Does GRI sustainability reporting pay off? An empirical investigation of public listed firms in China

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Abstract

Building on signaling theory, we carry out an event study method to compare the firms following GRI SR with firms reporting sustainability but not following the GRI guidelines. We identified a sample of 122 listed firms in China from CSMAR and Wind databases. The results show that GRI SR significantly increases firm profitability. Moreover, firms with local political ties and ISO 14000 maturity reap more benefits from GRI SR. The moderating effects of central governmental ties, ISO 9000, and OHSAS 18001 certification are not significant. Surprisingly, the performance impact of GRI SR is negatively correlated to the firm's internationalization level.

Keywords: Sustainability reporting; Global Reporting Initiative; Event study

Introduction

Over the last decade, an increasing number of companies have moved towards monitoring their sustainability performance, thus sustainability reporting (SR) has become a mainstream practice (Fonseca et al., 2014; Boiral et al., 2017). GRI guidelines have become the most widely adopted guidelines worldwide (Skouloudis et al., 2009; Christofi et al., 2012). They help companies to determine what to report and how to report the

information in SR (Sutantoputra, 2009) and provide a unified standard for SR, allowing for the comparison of information between various organizations (Diouf and Boiral, 2017). GRI SR could partially help address the issue of 'selective reporting' used by some companies for green washing, where firms reveal a subset of private information to create a misleadingly positive public impression (Marquis et al., 2016).

Previous research has found a direct relationship between SR and financial performance (Bellusci et al., 2008; Huang and Lien, 2012; Kang and Liu, 2014). However, the outcome of the adoption of GRI guidelines in SR is still unclear (Nikolaeva and Bicho, 2011). Some scholars claim that firms adopting GRI guidelines have better stock market (Willis, 2003) and environmental performance (Alonso-Almeida et al., 2014). Other scholars are more skeptical. Goel and Cragg (2005) argue that the GRI is only used for shaping reporting processes rather than as a management tool and that it is very general and contains many indicators that are not used by companies. Implementing GRI guidelines is complex, time consuming and costly due to the difficulty of collecting information for a large number of indicators (Luken and Stares, 2005; Lozano, 2006; Lozano and Huisingh, 2011). Hence, it is not yet clear what benefits are achieved thorough GRI reporting (Goel and Cragg, 2005). To the best of our knowledge, there is no study that attempts to examine the financial impact of GRI reporting compared with non-GRI reporting.

Motivated by this background, our study aims to explore the link between the adoption of GRI guidelines in SR and a firm's financial performance building on signaling theory, specifically signaling strength and signaling environment. Furthermore, we will also consider some contextual factors moderating this relationship. Specifically, we seek to answer the following Research Questions: (1) What is the impact of the adoption of GRI guidelines in SR on Chinese firms' profitability? (2) What are the factors affecting the relationship between the adoption of GRI and a firm's profitability for Chinese firms?

Background and research hypotheses

GRI SR and financial performance

When exploring the relationship between SR and financial performance, the results are controversial (Foote et al., 2010; Su et al., 2016). Some researchers argue that there is a positive relationship between CSR adoption and firms' financial performance (Adams and Mcnicholas, 2007; Aggarwal, 2013; Saeidi et al., 2015; Kiessling et al., 2016). Other scholars claim instead that operational costs increase when companies try their best and allocate resources to strengthen their CSR performances (Chen et al., 2015), so the impact of CSR on both the product market and the stock market is negative (Cornell and Shapiro, 1987; Brammer and Millington, 2008; Ducassy, 2013). Additionally, some researchers argue that there is neither a clear positive nor a clear negative relationship between CSR and financial performance (Mcwilliams and Siegel, 2000; Belu and Manescu, 2013).

Although the arguments regarding the relationship vary, we take the most common view that a high level of CSR behaviors helps to build good relationships with stakeholders, which in turn enhances the firm's financial performance (Boesso et al., 2013). This is because superior CSR reporting and performance are likely to satisfy customers and improve brand value, firms' legitimacy, and customers' willingness to pay (Mohr et al., 2001; Akisik and Gal, 2014).

GRI guidelines represent the most widely recognized international standards for reporting on social and environmental issues (Villiers and Marques, 2016). The number of firms adopting GRI SR has significantly increased in the last few years. However, with regard to the benefits of GRI adoption, most papers only use qualitative descriptions, such as increased transparency, credibility, and comparability in reporting. Seldom does

research provide compelling evidence to show that companies that adopt GRI are more likely to become profitable. There is also still an ongoing debate over the relationship between GRI adoption and financial performance (Belkhir et al., 2017).

Signaling theory in SR

In this paper, we apply signaling theory to analyze the relationship between GRI reporting and financial performance. Signaling theory suggests that the more informed party tries to credibly convey information about itself to the less informed party to reduce information asymmetry (Spence, 1973). The whole information process is composed of 'sender > signal > receiver' (Connelly et al., 2011). It is difficult for external parties to know that company's sustainability-related practices. To reduce the information asymmetry, the company (sender) can proactively release their GRI SR (signals) to the relevant parties, including customers, suppliers, the government, and other stakeholders (receivers). The reporting would provide visible signals of the company's attitudes, management practices, standings and intents on environmental and social issues, thus creating an avenue to increase overall firm reputation. After receiving the signal, the stakeholders can assume that the company runs well and is committed to sustainability issues (Corazza et al., 2017).

Three constructs, i.e., *signaling strength*, *signaling environment* and *outcome of signaling*, are important and relevant to the study of signaling theory, which tends to reduce information asymmetry (Ndofor and Levitas, 2004; Connelly et al., 2011). *Signaling strength* refers to the power or influence driving the signal (Saxton et al., 2017). A weak signal is ambivalent, while a strong signal is explicit and can lead to positive stakeholder reactions (Suazo et al., 2011). Reports based on GRI guidelines are generally considered to improve the quality of information, showing stronger signals to receivers than do non-GRI reporting. Schadewitz and Niskala (2010) also argue that there is a significant relationship between market value and GRI reporting. The positive association between future performance and CSR expenditures is due to the signaling value of CSR expenditures (Lys et al., 2015). Accordingly, we develop the following hypothesis:

> Hypothesis 1. Due to the strong signal conveyed, GRI SR has a significant positive effect on firm profitability.

Factors affecting the relationship between GRI SR and profitability

Internationalization level

We argue that a firm's internationalization level is a contextual factor that potentially affects the relationship between GRI SR and financial performance for the three reasons detailed below. First, higher internationalization levels lead to higher visibility of firms and greater exposure to various stakeholders (Christmann, 2004; Kang, 2012; Aguilera-Caracuel et al., 2015). This might in turn lead firms to increase their CSR activities to protect their reputation (Attig et al., 2016). Second, firms operating in different markets can redistribute the costs and benefits of CSR investments among such markets. These firms have therefore a greater economic incentive to invest in sustainable practices and reporting than domestic-focused firms (Mcwilliams and Siegel, 2001). Third, some researchers propose the learning-by-exporting concept, which means exporting firms would increase their knowledge base by learning from their involvement in foreign markets (Martins and Yang, 2009; Vendrell-Herrero et al., 2016). These firms are in fact exposed to new/different ideas from various national contexts (Ayuso et al., 2016). Hence, such experience can help internationalized firms to further develop a set of best

sustainable practices, to learn better methods, and decrease the costs of collecting information for GRI indicators. Therefore, we develop the following hypothesis:

> Hypothesis 2. The positive effect of GRI SR on financial performance is higher when the firm's internationalization level is higher.

Political ties (PTs)

PTs and connections with government officials play a pivotal role in China (Zhou and Poppo, 2010). Earlier studies on government-business links illustrate that PTs are a valuable asset for firms (Faccio, 2006; Siegel, 2007; Li et al., 2008). We recognize that PTs can potentially affect the impact of GRI SR on performance in two different ways. First, firms with PTs are visible to the government and thus receive greater pressure from the government to conduct CSR (Cowen et al., 1987). Hence, to fulfill politically oriented goals, they have to better satisfy the demands of stakeholders to prevent the risks associated with irresponsibility. They have therefore more incentives to invest in CSR practices and report them completely and normally (Jia and Zhang, 2013). Second, a unique feature of the Chinese market is the government's heavy involvement in resource allocation (Carey et al., 2017). Thus, firms with PTs can have easier access to limited resources and precious information, the increased possibility of avoiding fines or taxes and obtaining credit grants, and protection from external competitors (Luo and Chen, 1997; Xin and Pearce, 1996; Anderson et al., 2017). PTs will therefore enhance the reputation of a firm based on its GRI guidelines adoption.

PTs can be divided into two levels: ties with the national government (central ties) and ties with subnational governments, such as provinces, states, and cities (local ties) (Zheng et al., 2015; Anderson et al., 2017). Central governments have broader nationwide authority and responsibilities and potentially greater access to resources (Zheng et al., 2015), while local governments' authority, responsibility, and expenditures are limited to their specific jurisdictions, creating greater specificity, focus, and responsiveness to local needs (Qian and Roland, 1998; Trounstine, 2009). These differences in interdependence, responsiveness, and resources between local and central governments leads us to consider them as separate moderators. Hence, the following hypotheses can be developed:

> Hypothesis 3a/3b. The positive effect of GRI SR on financial performance is higher if the firm has central/local PTs.

Sustainability management systems' maturity

A sustainability management system (SMS) refers to a set of procedures that the organization needs to follow in order to achieve its objectives (Nunhes et al., 2016). Among these procedures, the certification of ISO 9000 series, ISO 14000 series, and OHSAS 18001 have been particularly popular (Iatridis et al., 2016). These SMSs are an effective means to applying CSR practices (Mueller et al., 2009), and they are the key foundation of a global governance mechanism for corporate social behavior and self-regulation (Delmas and Montessancho, 2011; Jamali, 2010).

Absorptive capacity is an organizational ability depending on prior knowledge and experience to embrace and exploit new knowledge and provide a foundation for new knowledge absorption (Cohen, 2000). In this context, organizations experienced in SMS can more easily start to apply GRI reporting. In addition, employees who have experienced similar organizational transformations are likely to feel less threatened by GRI-driven changes. From the signaling standpoint, King et al. (2005) argue that ISO 14001 certification would transfer green signals, conveying a company's attitude towards

environment information to the outside parties. Hence, we expect that firms experienced with SMSs will apply GRI guidelines smoothly and effectively. As a result, they should enjoy greater performance benefits from GRI guideline adoption than their less experienced counterparts. For this reason, we develop the following hypotheses:

Hypothesis 4a/4b/4c. The positive effect of GRI SR on financial performance is higher when the firm's ISO 9000/ISO 14000/OHSAS 18001 experience is higher.

Methodology

Database

Our sample consists of firms publicly listed on the A-share markets of the Shanghai and Shenzhen Stock Exchanges that have GRI sustainability reports for at least three continuous years during the period 2008-2016. We choose 2008 as the starting year because the Chinese government issued guidelines encouraging state-owned enterprises to act in a responsible way towards their stakeholders and the environment at that time. The securities regulator also issued guidelines to address the interests of stakeholders and promote sustainable development in the same year (Cheng et al., 2016). To test our research hypotheses, we use two databases: the China Stock Market and Accounting Research (CSMAR) database and the WIND Economic database.

Event study method

We adopt the event study methodology to measure GRI SR adoption effects on firm profitability. We use the ROA as the best overall measure of profitability performance as our dependent variable. We define the first year of GRI adoption as the event year (year t).

As we want to see the benefit of GRI adoption in SR, we control for other variables aside from the GRI. Hence, we compare firms that have GRI reporting with those that have non-GRI reporting (non-GRI indicates SR in which the organization discloses information on its economic, environmental, social, and governance performance but without referencing to GRI guidelines or GRI standards).

Barber and Lyon (1996) suggest that the selection should be based on a combination of three criteria: industry, pre-event performance, and firm size. The matching steps are as follows:

- Step 1: The matched firms should have the same China Securities Regulatory Commission (CSRC) code, 33-300% of the sample firms' total assets and 90-110% of ROA in year t−1, no GRI reports from t-3 to t-1 (because if they had GRI reporting during these years, it could affect the following event window), and non-GRI reporting from year t to t+2 (in order to control for variables other than GRI).
- Step 2: If no firm is matched in Step 1, we use only the letter in the code, 33-300% of the sample firms' total assets and 90-110% of ROA in year t−1, have no GRI reports from t-3 to t-1, and have non-GRI reporting from year t to t+2.
- Step 3: If no firm is matched in Step 2, we use 33-300% of the sample firms' total assets and 90-110% of ROA in year t−1, they must have no GRI reports from t-3 to t-1, and they must have non-GRI reporting from year t to t+2.

We first obtain 152 firms that adopted GRI for at least three continuous years during the period 2008-2016 from the CSMAR database. In the process, we excluded financial services and real estate companies. There are 122 GRI reporting firms remained. Of them, we drop 7 firms that had insufficient financial data in the base year t-1, and 115 firms remain. We further exclude 9 observations that could not be matched with any non-GRI

sustainability reports, and finally, 106 firms remained. On average, each sample firm matched with 2.8 control firms. We then estimated the abnormal ROA of the sample firms compared to the control firms, using the following formulas:

$$AP_{(t+i)} = PS_{(t+i)} - EP_{(t+i)}$$
$$EP_{(t+i)} = PS_{(t+j)} + \left(PC_{(t+i)} - PC_{(t+j)}\right)$$

Where: AP is abnormal performance; EP is expected performance; PS is actual performance of sample firms; PC is median performance of control firms; t is the first year of adoption of the GRI sustainability report; i is ending year of comparison (i=0, 1 or 2); j is starting year of comparison (j=-1, 0 or 1).

Cross-sectional analysis of contextual factors

To test the impact of the contextual factors on financial performance, we use the ordinary least square (OLS) methodology to test H3-H6.

Three separate regression equations have been used to avoid multi-collinearity issues:

$$\text{Model 1: } AP_k = \beta_0 + \beta_1(PP_k) + \beta_2(Year_k) + \beta_3(FSize_k) + \beta_4(ISize_{kh}) + \beta_5(Sales\ abroad_k) + \beta_6(Central\ ties_k) + \beta_7(Local\ ties_k) + \beta_8(ISO\ 9000_k) + e_k$$

$$\text{Model 2: } AP_k = \beta_0 + \beta_1(PP_k) + \beta_2(Year_k) + \beta_3(FSize_k) + \beta_4(ISize_{kh}) + \beta_5(Sales\ abroad_k) + \beta_6(Central\ ties_k) + \beta_7(Local\ ties_k) + \beta_8(ISO\ 14000_k) + e_k$$

$$\text{Model 3: } AP_k = \beta_0 + \beta_1(PP_k) + \beta_2(Year_k) + \beta_3(FSize_k) + \beta_4(ISize_{kh}) + \beta_5(Sales\ abroad_k) + \beta_6(Central\ ties_k) + \beta_7(Local\ ties_k) + \beta_8(OHSAS\ 18001_k) + e_k$$

where k refers to the kth sample firm and h refers to the hth industry in which the kth firm operates.

The outcome AP_k is taken from the analysis made in the previous paragraph, and it represents the abnormal ROA in the range between the year t-1 and the year t+2. Internationalization is measured as the ratio of foreign sales to total sales and indicates the extent to which a firm's business comes from foreign versus domestic markets (Chakrabarty and Wang, 2012). Using a similar method to the one employed by Corbett et al. (2005) and Swink and Jacobs (2012), we determine the year of the initial ISO or OHSAS certification for each firm in our sample. We then compute the number of years between the initial ISO or OHSAS certification and year t-1 as a proxy for the SMS maturity of the firm. We code firms as -1 if they are not ISO or OHSAS certified, or if they obtain the certification only after the GRI reporting adoption.

We code PTs as the chairman's or the senior managers' current or past political experience, such as serving as government cadres, top officers or holding membership in the People's Congress or the Chinese People's Political Consultative Conference (Faccio, 2006). Through the résumés of both the chairman and senior managers from CSMAR, we separately code central ties and local ties as 1 if the chairman or the senior managers held any political appointment in the government currently or in the past and 0 otherwise. We then sum up to obtain the overall rating of a firm's central and local ties.

To ensure the rigorousness of our model, we include four control variables in the analysis, their ROA in year t-1(PP_k), the first year of the GRI report adoption($Year_k$),

firm size, and industry size. We discard two firms that do not have foreign sales data; then, the regression analysis is based on a sample of 104 firms.

Results

Overall performance effects

By comparing the results across the annual and multiple-year periods, we can see whether the effects of GRI guideline adoption on firm performance begin immediately or if they are lagged. To take into account the multiple-testing problem, the false discovery rate methodology by Benjamini and Hochberg (1995) was applied.

We can see from Table 1 that the Kolmogorov-Smimov tests are all significant, which means that the data are not normally distributed. Hence, we consider the WRS or the sign test when testing the hypotheses. Table 1 presents the results for abnormal changes in ROA on a year-to-year basis. The year-to-year changes in abnormal ROA for the sample firms are not significant. However, we see that the change per firm over the 3-year (from t-1 to t+2) and 2-year (from t to t+2) period are significantly positive (H1 is supported).

Table 1 Annual abnormal changes in ROA for sample firms

From year	K-S test	Mean	Median	P value (WSR)	P value (sign test)	P value (t-test)
t-1 to t	0.099***	0.355%	0.186%	0.317	0.627	0.256
t-1 to t+1	0.150***	0.545%	0.203%	0.315	0.771	0.294
t to t+1	0.179***	0.189%	0.240%	0.302	0.382	0.627
t-1 to t+2	0.121***	1.052%	0.619%	0.002**	0.041	0.006**
t to t+2	0.151***	0.713%	0.663%	0.012**	0.009*	0.063
t+1 to t+2	0.111***	0.508%	0.303%	0.098	0.099	0.242

Notes: N=106. *, ** and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively (Benjamini and Hochberg, 1995 false discovery rate correction)

Factors affecting the relationship between GRI SR and profitability

Table 2 shows the estimated regression standardized coefficients for the control model, model 1, model 2, and model 3. The control model contains ROA in year t-1, the first year of GRI report adoption, firm size and industry size. Model 1 to model 3 include the contextual factors we considered. The results show that local ties and the ISO 14000 experience coefficients are positive and significantly different from zero at the 0.05 and 0.1 levels, respectively. Thus, H3b and H4b are supported. Though the coefficient for internationalization is significant, it is negative. This fails to support H2. The coefficient for central ties, ISO 9000, and the OHSAS 18001 experience are not significant, so H3a, H4a and H4c are not supported.

Table 2 Estimated coefficients from regression of abnormal ROA change from year t-1 to t+2

	Control model	Model 1	Model 2	Model 3
ROA_{t-1}	0.086	0.054	0.057	0.061
Firm size	0.139	0.217*	0.204*	0.219*
Industry size	-0.279**	-0.273**	-0.279**	-0.294**
First adoption year	0.328***	0.281***	0.241**	0.280***
Internationalization level		-0.166*	-0.168*	-0.170*
Central political ties		-0.075	-0.054	-0.072
Local political ties		0.253***	0.254***	0.260***

ISO 9000 experience		0.132		
ISO 14000 experience			0.187**	
OHSAS 18001 experience				0.131
F	5.238***	4.632***	4.951***	4.595***
R^2	0.175	0.281	0.294	0.279
Adjusted R^2	0.141	0.22	0.235	0.218

Notes: N=104. Standardized regression coefficients are reported. *,**,*** Significant at the 0.1, 0.05, and 0.01 levels, respectively.

Discussion

The relationship between GRI reporting and firm performance

Our results indicate that the benefits of the adoption of GRI guidelines, representing a strong signal in SR, tend to more than compensate for associated costs and required investment. Compared with control firms with non-GRI sustainability reports, samples with GRI SR for at least three continuous years obtain significantly higher financial performance from year t-1 to t+2 and from t to t+2, supporting our H1. The average increase in abnormal ROA reaches 1.052 percentage points in total over the 3-year period from year t-1 to t+2. However, from the period t to t+1 and from t+1 to t+2, the abnormal ROA is not significant. Hence, we can see that the effect on profitability may take longer to achieve and therefore needs to be observed by only examining longer periods. This result is consistent with the argument proposed by Mahapatra (1984) and Preuss and Barkemeyer (2011) that investment in CSR tends to be at least a medium to long-term commitment and strategy.

Signaling environment

We have also identified three moderators of firm internationalization level, PTs, and a SMS (international certification maturity), which form the signaling environment for SR.

Moderating effect of internationalization level

Although we put forward the positive moderating effect of the internationalization level in H2, the empirical analysis shows an opposite result that presents a significant negative moderating effect. By expanding abroad, firms can acquire substantial resources and exploit foreign market opportunities while improving their competitive advantage and enhancing performance (Bartlett, 1989; Ma et al., 2016). However, companies with a high internationalization level may have higher transaction costs and be exposed to trade barriers (Peng and Chen, 2009; Zhang et al., 2010). In particular, firms from emerging economies face more intensive societal and environmental regulatory requirements from host governments, global competitors, foreign customers, communities, NGOs, and the international media when entering foreign markets (Christmann, 2004; Kang, 2012; Ma et al., 2016).

This is the case for China, where sustainability practices and reporting still remain in the early stages. Chinese firms with a high internationalization level may lack the necessary knowledge of and experience with sustainability. CSR issues may become their weaknesses with respect to overseas markets (Ma et al., 2016). As a result, they may feel great pressure from foreign markets, which is harmful to a firm's performance, especially those firms newly entering the international market. However, we believe that if firms continuously pay more attention to the adoption of the international standard GRI guidelines into their sustainability reports, they will meet the requirements from foreign markets in the long term.

Moderating effect of PTs

When we examine the moderating effect of PTs on the relationship between GRI reporting and financial performance, the role of local ties is significant, while a firm's central ties are not. China is a complex transition economy, with multiple levels of governments (i.e., a central government and numerous local authorities) (Wang et al., 2017). This result further confirms that local governments are pivotal in the Chinese economy (Arnoldi and Villadsen, 2015) because their connections may have substantial power and provide access to key resources, such as land, production facilities, and skilled labor, making ties with them more valuable than those with the central government (Arnoldi and Villadsen, 2015). Currently, local provincial governments have obtained substantial autonomy in establishing their own economic policies and GDP of many provinces (e.g., Guangdong, Shanghai) equals that of a medium-sized country (Wang et al., 2017). Interdependence with local governments leads to more specific formulations, the successful application of regulations, and more effective co-optation, which in turn improves the firm's performance (Zheng et al., 2015). Walder (1995) also suggests that local government-controlled firms are often more financially healthy because they are not under budget constraints that would normally be expected of government-owned enterprises, therefore support from the local government is very important (Luo, 2010). Hence, we establish and verify that in our context, the benefits of PTs are more salient at a local level than at the central level.

The moderating effect of SMSs

As far as SMS maturity is concerned, our results only support the moderating effect of ISO 14000. ISO 14000 is an active tool (Sebhatu and Bo, 2010), and most SMSs have evolved from environmental management systems, such as ISO 14000 (Ranängen and Zobel, 2014). We cannot see a significant moderating effect of OHSAS 18001. One explanation is that GRI indicators are based on the triple bottom line approach (Kim et al., 2009). However, Seuring (2013) finds that the social dimension is very often neglected or considered in a far too simplified manner. He provides evidence that the social side of sustainability is not often considered to the same degree that the environmental dimension is (Seuring, 2013). In a Chinese context, OHSAS 18001 is relatively ignored, as stakeholders are less concerned with corporate occupational health and safety management issues than with quality and environmental issues due to the development stage of this country (Qi et al., 2013). Therefore, thanks to less attention on the social side, the OHSAS 18001 certification does not moderate the relationship between GRI adoption and a firm's profitability. Meanwhile, ISO 9000 is a quality management system, which has little relevance to sustainability. Its insignificant moderating effect is not surprising.

Conclusions

Our study provides solid support for the hypothesis that the adoption of GRI guidelines in SR tends to produce significant abnormal benefits in firms' financial performance. These benefits appear to be persistent over the time period from year t-1 to t+2. In addition, we find that the improvement of abnormal financial performance is contingent upon some important factors. We note in particular that companies with local PTs and higher ISO 14000 certification experience benefit more from the adoption of GRI guidelines. Firms' internationalization level negatively moderates the relationship between the adoption of GRI and performance. Additionally, the moderating effects of a company's central PTs, ISO 9000 and OHSAS 18001 certification experience are not significant.

Contribution to theory

We make a number of significant contributions to SR research and signaling theory. First, ours is the first empirical study that supports the positive relationship between GRI SR and firm financial performance by adopting an event study method based on a large sample. Second, our study significantly extends signaling theory to an SR context. We suggest that signaling theory is a powerful theoretical framework that can reveal how GRI reporting contributes to financial performance. Previous research adopting signaling theory identifies only the causal link between signaling strength and a reduction of information asymmetry. Ours may be the first study that builds a link between signaling strength and financial performance in the context of our analysis. Third, we extend signaling theory beyond the question of simply whether a GRI reporting signal is related to financial performance and further find that the relationship between signal strength and financial performance is moderated by the signaling environment (i.e., firm internationalization, SMSs, and PTs). Our study is the first to examine the moderating effects of certain internal and external factors on the relationship between GRI SR and financial performance.

Contribution to practice

Managers can expect that the adoption of GRI in SR will lead to increased abnormal financial performance in the long run. In China, governments and stakeholders are paying an increasing amount of attention to severe environmental and social issues; thus, it is now a good time for Chinese companies to take action on sustainability-related practices and structure their SR well (such as adopting the GRI guidelines). Second, the benefits of the adoption of GRI apply to all organizations but are stronger for those with local ties and higher ISO 14000 maturity. The contingent nature of the relationship between GRI adoption and financial performance may provide an important insight for practitioners and organizations in identifying and exploiting their motivational advantages.

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