	1.71	0.00001
	Skewness	1.11	-0.63	0.09356
	Kurtosis	5.73	3.10	2.83897
2009	Average	-0.33%	24.58	0.00001
	SD	1.30%	1.71	0.00001
	Skewness	0.14	-0.63	0.34768
	Kurtosis	3.87	3.10	2.37701
Total	Average	-0.14%	24.79	0.00001
	SD	3.21%	1.57	0.00001
	Skewness	0.07	-0.73	1.60220
	Kurtosis	3.42	3.81	6.49089

Table 2. Financial data for the firms in the sample (natural logarithm of market cap; SD, standard deviation)

The Influence of Government Control, Stock Exchange Regulations, and Market Capitalization

We analysed whether government controlled corporations differ from other corporations with respect to ESG reporting. Furthermore we analysed for differences between the three stock exchanges. A *t*-test that sums up the ESG reporting (1 = ESG report, 0 = no ESG report) in the years 2006 to 2009 resulted in a significant difference between government controlled and other corporations (d.f. = 265, $t = 2.55$, $P = 0.011$), suggesting that government controlled corporations publish ESG reports more often than other firms.

In order to test whether there is a difference between the three stock exchanges we used a chi-square test. We found a significant difference between the three stock exchanges with respect to ESG reporting ($n = 273$, $\chi^2 = 14.47$, $P = 0.001$). The highest contribution to the difference between the stock exchanges comes from the Hong Kong Stock Exchange with a χ^2 contribution of 5.4 for not reporting (frequency = 52, expected frequency = 37.7) and a χ^2 contribution of 4.7 for reporting (frequency = 29, expected frequency = 43.3).

Because it is argued that larger corporations demonstrate better ESG performance (Waddock & Graves, 1997) we tested whether market capitalization influenced the ESG disclosure. The result of a *t*-test suggests that the market capitalization does not influence corporate ESG reporting (d.f. = 244, $t = -1.68$, $P = 0.1$).

The Development of ESG Reporting

In addition to financial indicators we analysed whether the firms in the sample published an ESG report. Figure 1 presents the development of ESG reporting between 2005 and 2009. The numbers represent the percentage of corporations that published an ESG report compared to the total sample. The results suggest that ESG reporting of Chinese companies increased from 4% in 2005 to 81.33% in 2009. This makes a compound annual growth rate (Vespermann & Wittmer, 2011) of 112.35% over 4 years.

ESG Reporting and Environmental Performance

In order to test whether a higher value in reporting corresponds with higher environmental performance we used the China Top 100 Green Companies Report (China Entrepreneur Club, 2012). If those that are in the list of the Top 100 Green Companies have published ESG reports more frequently than others, we assume that ESG disclosure goes along with environmental performance. We used a chi-square test with the membership in the Top 100 list and ESG reporting. The test demonstrated that members of the Top 100 list published significantly more ESG

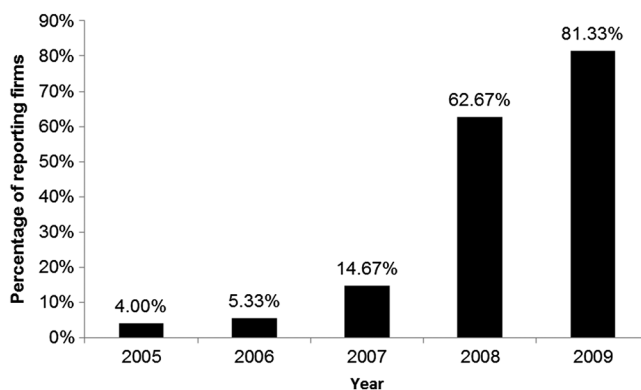


Figure 1. Percentage of firms that published an environmental, social and governance report between 2005 and 2009

reports over 5 years than non-members ($n = 455$, Pearson, $\chi^2 = 4.05$, $P = 0.044$). Hence, the results suggest a positive correlation between ESG reporting and environmental performance.

ESG Reporting and Financial Returns

We will start this section using a t -test to analyse the difference in stock market returns between corporations that publish ESG reports and those that do not. Corporations that publish ESG reports have a higher stock market return than other firms (d.f. = 262, $t = -4.96$, $P < 0.00001$).

In order to analyse the relation between ESG reporting and financial returns we used data for the years 2007 to 2009 for ESG reporting and data for 2008 to 2010 for financial returns. This is based on the assumption that the ESG reporting in year x is able to predict the financial returns in year $x+1$ because the market reacts to the publication of the ESG report. An analysis of the years 2005 and 2006 was not possible because of the small number of firms publishing ESG reports. We used a linear panel regression for ESG reporting (report) between 2006 and 2009 with the financial market returns of the following year as the dependent variable. Market capitalization, covariance, being listed as a green company (greencompany), and government control (status) were used as control variables. The industry was used as dummy variable. The regression has the following form:

$$\begin{aligned} & \text{financial market returns} \\ & = (b_1 \times \text{market capitalization}) \\ & + (b_2 \times \text{covariance}) + (b_3 \times \text{report}) + (b_4 \times \text{greencompany}) + (b_5 \times \text{status}) + (b_6 \times \text{industry}) + c. \end{aligned}$$

The regression was significant, with an overall $r^2 = 0.275$ and $P < 0.00001$. The coefficients and their significance are presented in Table 3. The sign of the b -coefficient indicates whether the influence of the indicator is positive or negative. Significance values smaller than 0.05 suggest a significant influence of an indicator.

The results suggest a significant influence of the financial risk (covariance: $b = -988.816$, $P < 0.0001$) and the reporting (report: $b = 0.01527$, $P < 0.0001$) of the firms in the sample on their financial market returns. Only covariance and reporting had a significant impact on the financial returns. While the influence of reporting was positive, suggesting that firms that publish ESG reports provided higher financial returns, covariance has a negative influence. As expected, financial risks are correlated with lower financial returns. Hence the results suggest that corporations that publish ESG reports and have lower financial risks than their counterparts are able to achieve higher market returns. A regression analysis that only used reporting and covariance split in two groups (lower variance versus higher variance than the sample) resulted in a higher influence of reporting ($b = 0.019$, $P < 0.0001$) than of covariance ($b = -0.008$, $P = 0.478$) on the financial market returns. The industry, introduced as dummy variable and represented by the different sectors in Table 3, did not have a significant impact on the financial return. The same applies for market capitalization and being listed on the green company list (greencompany). There was no influence of government controlled firms versus others (status) or of the three stock exchanges. An explanation

Indicator	b-coefficient	Significance
Market capitalization (ln)	0.000527	0.696
Covariance (risk)	-988.816	< 0.0001
Report (yes/no)	0.01527	< 0.0001
Greencompany (listed versus not listed)	-0.00213	0.700
Status (government versus others)	0.004246	0.314
Materials	0.011292	0.248
Industrials	0.006932	0.465
Consumer discretionary	0.008416	0.494
Consumer staples	0.008407	0.467
Health care	0.017463	0.181
Financials	0.003289	0.724
Information technologies	0.030028	0.132
Telecommunication	-0.0007	0.958
Utilities	0.003373	0.753
Shanghai Stock Exchange	0.000923	0.862
Hang Seng	0.005706	0.371
Constant	0.975015	< 0.0001

Table 3. Results of the linear panel regression

for this finding could be that ESG reporting in China is relatively new and that therefore leaders in the field are able to 'harvest low hanging fruits' independent of their size or industry (Walley & Whitehead, 1994).

Discussion and Conclusions

We analysed the ESG reporting of Chinese corporations and its relation to financial market returns. Our results demonstrate that the frequency of ESG reporting in Chinese corporations has strongly increased (significantly) between 2005 and 2009. While in 2005 only 4% of the corporations in our sample disclosed ESG information, in 2009 more than 80% of the corporations published ESG reports.

Furthermore we found that government controlled corporations publish ESG reports more frequently than other corporations. With regard to the relation between ESG reporting and environmental performance our results suggested that corporations that are listed in a Chinese green company ranking published ESG reports more frequently than others.

With respect to the latter we can conclude that ESG reporting is an important tool for improving the ESG performance of a corporation. It seems that corporations that have published ESG reports in the years before 2011 are more likely to be a member of the green company list than those that did not publish the reports. This is in line with Sumiani *et al.* (2007) and Clarkson *et al.* (2008) who see ESG reports as having a positive impact on the ESG performance of firms. It seems that Chinese corporations publish environmental information for accountability reasons, meaning in this case being responsible to an audience with rewarding power (Beu & Buckley, 2001; Schwartz & Carroll, 2008), such as the Chinese Entrepreneur Club publishing the green company ranking, or their customers from abroad. The latter often use or are certified by environmental or social management systems and therefore demand information about the ESG performance of their suppliers. Those companies that are able to deliver this information have competitive advantages (Marchi, Maria, & Micelli, 2012; Simpson, Taylor, & Barker, 2004; Wagner, 2009) and consequently higher financial market returns.

Alternative explanations like institutional theory (DiMaggio & Powell, 1983) or stakeholder management (Freeman, 1984) seem to be less influential in explaining the results. We did not find an influence of government ownership or membership of the green company ranking that would argue for institutional theory or stakeholder management. Other authors found a relatively low influence of stakeholders, besides customers, in the Chinese corporate world as well (Guoyou *et al.*, 2011). Because many Chinese corporations are still mainly government

owned there is no need for institutional pressure in order to change corporate behaviour and corporations do not feel the need to meet the expectation of, for instance, governmental institutions. Institutional issues are directly integrated into the companies' management if they are either totally or partially governmental owned.

Because ESG analysts, financial analysts and business-to business customers should be enabled to evaluate the performance of corporations, transparent reporting seems to be a key for success. The combination of high ESG performance and transparent reporting leads to higher market returns for sustainable corporations and therefore creates a win-win situation for both shareholders and sustainable development. 'Do good and talk about it' seems to be a useful strategy in this case. Similar results were found by Amato and Amato for corporations listed as the Greenest Big Companies by *Newsweek* (Amato & Amato, 2012). Our results demonstrate that Chinese corporations have applied this strategy over a very short period.

Regarding the difference between government-controlled corporations and other corporations, accountability could be the reason for explaining the difference as well. Government ownership influences corporations to comply with the Chinese guidelines that require them to publish environmental information (Liu & Anbumozhi, 2009; Xiao, 2006). The positive correlation between government ownership and ESG disclosure corresponds to a study that found government-controlled enterprises being more committed to environmental information disclosure than other corporations (Kuo *et al.*, 2011; Tagesson, Blank, Broberg, & Collin, 2009). This demonstrates the positive effect that governmental influence, guidelines and regulations may have on the ESG performance of corporations. Only if governmental policies guarantee the internalizations of heretofore external environmental or social costs are those corporations demonstrating high ESG performance rewarded with a competitive advantage (Krozer & Nentjes, 2008; Wubben, 1999).

With respect to the influence of the market capitalization on ESG reporting we could not find differences for reporting and non-reporting corporations as found by Waddock and Graves (1997). Instead, our results correspond to those of Busch and Hoffmann (2011) who did not find significant influences of market capitalization on carbon management. We assume that in China the influence of regulations and guidelines and of the government has a stronger influence on the ESG reporting than the size of a corporation. Similar conclusions were drawn by Cheung *et al.* (2009) and Dutta *et al.* (2012). An additional explanation could be the distribution of the sample. The kurtosis of the distribution of the natural logarithm is significantly different from a normal distribution (kurtosis test for normality: $P < 0.001$, kurtosis = 38.64). This suggests that the distribution of the market cap in the sample has a sharper peak and consequently the market cap in the sample has a lower variation than expected. Hence, in China, reporting about the ESG performance has a positive influence of financial market returns for both small and big corporations.

Using a regression model with financial market returns as a dependent variable, and reporting, market capitalization, covariance, being listed on a green company ranking, government control, index membership and sector as independent variables, we found a significant influence of reporting on the financial market returns between 2007 and 2010. This suggests that ESG reporting has a positive influence on the financial performance of the corporations in the sample. Again corporations are rewarded – this time by the financial markets – for their accountability and transparency with respect to ESG performance. This result corresponds to Beu and Buckley (2001) who see accountability as a main motivation for disclosing corporate ESG information. The multivariate model does not show significant influences for sector membership, government control and membership on the list of green corporations or stock exchange indexes. However, government control and stock exchange have an influence on the frequency of reporting. Generally, companies listed on the Hong Kong Stock Exchange report less frequently than those listed on the Shanghai and Shenzhen Stock Exchange. This can be explained by the introduction of regulation at the Shanghai and Shenzhen Stock Exchanges (Lin, 2010; Noronha *et al.*, 2012) and is in line with the results of Studer, Welford, and Hills (2006) who found relatively poor performance of Hong Kong-based firms with respect to the environment. Therefore, the results suggest the model shown in Figure 2. This model shows that the ownership (government versus private ownership) and the regulations and guidelines of stock exchanges influence the probability of a corporation publishing an ESG report. The reporting, in turn, influences market return and the environmental performance of a corporation. Furthermore, as expected, financial risks have an influence on financial market returns.

As demonstrated above, in China there seems to be a difference in ESG reporting between state-controlled corporations and other corporations (Lin, 2010). The influence of the stock exchange was significant in an ANOVA

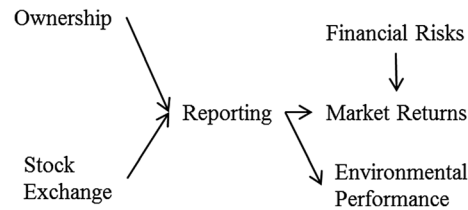


Figure 2. Variables influencing environmental, social and governance (ESG) reporting and variables being influenced by ESG reporting

as well. These results suggest that corporations react to the introduction of guidelines and regulations regarding ESG disclosure. This reaction can be explained by striving for accountability. In this case the corporations are responsible to the stock exchanges that can be classified as a stakeholder with the power of sanctions (Beu & Buckley, 2001). We may conclude from this result that stock exchanges have the opportunity to significantly influence the ESG reporting of firms they are listing. This finding is in line with the results of Brown (2007), who found that stock exchanges are able to positively influence the reporting of listed corporations.

Reporting as an intermediary variable influences both financial market returns and environmental performance. Our regression model suggested that only reporting and financial risks have a significant influence on the financial return of the securities in the sample. This corresponds to other findings that found a positive correlation between environmental reporting and environmental performance (Clarkson *et al.*, 2008) and that classify environmental reporting as a tool to improve the environmental performance of a business (Sumiani *et al.*, 2007). Hence, the goal or the pressure to create ESG reports could influence a corporation's ESG strategy because their reports should be perceived positively by stakeholders.

The finding that financial risk has an influence on the financial market return, as demonstrated in many models (Ullmann, 1985; Waddock *et al.*, 2000), was expected. Likewise in other markets Chinese companies should strive to reduce their financial volatility in order to attract investors. Outstanding ESG performance and reporting may help to reduce financial volatility (Mahjoub & Khamoussi, 2012). Transparent reporting has the potential for risk reduction because potential risks are easier to predict. This is also valid for environmental information, which is often perceived as correlated with financial risks, as Rikhardsson and Holm (2008) demonstrate.

Generally the results of this study suggest that Chinese corporations are catching up with respect to the frequency of ESG reporting as well as with respect to its quality because of accountability. The correlation of ESG reporting to both financial market returns and environmental performance demonstrates that it contributes to both the improvement of corporate environmental performance and to better financial returns.

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Appendix: List of Analysed Securities and Index Membership

Company	Index
Air China	SSE Composite Index
Aluminum Corporation of China	SSE Composite Index
Angang Steel	SZSE Component Index
Bank of Beijing	SSE Composite Index
Bank of China Limited	SSE Composite Index
Bank of East Asia	Hang Seng Index
Bank of Ningbo	SZSE Component Index
Bankcomm (Bank of Communications)	SSE Composite Index
Baoding Tianwei Baobian Electric	SSE Composite Index
Baoshan Iron and Steel	SSE Composite Index
Beijing Yanjing Brewery	SZSE Component Index
Cathay Pacific Air	Hang Seng Index
Cheung Kong	Hang Seng Index
China Coal Energy	SSE Composite Index
China COSCO Holdings	SSE Composite Index
China Life Insurance	SSE Composite Index
China Merchant Holdings	Hang Seng Index
China Merchants Bank	SSE Composite Index
China Minsheng Banking	SSE Composite Index
China Mobile	Hang Seng Index

Appendix: Continued

Company	Index
China Overseas	Hang Seng Index
China Pacific Insurance Group	SSE Composite Index
China Petroleum and Chemical Corporation	SSE Composite Index
China Railway Construction	SSE Composite Index
China Resources Land	Hang Seng Index
China Resources Power	Hang Seng Index
China Resources	Hang Seng Index
China Shenhua Energy	SSE Composite Index
China Southern Airlines	SSE Composite Index
China Unicom	Hang Seng Index
China Vanke	SZSE Component Index
China Yangtze Power	SSE Composite Index
CIMC ENRIC Holdings	SZSE Component Index
CITIC Pacific	Hang Seng Index
Citic Securities	SSE Composite Index
CLP Holdings	Hang Seng Index
DAQIN Railway	SSE Composite Index
Esprit Holdings	Hang Seng Index
GD Power Development	SSE Composite Index
Gemdale	SSE Composite Index
Goldwind	SZSE Component Index
GREE	SZSE Component Index
Haitong Securities	SSE Composite Index
Hang Lung Properties	Hang Seng Index
Hang Seng Bank	Hang Seng Index
Hebei Steel	SZSE Component Index
Heilongjiang Agriculture	SSE Composite Index
Henderson Land	Hang Seng Index
Hong Kong and China Gas	Hang Seng Index
Hongyuan Securities	SZSE Component Index
HSBC Holdings	Hang Seng Index
Hua Xia Bank	SSE Composite Index
Hualan Bio	SSE Composite Index
Hunan Valin Steel Tube and Wire	SZSE Component Index
Hutchison	Hang Seng Index
Industrial Bank	SSE Composite Index
Kweichow Moutai	SSE Composite Index
Liaoning Chengda	SSE Composite Index
Luzhou Laojiao	SZSE Component Index
MIDEA	SZSE Component Index
MTR	Hang Seng Index
New World Development	Hang Seng Index
Petro China	Hang Seng Index
Ping An Insurance Group	Hang Seng Index
Poly Real Estate Group	SSE Composite Index
SAIC Motor Corporation	SSE Composite Index
Shandong Gold Mining	SSE Composite Index
Shanghai Electric Group	SSE Composite Index
Shanghai International Port Group	SSE Composite Index

(continues)

Appendix: Continued

Company	Index
Shanghai Pudong Development Bank	SSE Composite Index
Shanghai Zhenua Port Machinery	SSE Composite Index
Shanxi Xishan Coal and Electricity Power	SSE Composite Index
Shenhuo	SZSE Component Index
Shenzhen Development Bank	SZSE Component Index
Shenzhen Zhongjin Lingnan Nonfermet	SZSE Component Index
SHK Properties	Hang Seng Index
Shuanghui	SZSE Component Index
Sino Land	Hang Seng Index
Suning Appliance	SZSE Component Index
Swire Pacific	Hang Seng Index
TEDA	SZSE Component Index
Tencent	Hang Seng Index
Tongling Nonferrous Metal	SZSE Component Index
Weichai Power	SZSE Component Index
Wuhan Iron and Steel	SSE Composite Index
Wuliangye	SZSE Component Index
Yunnan Baiyao	SZSE Component Index
Zhongjin Gold	SSE Composite Index
Zijin Mining Group	SSE Composite Index
Zoomlion	SZSE Component Index
ZTE	SZSE Component Index

SZSE Component Index: 40 stocks traded at the Shenzhen Stock Exchange.

Hang Seng Index: 40 stocks traded at the Hong Kong stock market.

SSE Composite Index: 50 stocks traded at the Shanghai Stock Exchange.