

The Impact of Triple Bottom Line-oriented Environmental Management System on Firms' Performance in China: Evidence from Yangtze River Delta

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Abstract: This research investigates the impact of Triple Bottom Line oriented Environmental Management System on the firms' performance in China. This research is going to attempts to compose a conceptual framework to demonstrate how Triple Bottom Line Influence Corporate Social Responsibility activities which it may potential impact firm's financial performance. This paper will introduce the background of Corporate Social Responsibility at the beginning. It will address the nature of this study in philosophy part in order to point the direction of the research and it will be leading the decision to methodology for this research. This study collected valid 225 sample questionnaire surveys out of 330 respondents. We approved CSR policy is essential for CSR in China by employee AMOS v.21. to test the validity of the Structural Equation Modeling. Our finding implies that the Guanxi effect is not significance as well as the past decades in the implementation of CSR activities and government needs to engage within relevant industry to promote CSR by issue CSR policies. This is the first empirical research to test if Triple Bottom Line oriented Environmental Management System will effect firms' performance.

1 INTRODUCTION

1.1 Research Background

Companies have to pay attention to Corporate Social Responsibility (CSR). Corporate social responsibility is a concept for enterprises to understand that how their business activities will influence the society and the environment where it operates the business activities (Globerman, 2011). CSR emphasizes that a company should not just care about profit, but also needs to take care about the society and the environment as a whole. The role of Elkington (1994) establish a concept named Triple Bottom Line (TBL) which is essential to understanding CSR. It suggests a company to attain sustainable development in environmental, societal and economic terms. Nowadays, accomplishing sustainable TBL oriented environment management system has been well documented, which focuses on the achievement of sustainability through three dimensions namely, economic, social and environmental factors in firms'

internal business operations (Slaper and Hall, 2011). Triple Bottom Line is a concept that established by Elkington in 1994, and it offers ideas about the firm should keep a balance between social, economic and environment when they run their business. To date there has been little attempt to research how TBL oriented environmental management systems influence the performance of firms in contemporary China. This proposed research will investigate the impact of TBL oriented environment management system on the firms' performance in China. Today businesses operating in China strive not only to achieve economic performance outcome but also to address sustainability and environment issues in their operation and management that are currently generating considerable attention of managers, policy makers, and academics (Chen and Torstensson, 2015). Companies that fail to meet their responsibilities may increase regulatory control, suffer fines, face lost business opportunities and decreased reputation in the long run. The main potential benefits that arise from this approach is, positive customer ratings and increased customer loyalty (Quazi, 2003). It is critical

to understand why and how a TBL oriented environmental management system would help the firm to achieve better performance. This research is going to broaden and deepen the understanding of Triple Bottom Line in order to examine whether TBL oriented environmental management system has positive effect to firm's financial performance. This research will adopt quantitative method as the way to analyze. It will identify if Guanxi with Government ('Government influence' here and after) has an effect on CSR concept during firm's daily operation and if it also effects firm's performance. The empirical study will exam the validity of each factors established in the conceptual model by approve those hypotheses which are proposed in the following. First of all, the questionnaire will be formulated based on the previous study and several steps will be engaged in order formulate an accurate survey. Then, we will drop a pilot test around 20 samples. We will modify some questions based on the feedback of the pilot test. Finally, we will drop the formal questionnaire to collecting data for this study. The findings from analysis will be concluded at the end and we will evaluate the findings as a discussion part of this research.

1.2 Research Gap

TBL oriented environment management system has now been documented as some standards in form of certificates such like ISO series (Barla, 2007). ISO certificate has become one of the most popular certificates to establish corporation in worldwide, especially those firms who involved in GVC. On the other hand, firms always achieve special advantage among their competitors, because they have good GUANXI with local government (Zhai et al, 2013). The local government will have certain policy to protect local firms and they will also play a role to connect those firms to other firm which in advanced level in GVC, thus, GUANXI has played a significant role in CSR in China. This is a challenge to implementing TBL concept in the business aspect. The research gap is to identify what are the latent factors in which it may implementing the TBL-EMS to firms in order to better promote CSR within the greater China Region.

1.3 The Selection of Research Scope

The selection of this research has narrowed down to specific area. The Yangtze River Delta, composed of Zhejiang, Jiangsu Province, and Shanghai, has become the center of China economy in terms of

foreign trade and FDI by 2010 (iFeng, 2016). Jiangsu and Zhejiang Region is differentiated from other regions of China. Firstly, Jiangsu Region features a high socio-economic profile (gross domestic product = 4.17 trillion CNY in 2015 with an 8.2% annual growth; Xinhua, 2016a; Tencent, 2016), and is seen as one of the most dynamic parts of China (XJTU, 2013). Secondly, the Zhejiang Region has been perceived as a significant industrial states and major economic region of Yangtze River Delta (China Jiaying, 2016)

2 LITERATURE REVIEW

2.1 Triple Bottom Line Oriented Environmental Management System

Organizations spread results not only in economic terms but in the way their business activities affect the social surroundings and environment (Mitchell et al., 2008). Most businesses have identified that their long-term sustainable global success depends on economic, societal and environmental performance (Elkington, 1998). Firms will have to oppose consumers and society as a whole if they only pursue profit because profit maximization motives may stand in the way of their success. CSR is not simply confined to donation and charity, and it is more than just complying with the law. It requires firms to take care more about their employees and also have to offer high-quality products and services to society in terms of producing environmentally friendly products towards meeting the expectations of the consumers. TBL is the nucleus of CSR Scholars (Marquis and Qian, 2014) emphasizes on importance of TBL due to increasing environmental vulnerability, corporate profits, social responsibility and environmental responsibility care the cores of TBL which lays the foundation of an enterprise and its continuous development. Furthermore, Chinese firms are experiencing challenges which makes the business environment increasingly volatile. As a result, incorporating corporate social responsibility (CSR) into internal management system has gained momentum (Kiron et al, 2015). The popularity of the concept CSR has gained a rapid growth since 1990s and it has been accepted by academia and business practitioner as one of the vital concepts in procedure of business strategy to achieve competitive advantages in worldwide (Moura-Leite, 2011).

Therefore, our first two hypotheses are proposed as follows:

H1: An environment management system has a positive effect on CSR policy.

H2: An environment management system has a positive effect on Top management leadership.

2.2 Top Management Leadership

2.2.1 Corporate Governance Link to Firm's Performance by Top Management

The existing literature has shown that the agency theory and stakeholder theory are in the guidance to demonstrate the relationship between corporate governance and firm's performance (Jensen and meckling, 1976; Freeman, 1984). Under the stakeholder theory, Michelin and Parbonetti (2012) believe that good CG can enhance the relationship between enterprises and stakeholders by promoting the sustainability of enterprises. They see good corporate governance and sustainability as complementary mechanisms for better stakeholder management. They further point out that stakeholder theory provides a link between governance mechanisms and sustainability initiatives for adjusting long-term management-stakeholder goals. Thus, the top management leadership are the most relevant role in between all these stakeholders. The leadership role of top management has always been perceived as influential in the implementation of internal practices such as TBL oriented environment management system possess necessary expertise and access to key resources to implement TBL oriented environment management system. Quinn and Baltes' research concluded a summary that 73 percent of the respondents believed that top management leadership is instrumental in the development of the management system that helps firms to achieve their continuous success (Quinn and Baltes, 2007). Likewise, their research also shows that 92 percent of respondents agreed that firm's success would be measured not merely in economic terms but also by customer satisfactions, operational efficiency, social caring, and minimizing adverse environmental effect where leadership role of top management is perceived an important predictor (Coles et al, 2008). To sum up, top management leadership is a vital factor impacting firms' performance from the point of view of the bottom line perspective (Barla, 2007). Therefore, our third hypothesis are proposed as follows:

H3: Top management leadership has a positive effect on firms' performance.

2.3 Corporate Social Responsibility Policy

Research reveals that internal CSR policy of firms is not enough to protect them from the local environment. Recently, the Chinese government has enacted a new environmental regulation to replace the 25-year-old environmental legislation by providing for severe penalties for firms involved in pollution (Duggan, 2014). The previous regulation dealt with light punishment for violating firms which were never made public. Therefore, this suggests that Chine firms' policy on CSR is an important consideration for the long-term growth and performance of firms in China. The complexity of doing CSR activities in China is that the Government is a vital factor in successfully implementing CSR program. Firms in China will be influenced by the government deeply since China is a socialist state and government have a significant influence when producing policy or legislation.

H4: CSR policy has a positive effect on firms' financial performance.

2.4 Guanxi with Government

Guanxi has been documented as an embedded role for business practice in China. At the same time, Guanxi has also emerged as important issue in academic discussions especially in a methodological context (Kriz, Gummesson and Quazi, 2013). It can be used as an effective lubricant to boost the business progress and this could also cause problem because the firms may potentially violate other firms in form of justice and fairness by using bribing and corruption which will allow firm gain individual/organizational advantage among rivals, yet damage the society's economic (Yin and Quazi,2016).

The business relationship in social embeddedness in China is unique compare to other regions in the world. The context factor Guanxi has now identified by previous study as one of the most effective lubricant to tie business relationship with other stakeholders in the society at both individual and organizational levels (Kriz et al. 2014). On the other hand, Yin and Quazi (2016) believes that unethical issues are inevitable results such like stock market manipulations happened earlier in 2015, and this is due to the nature of Chinese governmental environment which caused by the ineffective and inefficient governance structure (Yin and Quazi, 2016). Apparently, businesses think that CSR activities are dictated by economic imperatives but in actual practice, it is managed by the government in

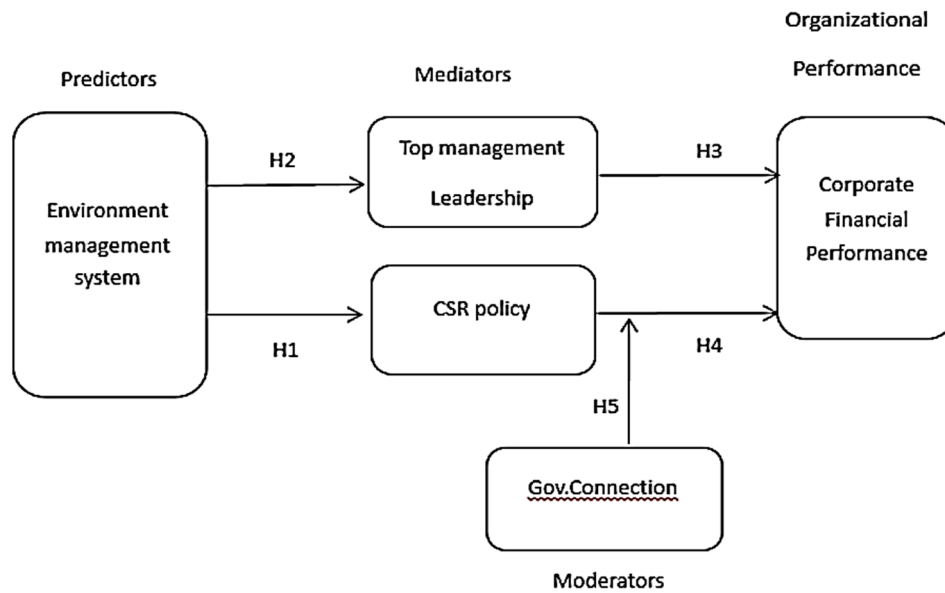


Figure 1: Conceptual Framework.

Table 1: Sample Description.

	Zhejiang	Jiangsu	Anhui	Shandong	others
Male	73	12	22	15	19
Female	68	5	6	1	4
Total	141	17	28	16	23

China. Liao and other researchers (2014) point out lots of CSR programs are get initiated by the government in form of organize CSR activities and establish some specific policy to restrict firm's operation activities. Research shows Chinese government would like to quickly get involved in businesses that are becoming stronger in growth. It has been observed that 40 out of 46 Chinese companies listed in the Fortune 500 are state-owned enterprises where government plays a dominant role in the operation and management of those firms (China Briefing, 2011). Thus, it is expected that the firms' performance and implementation of TBL oriented environment management system would be greatly influenced by the government in China. Therefore, our last but not least hypothesis are proposed as follows:

H5: Guanxi network with government (government connection) moderates the relationship between CSR policy and firms' performance.

2.5 Theoretical Background and Research Design

To sum up, we propose our conceptual framework for this research, as illustrated in Figure.1.

3 METHOD

3.1 Questionnaire Design

To control the quality of the collected questionnaire and data, we did add interrupts questions in the questionnaire. We set few interrupt questions which are conducted by contract-rephrasing to increase the creditability of the survey. See Measurement Table at Appendix.

3.2 Data Collection

Firstly, Data will be collected through survey questionnaire, and questionnaire will be developed on

the basis of established scales available in the extant literature in the specific context of Chinese economy. Measurement is attached in the Appendix 1. The questionnaire will be designed as 7-point Likert scale ranging from “1” strongly agree to “7” strongly disagree. The questionnaires will be sent to the target population comprising the top managers of manufacturing companies listed by the State Administration for Industry and Commerce of the PRC where over 2000 companies are listed.

3.3 Sample

For this study, there are 330 participants in total who participated in this research and there are 300 valid survey questionnaires collected at Jiangsu and Zhejiang respectively. We kept 225 valid survey questionnaires in order to control the quality of the data. We produce a table to present the sample descriptive information as below.

The samples (see Table 1) collected from survey questionnaire is satisfied with our expectation within the limited time. Most of the Top Management participants from manufacturing industry have completed the questionnaire in assistant to our research. We found many Internet Protocol (IP) of the participant are from different region rather than Jiangsu and Zhejiang region. This is maybe caused by the physically transportation movement of participants, and or their enterprise has moved to other states.

4 ANALYSIS

4.1 Convergence Validity, Average Variances Extracted (Aves), Composite Reliability and Cronbach’s Alpha

We firstly did test the convergence validity where the item loadings based on the standardize shall be at reach 0.7 for minimum (Feng et al., 2014) or greater than 0.7 (Gefen et al., 2000). In this study, we pick up the items from each construct that produces a standardized factor loading greater than 0.65 from the measurement model. After doing this, four items were reserved from construct TBL, three were selected from TML, five from CSR policy, and three from Corporate Financial Performance. Thus, we dropped other items that do not meet this benchmark in the subsequent analysis. See Appendix for kept item. Then, all average variances extracted (AVEs) value is greater than 0.5 in our as well as all of the composite reliability (CR) value are beyond the standardized value at 0.70. At the end, Cronbach’s alpha coefficients in this study satisfied the criterion of all measurement constructs at level of 0.7.

With the regard of the value of Cronbach’s alpha, we conducted each latent of the conceptual model in the Table. 2. We can see from the results that the Cronbach’s alpha is greater than 0.7 and this has proved that the construct in the model has a good reliability.

Table 2: Correlations between Latent Constructs and Descriptive Statistics.

	EMS	CSR	Performance	TML
EMS	.531 ^a			
CSR	.431 ***	.642		
Performance	.430 ***	.588 ***	.727	
TML	.328 ***	.567 ***	.361 ***	.609
Mean	4.874	5.389	4.921	6.081
Standard deviation	2.023	1.785	1.866	1.681
Composite reliability	0.818	0.898	0.889	0.821
Cronbach’s alpha	0.864	0.897	0.888	0.813

Note: * p < 0.05. ** p < 0.01. *** p < 0.001.

a: The diagonal entries represent the squared root of AVE of each construct.

4.2 Discriminant Validity of the Measurement Model

Regard to the discriminant validity, previous study conducted the guidance for our analysis where the AVE value of each construct was compared with its squared correlation with any other construct (Hair et al., 2014, p. 620). As shown in the bivariate correlations, all AVE values (i.e., on the diagonal) were 0.54 or higher, while all squared correlation values were smaller than 0.346 (given the strongest correlation of 0.588). The Table. 2 has shown the bivariate correlations, all AVE values are greater than 0.54 or equal to 0.54 at least, meanwhile, the squared correlation values were all smaller than 0.346 where the strongest correlation is 0.588. thus, discriminant validity has proved for the measurement model.

4.3 Model Fit

By the previous study guidance, our model fit of CFA is satisfied as well as the model fitness indexes (CFI = 0.956, NFI = 0.919) beyond than the desired value of 0.9 and based on typically suggestion that badness of fit measures (RMSEA = 0.069) shall smaller than the threshold value of 0.08.

4.4 The Construction of Structured Equation Model

Following CFA, we developed a structural equation model in AMOS v.21. to test the research hypotheses. By using maximum likelihood estimation, the model demonstrates an overall satisfactory fit. The ratio of χ^2 to the degrees of freedom was 2.159 ($\chi^2 = 170.584$, $df = 79$), which is smaller than the desired threshold of 3.0 (Hair et al., 2014, p. 579). The model fit indexes (CFI = 0.955, NFI = 0.921) were greater than 0.90 and badness of fit measures (RMSEA = 0.072) were

smaller than 0.08, which suggests acceptable model fit. Table 3 summarizes the results of hypotheses testing.

Regarding H1, TBL-EMS had a significantly positive impact on the Top Management Leadership ($\beta = 0.423$, $p < 0.001$). This finding has justified that our assumption that TBL-EMS will influence the awareness of Top management Leadership within their firm. Regard to H2, TBL-EMS will positively affect the CSR policy ($\beta = 0.499$) at a 0.001 significance level, and therefore, H2 has well established where it maybe implies that firm's CSR policy that related to environment is in the importance of environment sustainability in order to achieve firm's success of sustainable levels of developing of the business, in this case, TBL-EMS has positive effect on TML within the firm. Thus, H2 was supported.

In accordance with H3, Top Management Leadership of the firm is rejected based on the analyzed data evidence ($\beta = 0.075$, $p > 0.05$), this indicating that the Top Management Leadership is not affecting firm's Corporate Financial Performance even it is one of the vital roles of implementing the Triple Bottom Line oriented Environmental Management System to their strategy. Hypothesis H4 were also found to be proved based on the analysis, in that CSR Policy has positive effect with the Corporate Financial Performance ($\beta = 0.712$) (at 0.001 significance level). The data have given us implication where CSR policy is essential to firms in order to achieve success on Corporate Financial Performance or we can spot that CSR policy will affect the Corporate Financial Performance.

4.5 Model Extension

4.5.1 Mediation Test

To achieve a comprehensive analysis working among EMS, TML, and Corporate Financial Performance - (CFP), the study tested the mediating role of Top

Table. 3: Structural Equation Model Result of the Hypotheses Testing.

	Standardized Estimation	Standard Error	p-value	Conclusion
H1: EMS→TML	0.423 ***	0.070	<0.001	Supported
H2: EMS→CSR	0.499 ***	0.067	<0.001	Supported
H3: TML→CFP	0.075	0.784	.433	Rejected
H4: CSR→CFP	0.712 ***	0.087	<0.001	Supported

Note: * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Model fit statistics: $\chi^2/df = 170.58/79 = 2.159$, CFI = 0.955, NFI = 0.921, RMSEA = 0.072.

Table. 4: Mediation and Moderation Test Results.

	Dependent Variables: Performance		Conclusion
	Direct Effect	Indirect Effect	
Mediation			
EMS→TML→CFP	0.349 ***	0.081 **	Complementary mediation supported
EMS→CSR→CFP	0.216 **	0.213 ***	Complementary mediation supported
Moderation			
H5: CSR→moderated by Guanxi→Performance	n.s.		Moderation not supported

Note: * p < 0.05. ** p < 0.01. *** p < 0.001.
n.s. insignificant. All tests are one-tailed.

Management Leadership and CSR policy in the EMS CFP relationship under engage with bias-corrected bootstrapping analysis remained with the function of AMOS v.21. Table 4 demonstrated the results of mediation test. First of all, TBL- EMS has both significantly indirect and direct mediation effect (p<0.05) on the Corporate Financial Performance, this implies that Top Management Leadership fully mediates (complementary mediation) the relationship between EMS and Corporate Financial Performance. Similarly, the CSR policy had a significant and positive complementary mediation impact on the Corporate Financial Performance.

The two supported complementary mediation results have given us a hint that the Triple Bottom Line oriented Environment Management System has indirect and direct effect to Corporate Financial Performance, and we identified that CSR will be significant to influence Corporate Financial Performance. The insignificance of H3 in this complementary relationship here implies that the Top Management Leadership either do not agree to imply the EMS to their firm or they are not the most effective stakeholder who effect the Corporate Financial Performance mostly, even the participated SMEs are mostly private own firms.

4.5.2 Moderation Test

We also tested the moderator that we proposed in our conceptual framework which is Guanxi with the government that moderates the relationship between CSR and CFP. We ask the participant few questions

to test the relationship between the CSR policy and local government to identify if the guanxi network is going to affect the Corporate Financial Performance. We attached our question in the Appendix. To performance the moderation test, we first perform factor analysis to examine the factor loading of each item. The factor analysis shows that the factor loading for item 1 to 4 is larger than 0.65 and consequently we save those four items to construct a new variable used in the moderation test.

However, the Guanxi with local government did been proved that it is not a significant moderator in the relationship between CSR and Corporate Financial Performance (p>0.05). The effect by the Guanxi with local government of the firm is not significant, and this has led a consequence that CSR policy is not significantly affected by the government. We will further discuss this phenomenon in the discussion section.

5 DISCUSSION

In the last part, we introduce the analysis results of this study. In this section, we will evaluate these key findings based on existing research, items, and other relevant aspect.

This study focused on whether Triple Bottom Line-oriented Environmental Management System (TBL-EMS) has impact on Corporate Financial Performance (CFP). Our results, as illustrated in Figure 2, point to a complex process, with several

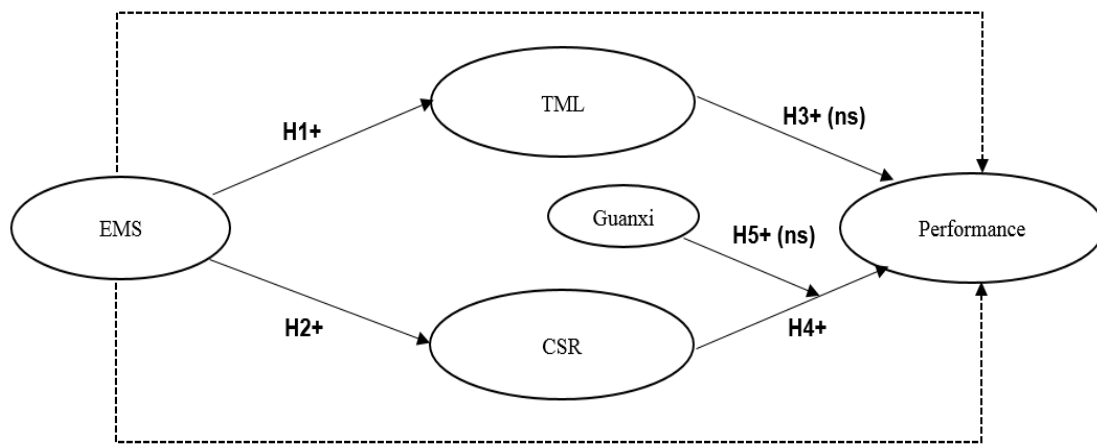


Figure 2: Conceptual Model.

factors influencing Corporate Financial Performance, which in turn affects the likelihood that a firm may need government's external CSR policy to constraint this industry. Our research is in Chinese cultural context, previous study has justified that the government is in dominance to influence the firm's performance in China due to the cultural context (Yin and Quazi, 2016). In the past decades, the concept CSR has become one of the most popular recognized concepts from window dressing and irrelevant role under the witness of the business expert and professional academics (Aguinis and Glavas, 2012).

This research has proved that CSR policy is an essential role to effect SMEs in today's China and this is in consistent with the extant studies. On the other hand, the firm's Top Management Leadership shall have significantly positive effect to Corporate Financial Performance since most of the SMEs are privately owned enterprise, our research did not align with this point of view and this is inconsistent with previous study. Moreover, Government effecting power is not significant in our study and this has been given a hint based on previous study that without fully understanding a firm's background and situation, the Government pressure cannot be accurately identified. Also, its position has an influence on its political dependence (Chen and Wang, 2011). Future research is encouraged by them to better understand the contingencies affecting firms' political dependence and linked pressures. However, our empirical research results have indicated a slightly different from previous study. We will discuss our findings on the structure of our conceptual model. In the following subsection, we will be derived to demonstrate this phenomenon in rich discussion.

6 CONCLUSION

CSR has gathered raising momentum of discussion in today's society. However, empirical studies on the relationship between CSR and Corporate Financial Performance based on the Triple Bottom Line are remains low in the context of China. It is even fewer researches which are specific to any industry related to CSR. The media constantly expose unethical business behaviors which it is caused by the impact of the triple bottom line principle on business operation is not obvious, and the impact of the triple bottom line principle on the economic performance of enterprises is not understood. In conclusion, we found that participants believed that TBL-EMS had an impact on Top management, and TML was not important for the adjustment between EMS and the CFP. In other words, the CFP could not be affected by EMS through TML, and this is because there may be other stakeholders more influential than TML among manufacturing SMEs under Chinese context.

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APPENDIX

Measurement items.

Measurement name	Article	Author	Year
TBL-EMS	Environmental Management System's Impact on Corporate Social Responsibility	Chen et al	2016
TML	Ideology and the micro-foundations of CSR: why executives believe in the business case for CSR and how this affects their CSR engagements	Hafenbradl and Waeger	2017
CSR policy	Performance implications for the relationships among top management leadership, organizational culture, and appraisal practice: testing two theory-based models of organizational learning theory in Japan	Jung and Takeuchi	2010
	An analysis of Islamic CSR concept and the opinions of Malaysian managers	Siwar and Hossain	2009
CFP	Relations between transformational leadership, organizational learning, knowledge management, organizational innovation, and organizational performance: an empirical investigation of manufacturing firms	Noruzi et al.	2012
Gov. connection	Political connections and entrepreneurial investment: Evidence from China's transition economy	Wubiao Zhou	2012
	The Effects of Business and Political Ties on Firm Performance: Evidence from China	Zhou and Li	2011

Kept items.

Construct	Items used in structural model
TBL-EMS	Direct contribution to the society
	Monitoring CSR of the partners
TML	5 years changing environmental performance
	5 years changing environmental performance
CSR policy	Human must live in harmony with nature in order to survive.
	Humans are severely abusing the environment.
	The Earth is like a spaceship with only limited room and resources.
	I am always courteous even to people who are disagreeable.
CFP	Our firm has clear policy statements urging environmental awareness in every area of operations.
	Environmental preservation is a central corporate value of our firm.
	The firm I stay with is like an extended family.
	In the past 5 years, OP measured by return on assets has increased.
	In the past 5 years, OP measured by return on equity has increased.
	In the past 5 years, OP measured by Growth of sales in its main products and markets has increased.