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Corporate social responsibility and earnings quality: international evidence

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Corporate social responsibility and earnings quality: international evidence

Abstract

In this paper, we investigate whether the corporate social responsibility (CSR) orientation of a firm affects its reporting incentives, in terms of the trade-off between real earnings management (REM) and accrual-based earnings management (AEM). Furthermore, relying on previous literature on the relationship between legal enforcement and the trade-off between AEM and REM, we consider whether the CSR orientation plays a moderating role in this relationship. We base our study on a sample of 5,863 firm-year observations for 1,141 unique firms, covering 24 different countries over the period 2003-2009. We find that CSR-oriented firms are less likely to engage in REM than in AEM. Moreover, we document that in strong legal enforcement countries, incentives to use REM instead of AEM are significantly lower in companies with a high CSR orientation than in companies with a low CSR orientation. These findings are consistent with the expectation that CSR-oriented companies are less likely to engage in the more costly but harder to detect earnings management strategy, i.e. the strategy that alters the underlying real operations of the company (REM). We provide additional evidence for our arguments that CSR-oriented firms are more likely to give up REM than AEM because of its detrimental value on future performance. All together our evidence suggests that CSR orientation acts as a constraint for REM and in doing so it contributes to the creation of value for all stakeholders.

Keywords: corporate social responsibility, accrual earnings management, real earnings management, enforcement, performance

Corporate social responsibility and earnings quality: international evidence

1. Introduction

This paper investigates whether corporate social responsibility (CSR) orientation plays a role in the choice between alternative earnings management (EM) strategies. Specifically, we focus on the trade-off between real earnings management (REM) and accrual earnings management (AEM) and we furthermore consider whether CSR orientation interacts with existing external factors (country legal enforcement) that shape the trade-off between AEM and REM. Our evidence, while supporting prior evidence that CSR-oriented firms are less likely to be involved in earnings management activities, also suggests that CSR-oriented firms are more likely to engage in AEM than in REM. Moreover, while previous literature shows that firms tend to substitute AEM with REM under a strict legal enforcement regime (Cohen et al., 2008; Durnev et al., 2011; Ipino & Parbonetti, 2011), we find that the CSR orientation of the firm contributes to explaining this substitution effect. In particular, the CSR orientation has a mitigation effect, as it counterbalances the reporting incentives stemming from the external legal environment.

Previous literature on the relationship between CSR and earnings management (Calegari et al., 2010; Hong & Andersen, 2011; Kim et al., 2012; Litt et al., 2014; Scholtens & Kang, 2013) generally shows that CSR-oriented firms are less likely to manage earnings through discretionary accruals and manipulating real operations, thereby providing evidence that ethical concerns are likely to drive managers to produce high-quality financial reports. Furthermore, the accounting literature has also documented the existence of a trade-off among earnings management strategies, as firms use AEM and REM as substitutes (Cohen et al., 2008; Zang, 2012). Previous research has also shown that firms prefer REM to AEM when enforcement is

high (Cohen et al., 2008; Durnev et al., 2011; Ewert & Wagenhofer, 2005). This is because REM is more difficult to detect than AEM. Nevertheless, the shift from AEM to REM presents legitimate concerns because, unlike AEM, REM modifies firms' operations, diverting them from their normal course without an underlying economic reason (Roychowdhury, 2006). According to the survey by Graham et al. (2005), executives who engage in REM are willing to burn real cash flows and forego projects with a positive net present value, making this earnings management strategy more costly than AEM.

We build on this literature to explore how CSR shapes reporting incentives when it comes to choosing between alternative EM strategies. Rather than just investigating the effect of CSR orientation on the level of earnings management in an international setting, we try to understand what forces are in place when a company has to choose among alternative earnings management strategies. First, we investigate if CSR orientation influences the trade-off between AEM and REM. We argue that because REM is more costly for the firm's future competitiveness (Cohen & Zarowin, 2010), CSR-oriented firms are less likely to use REM than AEM, as their responsibility towards stakeholders would imply greater commitment to the firm's future viability.

We further exploit cross-sectional variation in the level of enforcement to study if CSR counter-balances the incentives to engage in REM rather than AEM. The question of whether CSR-oriented companies substitute AEM with REM when the legal enforcement is strong does not have a clear direction because there are two opposing forces at play. Using AEM in the presence of strong enforcement might impose reputational costs associated with greater scrutiny that CSR-oriented firms want to avoid (Cohen & Zarowin, 2010; Graham et al., 2005; Zang, 2012). Alternatively, firms' responsibility towards stakeholders implies greater commitment to

the firms' viability and not sacrificing the firms' long-term competitiveness. To the extent that CSR-oriented firms care more about their ability to deliver value to stakeholders in the future (Boesso et al., 2014; Michelon et al., 2013; Porter & Kramer, 2006, 2011), they might be less likely to engage in REM than AEM, which impairs their performance prospects (Cohen & Zarowin, 2010; Zang, 2012).

We develop our arguments on the overarching idea that CSR-oriented firms engage in the earnings management strategy that is less costly for the long-term competitiveness of the firm and that, by doing so, they aim to protect the long-term interests of a wide range of stakeholders. To provide additional support for this argument, we conduct an analysis documenting that a lower use of REM with respect to AEM fosters the positive association between CSR orientation and future performance, thus creating increased value for shareholders and stakeholders. Taken together these results contribute to the ongoing debate surrounding the effect of CSR orientation on earnings quality that has received increasing interest in recent years (Hong & Andersen, 2011; Kim et al., 2012; Litt et al., 2014; Scholtens & Kang, 2013) and sheds light on a new avenue through which CSR delivers value to stakeholders. While previous literature has documented a positive impact of CSR on firms' performance (e.g. Orlitzky et al., 2003), it has never considered firms' reporting strategies as a possible determinant of this relationship[1].

In our empirical analyses, we use an international sample of 5,863 observations from 1,141 unique firms over the period 2003-2009, listed in 24 different countries. Since CSR orientation and earnings management strategies might be jointly determined, we address concerns over endogeneity using a two-stage least squares approach. In the first set of analyses, we document that firms with a CSR orientation are less likely to be involved in earnings

[1] Even if most studies suggest a positive relation between CSR and firm's performance, some authors have argued that CSR might also impose costs on firms that potentially decrease performance (Aragón-Correa, 1998; Aragon-Correa et al., 2004; Berrone & Gomez-Mejia, 2009; Hart, 1995; Khanna & Damon, 1999).

management, and when they manipulate earnings, they are more likely to use AEM than REM. This result is in line with the expectation that CSR-oriented firms are more likely to engage in the less costly earnings management strategy for stakeholders. Second, consistent with previous literature, we find that firms in strong legal enforcement countries substitute AEM with REM, but we document that this practice is significantly less intense for CSR-oriented firms. This evidence suggests that the CSR orientation of the firm counter-balances the institutional incentives leading to the less identifiable but more costly REM strategy. Finally, we complement these results by showing that, as expected, substituting AEM with REM has a negative effect on firm's future performance and that the fact that CSR-oriented firms engage less in REM than AEM partially mediates the positive association between CSR and future performance (in terms of future Tobin's Q, projected up to three years ahead). Our evidence is robust to restricting the sample only to firms that meet or beat analysts' forecasts, as well as to measuring REM and performance in different ways.

Our paper is closely related to, but clearly distinguishable from, extant research investigating the relationship between CSR and earnings management. Litt et al. (2014) find that firms with environmental initiatives exhibit lower earnings management proxied by absolute and income-increasing total discretionary accruals. Hong & Andersen (2011) and Kim et al. (2012) show that more socially responsible firms have higher quality accruals and less activity-based EM, thereby also bringing REM into the research framework. Scholtens & Kang (2013) not only find that firms with good CSR are less engaged with EM but also document that CSR shows positive interaction with investor protection. Calegari et al. (2010) show that CSR induces better earnings reporting quality and, therefore, has an indirect but positive effect on firm value. In contrast to the above-mentioned contributions, we focus on the *trade-off* between REM and

AEM and how this trade-off is affected by the firm's CSR orientation and how it interacts with the level of legal enforcement. The focus on the trade-off between alternative EM strategies is the novelty of our paper and represents the unexplored path through which we contribute to extant literature on the relationship between CSR and earnings management.

The remainder of the paper is organized as follows. Section 2 reviews the literature on earnings management and CSR. Section 3 develops the research hypotheses. Section 4 presents the research design. Section 5 contains the results and robustness tests, and section 6 concludes the paper.

2. Background and prior literature

According to Healy & Wahlen (1999, p. 368), "earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting practices." Insiders can use their discretion over the financial reporting process to overstate the "true" level of earnings and understate any real unfavorable earnings (i.e., earnings losses or earnings decreases) to pursue their self-serving interests or to avoid outsiders taking actions against them. When there is extensive earnings management, financial reports inaccurately reflect a firm's performance, and, consequently, this weakens outsiders' ability to govern that firm (Leuz et al., 2003).

The accounting literature has shown that firms can either engage in AEM and/or in REM. AEM consists of adjusting assumptions and estimates within the accounting system and does not affect cash flows, while REM consists of making the firm depart from its normal operational

practices in order to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations (Roychowdhury, 2006).

While financial transparency and accountability are vital not just to shareholders' understanding of the firm but also to all stakeholders, they are also principles that characterize a socially responsible firm. The CSR orientation of a firm can affect management's discretion in the financial reporting process as it affects firms' incentives on transparency (Kim et al., 2012) and on whether to alter the perception about the level of performance reached. Transparency is expected to be a tool of accountability because it enables stakeholders to confront companies and collectively organize against them if necessary (Dingwerth & Eichinger, 2010). As noted by Dingwerth & Eichinger (2010, p. 74) "transparency is expected to become a tool for holding powerful actors accountable" because the information disclosed by firms is expected to enable shareholders and other stakeholders to make informed decisions, to confront companies through shareholder motions or to collectively organize themselves against firms if deemed necessary. Similarly, according to the "myopia avoidance hypothesis" (Chih et al., 2008), CSR-oriented firms are less likely to manipulate earnings because they are intrinsically more committed to their institutional role (to create value for shareholders) and to transparent disclosure policies. The main argument is that CSR induces transparency and reduces the propensity towards the number of opportunities for earnings management. There is empirical evidence supporting this view and documenting a negative relationship between CSR and earnings management, with few exceptions.

Chih et al. (2008) investigate the association between CSR and earnings management[2], using a wide sample of international firms during the 1993-2002 period. They find that CSR is

[2] They articulate four hypotheses: myopia avoidance, predictable earnings, multiple objective, and institutional hypotheses. According to the "myopia avoidance" hypothesis, CSR leads to transparency and reduces the number of

associated with less earnings smoothing, more earnings aggressiveness (moderated by the institutional environment), and less avoiding of earnings losses, thus providing mixed evidence in support of the alternative theories. Calegari et al. (2010) rely on the work by Prior et al. (2008), who contend (and find) that managers use CSR to reduce the likelihood of being scrutinized by satisfied stakeholders. According to this view, CSR is "the result of a principle-agent problem where the manager is an agent who utilizes CSR as a tool to maximize their own private benefits" (Calegari et al., 2010, p. 2). This argument recalls the Chih et al. (2008) "multiple objective" hypothesis, and leads to expecting a positive relationship between CSR and AEM. Nevertheless, Calegari et al. (2010) also argue that CSR could be part of the corporate culture and thus be established within a firm regardless of the agency problem. Using a sample of U.S. firms from 1991 to 2008, they find that CSR enhances the firm earnings reporting quality, in contrast with the results of Prior et al. (2008). In a related study, Litt et al. (2014) provide further evidence that firms with environmental initiatives exhibit lower earnings management proxied by absolute and income-increasing total discretionary accruals and find that pollution prevention and climate related initiatives help explain this inverse association.

Hong & Andersen (2011) and Kim et al. (2012) extend the literature on the relationship between CSR and earnings management by considering also REM. Both studies rely on a sample of U.S. firms and, using KLD data as a proxy for CSR, find that CSR is negatively related to both AEM and REM. Consistent with their expectations, the evidence supports the "myopia avoidance hypothesis" and the premise that CSR-oriented firms are less likely to engage in

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opportunities to manipulate earnings; according to the "predictable earnings" hypothesis, CSR-oriented firms may tend to smooth earnings to ensure that reported earnings are more predictable thus increasing earnings management; according to the "multiple objective" hypothesis, CSR might aggravate agency problems, giving insiders more impetus to conduct earnings management to mask their rent-seeking activities from outsiders; finally, according to the "institutional" hypothesis, CSR may be unrelated to earnings management because it is a product of other institutional factors.

aggressive earnings management through discretionary accruals and/or real activities manipulation, thus providing more transparent financial information than less CSR-oriented firms.

In general, previous literature consistently shows that CSR-oriented firms are less likely to engage in earnings management. Nonetheless, besides deciding to which extent to manage earnings, firms also decide *how* to alter the reported performance. In other words, all companies face the dilemma about how to engage in the earnings game (AEM and/or REM) and to which extent each strategy should be used (Roychowdhury, 2006). We extend existing literature by looking at whether CSR orientation affects the trade-off between REM and AEM. We further acknowledge that the institutional environment shapes the reporting incentives in terms of the trade-off between AEM and REM (Cohen et al., 2008; Durnev et al., 2011; Ewert & Wagenhofer, 2005; Ipino & Parbonetti, 2011) and thus consider whether these incentives interact with the firm's CSR orientation. Previous literature has shown that firms are more likely to engage in the least detectable, but more costly, earnings management strategy (REM) when the level of the scrutiny is high (Cohen et al., 2008; Zang, 2012). We extend this literature by investigating whether the firm's CSR orientation plays a role in shaping the firm's attitude towards the less detectable, but more costly, earnings management strategy in the presence of a strict legal enforcement environment.

3. Research Hypotheses: CSR, earnings management and legal enforcement

Notwithstanding the various studies that analyze the relationship between CSR and earnings management, extant literature fails to consider that the CSR orientation of a company may also shape the *trade-off* between AEM and REM, rather than just affecting their levels.

While CSR is found to discourage both REM and AEM, it is not clear whether it does so to a different degree.

Accounting literature (Cohen et al., 2008; Zang, 2012) documents that firms use AEM and REM as substitutes: when one earnings management strategy is perceived as too costly for the firm, executives engage in more of the other. Whether CSR-oriented firms are more or less likely to substitute AEM with REM is not clear. REM involves the timing and structuring of actual business activities in order to achieve a desired financial reporting result (Roychowdhury, 2006). These decisions include delaying repair, advertising, and research and development expenses, timing the sale of equipment that will result in a gain in the quarter in which "extra" earnings are needed and forgoing capital projects that have a positive net present value. In a survey on CFOs of U.S. listed companies (Graham et al., 2005), respondents indicated that they are even more likely to employ REM, which affects actual business activities, than they would be to use AEM to achieve a desired financial result. By decreasing discretionary spending or delaying new projects, the effect of REM would be to impair the ability of the firm to compete in the future, negatively impacting on future performance because of suboptimal investment decision (Cohen & Zarowin, 2010; Zang, 2012). Thus, one could argue that for any given "optimal" level of overall earnings management, CSR-oriented firms are less likely to engage in REM, as their responsibility towards stakeholders would imply greater commitment to the firm's viability and competitiveness and the non-sacrifice of the firm's long-term performance (Porter & Kramer, 2006). We also acknowledge that AEM may impose risks and costs linked to regulatory and auditing scrutiny (Cohen et al., 2008) and might undermine the firm's credibility and reputation in the market as well as among stakeholders (Badertscher, 2011; Desai et al., 2006; Palmrose et al., 2004). Therefore, a CSR-oriented firm might want to minimize any risk

associated with credibility and reputation by decreasing the chances of being detected and therefore preferring REM to AEM. Finally, because prior literature has documented that CSR discourages both REM and AEM (Andersen, 2011; Hong & Kim et al., 2012), the level of REM and AEM could just be small overall, and therefore their trade-off naturally less significant.

Nevertheless, we argue that CSR will discourage REM and AEM to a different degree, and because REM is more costly for the firm's *future* performance, and because literature documents a positive relationship between CSR and performance (e.g. Flammer, 2015; Orlitzky et al., 2003), we expect that CSR-oriented firms are less likely to manipulate earnings using REM compared to AEM. Such an idea is aligned with the findings of previous literature, in the sense that, assuming that some form of earnings management will occur, CSR-oriented companies might be using AEM rather than REM because AEM does not undermine the fundamentals of the firm's long-term value (Graham et al., 2005). Along these lines, using a seasoned equity offering (SEO) setting, Cohen & Zarowin (2010) show that REM has a much higher negative impact on future performance than AEM. As a consequence, we expect that CSR-oriented firms are less likely to engage in REM since this would imply cutting discretionary expenses thus undermining future competitiveness and corporate long-term viability. Therefore, we posit the following directional hypothesis:

H1: CSR-oriented firms are less likely to engage in REM than in AEM

Existing accounting research recognizes that the level of enforcement shapes reporting incentives, generates trade-offs in firm reporting strategies, and relates strongly to the decision to be involved in AEM (Burgstahler et al., 2006; Leuz, 2010; Leuz et al., 2003). Specifically,

previous research shows a shift from AEM to REM when enforcement is stricter. Ewert & Wagenhofer (2005) analytically demonstrate that managers react to the constraints on AEM with more involvement in REM, and the studies from Cohen et al. (2008) and Durnev et al. (2011) provide evidence that firms substitute AEM with REM when the former becomes too costly due to high scrutiny. The use of REM instead of AEM in strong legal enforcement countries posits severe concerns because REM involves the timing and structuring of actual business activities. Cohen & Zarowin (2010) and Zang (2012) show that REM has negative effects on future performance, and the survey by Graham et al. (2005) documents that executives engaging in REM are aware of burning real cash flows.

Although Chih et al. (2008), Prior et al. (2008), and Scholtens & Kang (2013) find that the country institutional environment plays a role in shaping the relationship between CSR and AEM, the existing literature on CSR and earnings management has not paid sufficient attention to how CSR and the interplay between CSR and the level of enforcement *jointly* affect AEM and REM strategies. This is because most literature on the relationship between CSR and earnings management neglects the existence of alternative methods that make firms opaque, and because REM has scarcely been studied. For example, Calegari et al. (2010), Chih et al. (2008), Prior et al. (2008), and Scholtens & Kang (2013) focus only on AEM. When REM is considered, the investigation of this relationship is not properly dealt with. Hong & Andersen (2011) study the relationship between CSR and REM only through univariate analyses, since they consider only the correlation between REM measures and CSR. Kim et al. (2012) study the relationship between CSR and both REM and AEM using a regression model, but they do not address explicitly the fact that REM and AEM are strictly related to each other, being part of the same reporting decision of a firm. Moreover, these studies do not consider the role of the institutional

environment as a determinant of the choice between AEM and REM and whether this interacts with the CSR orientation of a firm because they restrict their analysis to a one-country sample (mainly the U.S.).

A strong level of enforcement tends to encourage REM rather than AEM because the risk of being detected in engaging in AEM is high (Cohen et al., 2008; Durnev et al., 2011). We argue that the degree to which the strength of the legal enforcement discourages AEM in favour of REM interacts with the level of CSR orientation, because not only does the CSR orientation reduce the level of earnings management practices (Calegari et al., 2010; Chih et al., 2008; Hong & Andersen, 2011; Kim et al., 2012; Prior et al., 2008; Scholtens & Kang, 2013) but we also expect it to influence AEM vs. REM differently. Indeed, literature shows that in a strong legal enforcement environment there might be relatively higher reputational costs associated with the use of AEM, but the use of REM would imply sacrificing the firm's long-term competitiveness. If the CSR orientation drives the firm against compromising the long-term interests of a wide range of stakeholders (Porter & Kramer, 2006, 2011), we would expect it to counterbalance the incentives to use more REM stemming from the high enforcement environment. This argument is consistent with the prediction of both instrumental theories of CSR (e.g. Friedman, 1970), according to which CSR is accepted if, and only if, it is consistent with wealth creation (McWilliams & Siegel, 2001) as well as ethical theories of CSR (e.g. Carroll, 1979; Donaldson & Preston, 1995; Jones, 1995), according to which a CSR-oriented firm gives attention to the legitimate interests of all stakeholders in reference to some guiding moral principle. Therefore, we posit the following non-directional hypothesis:

H2: CSR orientation moderates the relationship between the level of legal enforcement and the trade-off between AEM and REM

4. Research design and methodology

4.1 Sample and data

We compute our CSR measure from the EIRIS database and we retrieve financial data for earnings management measures from Compustat. We obtained 6,601 firm-year observations over the period 2003-2009 which are simultaneously covered by both datasets and have the necessary data for computing CSR, AEM, and REM metrics. Following previous literature on earnings management, we do not consider financial firms in our analysis. We lose 738 firm-year observations with missing data on Compustat for computing the control variables and therefore we end up with a final sample of 5,863 firm-year observations for 1,141 unique firms, covering 24 different countries. Table 1 summarizes the distribution of observations over the time period (Panel A), by country and year (Panel B) and by industry (Panel C). As it is possible to notice from Table 1, Panel B, observations are not uniformly distributed across countries since most of them are concentrated in the U.S. and Japan. In the robustness test section we discuss this point in more detail and provide additional tests.

<< Insert Table 1 about here >>

4.2 Variables measurement

Corporate Social Responsibility

CSR data are obtained from EIRIS. EIRIS specializes in the measurement of corporate social responsibility against a consistent and objective set of criteria, principally for investors' use, and their data have been widely used in management and accounting research (e.g. Brammer

et al., 2006; Cox et al., 2004, 2007). The coverage is based on the FTSE All World Developed Index.

On the basis of the theoretical contribution of Carroll (1979) and empirical work carried out by Johnson & Greening (1999) and Cox et al. (2004) on the multidimensional nature of CSR, we make use of an aggregate CSR measure that takes into consideration a range of important issues across companies and three constituent constructs that reflect specific dimensions of the overall CSR measure (Brammer & Pavelin, 2004). These three constituents (CSR attributes) are: community, employee, and environment. The EIRIS indicator for community responsibility is measured using a single variable (commitment to community or charitable work). The EIRIS employee responsibility indicator compasses six aspects: health and safety systems, training and development systems, systems for good employee relations, practices for job creation and security, equal opportunities policies, and equal opportunities systems. The EIRIS environmental responsibility indicator comprises four elements: environmental impact improvements, environmental management systems, environmental policy, and commitment and environmental reporting.

Relying on the method adopted by Brammer et al. (2006) and Cox et al. (2007), who base their work on Graves & Waddock (1994), we transform the EIRIS text-grade rating for each measure into a number-grade rating starting at 1 and increasing with better performance. The community measure has four text-grade ratings, each employee aspect has three text-grade ratings, and each environment element has five text-grade ratings, all of which were transformed into integer scales beginning with 1 and ending in 4, 3, and 5 respectively. To arrive at a single measure for community employees and environment CSR attributes, we sum the number-grade ratings for each attribute. Therefore, we first obtain a community score out of 4, an employee

score out of 18, and environment score out of 20. We then normalize the employee and environment scores to a scale out of 4, to ensure that the three CSR attributes have the same weight in the overall CSR measure, which takes value between 3 (poor CSR performance) and 12 (high CSR performance).

In order to evaluate the internal consistency of the metric, we calculate the Cronbach's Alpha, which is used to assess how well a list of items measures a single latent construct. Its value ranges between 0 and 1, with values above 0.7 commonly thought to provide a sufficient level of reliability. The Cronbach's Alpha of the employee measure is 0.82 and of the environment measure is 0.91, both higher than the threshold. Appendix 1 provides further insights on the ratings procedure and an example.

Trade-off between Accrual and Real Earnings Management[3]

We measure AEM using the modified cross-sectional Jones model (Jones, 1991), as described in Dechow et al. (1995). We consider a cross-sectional model of discretionary accruals (DA), where, for each year and country, we estimate the model for every industry classified by its two-digit SIC code. By doing so, we partially control for industry changes in economic conditions that affect total accruals while allowing the coefficient to vary across time (Cohen et al., 2008; DeFond & Jiambalvo, 1994).

We measure REM following Cohen et al. (2008) and Roychowdhury (2006). We use an aggregate measure that combines different variables of REM. Specifically, REAL is the sum of abnormal production costs and abnormal discretionary expenses (multiplied by minus 1). The higher the value, the more likely the firm is to be engaged in REM activities. Since we analyze

[3] Appendix 2 reports the formula used for calculating our AEM and REM measures. We use all of the observations available on Compustat Global to measure both AEM and REM. We require at least 10 observations in each 2-digit SIC grouping per year and country and that each firm-year observation has the data necessary to calculate the EM metrics we employ in this study.

firms' trade-off decisions between AEM and REM, we create a metric that directly analyzes the trade-off among these two earnings management strategies. Specifically, using the final sample we sort the two earnings management proxies defined above (DA, REAL) into deciles (Decile DA, Decile REAL) and create the following two metrics:

$$EM\_ALL = Decile\ DA + Decile\ REAL$$

$$REM\_vs\_AEM = \frac{Decile\ REAL}{(Decile\ DA + Decile\ REAL)}$$

EM_ALL measures the overall firm's earnings management activity, either AEM or REM, while REM_vs_AEM measures the use of REM with respect to the overall earnings management activity. Therefore the higher the value of REM_vs_AEM, the greater the use of REM with respect to AEM.

Level of enforcement

We measure the strength of a country's legal enforcement using the "Rule of Law" variable (Daske et al., 2008; Kaufmann et al., 2009). We transform this measure into a binary variable (ENFORCEMENT), split on the median of the sample by year, which takes the value of 1 (0) for countries with a strong (weak) legal enforcement.

Controls

We include in our analyses several controls that are expected to jointly affect the incentives and the constraints involved in earnings management and affect the choice between AEM and REM. Given that larger firms are more likely to avoid negative earnings news and thus

use earnings management to achieve this objective, we control for the firm size (*SIZE*) using the log of the firm total sales. Financial leverage (*LEV*), which is the end-of-year total liabilities divided by the end-of-year book value of equity, takes into account debt-contracting motivations for earnings management (DeFond & Jiambalvo, 1994). Significant incentives to EM are linked with the level of profitability shown by industry peers. Thus, we include the adjusted profitability (*ADJ_ROA*) calculated as the difference between the firm's profitability (ROA computed as operating income over the mean value of total assets between year t and year t-1) and the industry median for a given year. We control for the growth prospects using the percentage change in sales (*GROWTH*) and with the market to book value (*MTB*). A manager of a high-growth firm has at the same time greater incentives to beat earnings targets because the asymmetry in the price reaction to positive versus negative earnings news is higher for low-growth firms (Skinner & Sloan, 2002) and also because it is more difficult to detect earnings management practices, making these practices less risky (Barth et al., 2008).

Peasnell et al. (2005) suggest controlling for the quality of pre-managed earnings, arguing that if pre-managed earnings are not satisfactory, the incentive to use AEM is higher. We define a dummy variable (*BELOW*) equal to 1 when the pre-managed earnings (measured by the operating cash flow) are less than zero (and therefore the incentives to use AEM are higher) and 0 otherwise. We also consider the impact of the outperforming good firms. Following Peasnell et al. (2005) we identify an outperforming good firm when its pre-managed earnings, measured as the operating cash flow, are in the fourth quartile of the distribution of pre-managed earnings of industry peers conditioned to positive pre-managed earnings. We define the dummy variable (*HIGH*) equal to 1 when the firm is outperforming (operating cash flow in the fourth quartile) and 0 otherwise.

Following the literature on IFRS adoption (Houqe et al., 2012; Marra et al., 2011), we also control for whether firms prepare the reports using IFRS (*IFRS)*, by including a dummy equal to 1 if the firms adopt the IFRS and 0 if reports are prepared using domestic GAAP. Incentives to show better earnings also derive from the importance of the capital market in the economy of the country: as a control we use the logarithm of stock market capitalization (*MKT_CAP*). Consistent with previous studies on AEM, we also control for litigation risk (*LITIGATION*), measured as a dummy variable that indicates membership in a high-risk industry (SICs 2833-2836, 3570-3577, 7370-7374, 3600-3674, 5200-5961). Barton & Simko (2002) identify the lagged net operating assets scaled by lagged sales (NOA) as a limit of the flexibility for AEM. The higher the NOA is, the lower the manager's ability to inflate earnings upward through accruals.

We also control for macro-economic factors using the log transformed average gross domestic product per capita (GDP), taken from the World Bank, over the period 1990-2000. This variable, which captures the extent to which a country is developed or developing, is widely used in international accounting research (Haw et al., 2004) to deal with the effect of unobserved country-specific factors that may be associated with EM practices.

Given that CSR orientation is industry sensitive, we employ a dummy variable (*ESSI*) that identifies socially and environmentally sensitive industries. Following Brammer & Millington (2005), we classify firms from the extractive (mining and petroleum), chemical, paper, pharmaceutical, alcoholic beverages, and defence industries as facing greater social exposures. Based on prior studies focusing only on environmental disclosure (e.g. Cho & Patten, 2007; Freedman et al., 2004; Freedman & Wasley, 1990), we classify companies from the chemical, mining, metals, paper, petroleum, and utility industries as environmentally sensitive.

Finally, we include indicator variables to control for year and country fixed effects. Appendix 3 reports the description of all variables employed in this study

4.3 Research models

CSR and the Trade-off between Accrual and Real Earnings Management

In order to test our first hypothesis on whether the firm's CSR orientation affects the trade-off between REM and AEM, we model the reporting strategies as a function of CSR orientation. In these analyses, we acknowledge that OLS estimation might suffer from endogeneity: firms might determine reporting strategies and CSR orientation jointly, and some unobservable factors might affect both the trade-off between AEM vs. REM and CSR. This endogenous relationship might induce OLS estimators to be biased[4]. In order to address this concern about endogeneity, we use a two-stage least squares (2SLS) approach. Specifically, as an instrument for CSR orientation of firm *i* in year t, we use the mean of the CSR orientation in year t of all firms belonging to firm *i*'s 2-digits SIC code, excluding firm *i* (CSR_IV). The underlying motivation for using this instrument is that CSR orientation tends to be correlated in given industries (Fabrizi et al., 2014; Hillman & Keim, 2001; Waddock & Graves, 1997), but arguably the *industry* CSR orientation is not related to the EM policies of a single firm[5].

We test if CSR orientation is negatively associated to the firms' overall earnings management activity (either AEM or REM) by estimating the following 2SLS regression, with robust standard errors clustered at firm level, with year and country fixed effects:

$$EM\_ALL = \alpha_0 + \alpha_1 CSR + \alpha_2 SIZE + \alpha_3 LEV + \alpha_4 ADJ\_ROA + \alpha_5 GROWTH + \alpha_6 MTB + \alpha_7 BELOW + \alpha_8 HIGH + \alpha_9 IFRS + \alpha_{10} MKT\_CAP + \alpha_{11} LITIGATION + \alpha_{12} NOA + \alpha_{13} GDP + \alpha_{14} ESSI + \varepsilon \quad (1)$$

[4]We also run a Durbin-Wu-Hausman test that indicates that CSP is indeed endogenous (p-value < 0.00) and thereby estimates obtained by OLS models are not consistent.

[5] Including industry fixed effects computed at the 1-digit SIC code level does not alter results.

where all variables have already been defined. In line with previous literature (i.e. Hong & Andersen, 2011; Kim et al., 2012) we expect a negative and significant coefficient on α_1. To test H1, we estimate model (1) using as the dependent variable our trade-off metric and we base our conclusions about H1 on the sign and statistical significance of the coefficient α_1:

$$\begin{aligned} REM\_vs\_AEM = {} & \alpha_0 + \alpha_1 CSR + \alpha_2 SIZE + \alpha_3 LEV + \alpha_4 ADJ\_ROA + \alpha_5 GROWTH + \alpha_6 MTB + \\ & \alpha_7 BELOW + \alpha_8 HIGH + \alpha_9 IFRS + \alpha_{10} MKT\_CAP + \alpha_{11} LITIGATION + \\ & \alpha_{12} NOA + \alpha_{13} GDP + \alpha_{14} ESSI + \varepsilon \end{aligned} \quad (2)$$

CSR, Legal Enforcement, and the Trade-off between Accrual and Real Earnings Management

In order to test our second research hypothesis on whether the firm's CSR orientation interacts with the legal enforcement in driving the choice between AEM and REM, we interact the variable ENFORCEMENT with CSR. We base our conclusions about H2 on the sign and statistical significance of the interaction coefficient α_3 in the following model:

$$\begin{aligned} REM\_vs\_AEM = {} & \alpha_0 + \alpha_1 CSR + \alpha_2 ENFORCEMENT + \alpha_3 ENFORCEMENT * CSR + \alpha_4 SIZE + \\ & \alpha_5 LEV + \alpha_6 ADJ\_ROA + \alpha_7 GROWTH + \alpha_8 MTB + \alpha_9 BELOW + \alpha_{10} HIGH + \\ & \alpha_{11} IFRS + \alpha_{12} MKT\_CAP + \alpha_{13} LITIGATION + \alpha_{14} NOA + \alpha_{15} GDP + \alpha_{16} ESSI + \varepsilon \end{aligned} \quad (3)$$

5. Empirical analyses

5.1 Descriptive statistics and correlations

Table 2 presents the descriptive statistics of the main variables used in the analysis, while Table 3 shows correlation coefficients among the variables. Earnings management values are comparable with those of previous studies and thus assure the comparability of our work with previous research. Table 2 Panel A indicates that our final sample is mainly composed of large and profitable firms with relatively high growth opportunities. This caveat should be considered when interpreting the results. Table 2 Panel B shows the mean and median of the main variables of interest by country.

<< Insert Table 2 and 3 about here >>

5.2 Multivariate analyses

Table 4 reports results for model (1) estimated through 2SLS. Column 1 reports estimates for the first-stage equation, documenting (as expected) a strong association between firm and industry CSR levels. Second-stage results for the full sample are shown in column 2 while column 3 restricts the sample to only non-U.S. firms. The negative and significant coefficients of CSR indicate that firms with high levels of CSR orientation engage less in earnings management (either AEM or REM).

There are two main differences between our empirical models and those used by Kim et al. (2012). First, we use the decile distribution of accrual and real earnings management proxies instead of their raw values (DA and REAL), and second, we use an instrumental variable approach. To make sure that results documented in columns 2 and 3 of Table 4 are not driven by specific research design choices, we also estimate model (1) without the instrumental variable

approach and using separately the raw values of the earnings management proxies instead of their decile distribution. Results are reported in columns 4 and 5, and corroborate those previously discussed.

<< Insert Table 4 about here >>

To start investigating H1, we analyze whether CSR orientation discourages REM and AEM to a different degree. Because of scale problems, we cannot directly compare the coefficients on CSR in columns 4 and 5 of Table 4. Therefore, in columns 6 and 7 we replicate the model estimated in columns 4 and 5, respectively, but tabulate standardized beta coefficients. As it is possible to notice, the beta coefficient on CSR in column 7 is much larger than the coefficient in column 6, thus documenting that the negative impact of CSR on real earnings management is stronger than the impact on accrual-based earnings management. The two coefficients are statistically different at the 1% level and show that, on average, CSR constrains REM more than AEM (Chi2: 83.83, $p < 0.0001$). The last column of Table 4 reports 2SLS estimates of model (2). The negative and significant coefficient on CSR supports our hypothesis and documents that firms with a CSR orientation are more likely to use AEM than REM, in line with the expectation that CSR-oriented firms are more likely to engage in the less costly earnings management strategy for stakeholders, i.e., AEM, since it does not alter the underlying real operations of the company.

Evidence for our second hypothesis is shown in Table 5 in which we report 2SLS estimates from model (3) and exploit the cross-sectional variation in our international sample. The main effect of enforcement is indicated by the positive coefficient of the variable

ENFORCEMENT. Consistent with previous literature, we find that firms in a strong legal enforcement environment tend to use more REM than AEM. The negative coefficient on the interaction term between ENFORCEMENT and CSR supports H2 and indicates that the CSR orientation of firms interacts with the level of legal enforcement as a constraint to substitute AEM with REM. We show that the incentive to use REM instead of AEM due to the legal enforcement is significantly lower for firms with high CSR orientation. This result is aligned with theoretical arguments supporting a positive association between CSR and firm performance (among others: Carroll, 1979; Donaldson & Preston, 1995; Jones, 1995): in a strong legal enforcement environment the use of REM versus AEM is less prominent for CSR-oriented firms, because the CSR orientation counter-balances the incentives stemming from the institutional environment to use the less identifiable, but more costly, REM strategy.

<< Insert Table 5 about here >>

5.3 Additional analyses: CSR, EM strategies and the effect on future performance

In building our hypotheses, we argued that firms are more likely to use AEM than REM because CSR-oriented firms will engage in the earnings management strategy that is less costly for the long-term competitiveness of the firm and, by doing so, protect the long-term interests of a wide range of stakeholders. If this argument holds true, we expect CSR-oriented firms to be associated with better future performance and their reporting strategies to be drivers of future performance as they are less involved in REM. AEM is mainly carried out by adjusting assumptions and estimates within the accounting system, and thus it is not associated with any real impact on corporate operations and does not affect the current cash flow. However REM

consists of making the firm depart from its normal operational practices (Roychowdhury, 2006) and it impairs the firm's performance prospects. Thus, the costs associated with engaging in REM mainly materialize in harm to future performance because of the involvement in sub-optimal investment allocation decisions.

Cohen and Zarowin (2010) empirically show (in a SEO context) that the negative effect of REM on subsequent performance is greater than the effect of AEM. To the extent that CSR has a positive impact on firms' future performance (Flammer, 2015; Orlitzky et al., 2003), and we find that CSR-oriented firms engage less in REM than AEM, we expect earnings management strategies to have not only a direct effect on future performance but also a mediating role between CSR orientation and future performance. Evidence of such a mediating role would improve the understanding and interpretation of, as well as further support for, our main evidence. Therefore, in this section we investigate whether (a) CSR orientation is positively associated with future performance, and (b) the trade-off between REM than AEM, driven by the CSR orientation of a firm, additionally mediates the positive association documented in the literature between CSR and future performance (Al-Tuwaijri et al., 2004; Flammer, 2015; Orlitzky et al., 2003).

We use the Sobel-Goodman test that analyzes whether a mediator carries the influence of an independent variable to a dependent variable. This test is useful because we can test simultaneously (a) and (b) and also consider other potential links between the variables of interest: CSR orientation, trade-off between REM and AEM, and future performance. Figure 1 shows our test setting. Mediation can be said to occur when (i) the independent variable (CSR) significantly affects the mediator (REM_vs_AEM) as per link A in Figure 1; (ii) the independent variable significantly affects the dependent one (future performance) in the absence of the

mediator, as per link C in Figure 1; (iii) the mediator has a significant unique effect on the dependent variable, as per link B in Figure 1; and (iv) the effect of the independent variable on the dependent variable significantly shrinks upon the addition of the mediator to the model, as per link C^I in Figure 1.

<< Insert Figure 1 about here >>

Specifically, the Sobel-Goodman test performs a set of OLS regressions to estimate $\hat{\gamma}$, $\hat{\alpha}$, $\hat{\beta}$, and $\widehat{\gamma^I}$, as shown in Figure 1. $\hat{\gamma}$ is the coefficient on CSR obtained regressing CSR (and control variables) on Tobin's Q; $\hat{\alpha}$ is the coefficient on CSR obtained regressing CSR (and control variables) on REM_vs_AEM; $\hat{\beta}$ is the coefficient on REM_vs_AEM obtained regressing REM_vs_AEM (and control variables) on future performance; and $\widehat{\gamma^I}$ is the coefficient on CSR obtained regressing CSR *and* REM_vs_AEM (plus control variables) on future performance. The Sobel-Goodman test performs a Z-test to evaluate if $\widehat{\gamma^I}$ is significantly different from $\hat{\gamma}$. If so, it is possible to conclude that the variable REM_vs_AEM partially mediates the relation between CSR and future performance. When REM_vs_AEM is the dependent variable, we use the same set of controls as in model (1). In contrast, when future performance is the dependent variable, we control for SIZE, LEV, ADJ_ROA, GROWTH, MTB, HIGH, GDP, and ESSI. All variables are computed as previously described. Using the same set of controls when both REM_vs_AEM and future performance are the dependent variables does not change our results.

We measure future performance using the Tobin's Q computed one, two, and three years ahead as (total assets – book value of equity + market value of equity) scaled by total assets. The Tobin's Q is a metric of shareholder value widely used in the accounting, finance, and management literature (e.g. Daske et al., 2008; Doidge et al., 2004; Fabrizi, 2014; Lang & Stulz,

1993; Rao et al., 2004; Servaes, 1991; Simon & Sullivan, 1993; Youndt et al., 2004). Higher values of Tobin's Q reflect differences in expected discount rates and/or differences in expected future cash flows or growth expectations.

Figure 2 reports the results from the Sobel-Goodman test to verify whether the fact that CSR affects the trade-off between REM and AEM partially mediates the positive association between CSR and future performance, measured as Tobin's Q one year ahead. Table 6 reports full results from the regression models used to perform the Sobel-Goodman test. Results consistently show that (i) CSR orientation has a positive and strong effect on future performance (thus confirming our ex-ante expectation that CSR orientation has a positive impact on future performance—link C in Figure 1); (ii) CSR orientation has a negative and strong effect on the trade-off between REM and AEM (as already shown in Table 4—link A in Figure 1); (iii) the trade-off between REM and AEM has a negative and strong effect on firms' future performance (thus confirming our ex-ante expectation that REM is detrimental for firms' future performance to a larger extent than AEM– link B in Figure 1); and (iv) the positive effect that CSR orientation has on future performance shrinks upon the inclusion of the variable "REM_vs_AEM" in the model (link C^{I} in Figure 1). This latter result is supported by the highly significant Z-value of the Sobel tests, which strongly supports the hypothesis that the positive effect that CSR has on future performance is partially mediated by its effect on the trade-off between REM and AEM. Un-tabulated results show that this evidence holds well even if we compute Tobin's Q two or three years ahead[6]. This evidence provides additional support to our main analyses about the relationship between REM and AEM under different levels of CSR orientation and support the

[6] Evidence (un-tabulated) remains unchanged if we measure a firm's operating performance using operating cash flow (Compustat item "oancf") scaled by total assets (see Fabrizi, 2014).

argument that CSR-oriented firms are less likely to engage in REM because of their greater consideration about future performance.

<< Insert Figure 2 and Table 6 about here >>

5.3 Robustness tests

Firms that meet or beat analysts' forecasts

To strengthen our results, we repeat our tests using a sub-sample of firms that meet or beat analysts' consensus forecasts. This approach is consistent with Brown & Caylor (2005) showing that, in recent years, managers seek to avoid missing earnings forecasts more than missing other targets The advantage of this approach is that firms that successfully meet or beat analysts' forecasts are more likely to have managed earnings upwards. On the other hand, having a much smaller sample size reduces the power of our tests. As a consequence, in the paper we report results using both approaches[7]. Table 7 reports the 2SLS estimates from model (2) using only those firms with earnings per share equal to, or higher than, the analysts' median forecasts. Results are consistent with those reported in the main analysis (Table 5). Un-tabulated results on the Sobel-Goodman test are also aligned with our main analysis.

<< Insert Table 7 about here >>

Alternative measure of earnings management and future performance

We re-run the analysis for investigating H1 and H2 by computing a second proxy for real earnings management (REAL2) as the sum of abnormal cash flow from operations and abnormal

[7] Because of our small sample size, we cannot limit the analysis to those firms that beat analysts' forecasts by only 0.01 cent.

discretionary expenses, both of them multiplied by minus 1. The use of this second proxy is consistent with Cohen & Zarowin (2010). High values of this variable indicate that the firm is engaging in sales manipulations and cutting discretionary expenditure to manage reported earnings upward. Similar to the main analysis, we sort both DA and REAL2 into deciles and create our two metrics EM_ALL2 and REM2_vs_AEM. We estimate both model (1) and model (2) using a 2SLS regression, with robust standard errors clustered at firm level, and year and country fixed effects. Table 8 reports the results respectively in column 1 and column 2. Our results hold well, and the estimated coefficients are also very similar to the ones obtained in the main analysis.

<<Insert Table 8 about here>>

Controlling for investor protection, governance, and foreign sales

In un-tabulated additional analyses, we consider three further factors that might be affecting our results. While the simultaneous use of Kaufmann's rule of law and country-fixed effects should mitigate concerns over the fact that other country-specific factors are driving our results, we further include in our specification a control measure of investor protection. Specifically, in the spirit of La Porta et al. (2006), we use disclosure requirements, liability standards, and an index of anti-director rights as proxies for investor protection. We reduced these metrics to a single variable by means of a principal component analysis. Second, it is likely that the corporate governance model of the firm has an impact on earnings management activities (Xie et al., 2003) as well as on CSR (Mallin & Michelon, 2011). Thus, we include as a control the governance score as reported by EIRIS. Third, it is likely that the level of international operations affects both the degree to which companies manage earnings as well as the CSR strategies they undertake. Thus we include as an additional control the percentage of foreign

sales as a proportion of total sales. Un-tabulated results show a positive and significant impact of investor protection and governance on the trade-off between REM and AEM, while we do not find a significant coefficient on the percentage of foreign sales. After the inclusion of these additional variables, the main evidence remains unchanged[8].

Sample composition

Given the country and industry sample distribution reported in Table 1, many countries and industries have low representation. In this section, we investigate whether results are driven by few countries and/or industries. Specifically, we re-test H1 using OLS models excluding observations from or restricting observations to, respectively: the U.S., Japan, the U.S. and Japan, non-U.S. and non-Japan countries with number of observations greater than 100, and the manufacturing industry. For completeness, we performed these analyses including also the controls for investor protection, governance, and foreign sales. CSR is found to be significantly and negatively associated with REM_vs_AEM across all tests, with the only exception of the analysis excluding observations from the manufacturing industry, where the coefficient (although still negative) is not significant (p-value equal to 0.16). Overall, we conclude that, despite the unbalanced sample compositions, our main evidence seems not to be driven by a few countries.

6. Conclusion and discussion

[8] We lose 6 observations due to missing data on foreign sales.

In this study, we investigate whether the CSR orientation of a company (i) is related to its reporting strategies in terms of the trade-off between REM and AEM, and (ii) moderates the relationship between the level of legal enforcement and the trade-off between AEM and REM.

We extend previous studies on the U.S. setting (e.g. Kim et al., 2012) and find that even in an international setting, the CSR orientation is negatively associated with the use of earnings management strategies. In this regard, our research provides two insights. First, firms with a CSR orientation are more likely to use AEM than REM, in line with the expectation that CSR-oriented firms are more likely to engage in the less costly earnings management strategy for stakeholders, i.e., one which does not alter the underlying real operations of the company. Second, the CSR orientation of the firm interacts with the characteristics of the institutional environment, such as the legal enforcement, in shaping the reporting incentives. Whereas previous literature has documented a shift from the use of AEM to REM in a strong legal enforcement environment, we show that firms' use of REM—which is harder to detect—instead of AEM is significantly lower in companies with a high CSR orientation. This finding is important because of REM's negative long-term impact on the firm's value drivers.

Our main results are strengthened by the association among the firm's CSR orientation, the choice between REM and AEM and the firm's future performance. Previous literature (Flammer, 2015; Orlitzky et al., 2003) documents a positive relationship between CSR orientation and performance. Our results show that the choice of earnings management strategies plays a role in mediating this association and that CSR orientation, acting as a constraint for REM, contributes to the creation of value for all stakeholders. Specifically, we find evidence that a lower engagement in REM vs. AEM partially mediates the positive relationship between CSR and future performance. The mediation analysis shows that good CSR firms engage less in REM

(which is value destroying) than in AEM and this partially explains why they exhibit higher performance. By pushing firms to engage less in REM than in AEM, the CSR orientation is able to drive an additional positive effect (besides the direct one) on performance, as REM is negatively related to performance. This further evidence suggests that when considering how to manipulate earnings, CSR-oriented firms opt for the less penalizing strategy in terms of future performance, thus protecting both shareholders' interests and the interests of all the firms' stakeholders. Thus, we shed new light on the mechanisms through which CSR delivers value to stakeholders. Overall, our evidence suggests that CSR can create value for the shareholders and stakeholders by driving accounting policies and the trade-offs amongst them.

Our study has important contributions. First, not only do we show that CSR is negatively associated with earnings management in an international setting, but we also provide evidence that CSR affects the *trade-off* amongst earnings management strategies, thus shedding light on how CSR-oriented firms manage their earnings by favoring AEM instead of REM. Second, by investigating the relationship between CSR and earnings management in an international setting, we contribute to the literature on the interplay between reporting incentives stemming from the institutional environment and firm level characteristics. We believe that our contribution is particularly relevant because REM is a more covert way of managing earnings, it has a potentially long-term impact on firms' viability, and it damages the value drivers. Third, we contribute to the extant literature about the relationship between CSR and future performance (Al-Tuwaijri et al., 2004; Flammer, 2015; Herremans et al., 1993; Orlitzky et al., 2003). We show that the positive impact of firms' CSR orientation on performance is partially mediated by firms' earnings management choices, since CSR orientation prevents firms from manipulating

real operations with negative consequences on their future performance. Thus, we shed light on a new avenue through which CSR delivers value to stakeholders.

Like all studies, ours is not without its limitations. First of all, CSR is measured using a proxy and although we believe it to be reliable and accurate, it may not be capturing the true underlying attributes. Moreover, EIRIS—as with many other providers of CSR data—mixes data from public and corporate information and possibly this can introduce a selection bias. Thus, results should be interpreted with caution and further research could use different proxies for CSR. Second, the use of an instrumental variable approach can only mitigate concerns about endogeneity without providing a definitive solution since the identification of appropriate instruments relies on strong assumptions that might not hold. Third, the trade-off between AEM and REM is not observable and we measure it using a proxy that is likely to introduce noise in the analysis.

Future research might expand our work by investigating in more detail the mechanisms through which CSR orientation induces firms to avoid the use of real earnings management. Indeed, it would be beneficial to understand which specific dimension of the CSR construct (e.g. employee, environment, etc.) has the strongest impact on firms' reporting incentives and why. Overall, our results point to the pivotal importance of sharpening our understanding of the effects that CSR orientation has on firms' reporting strategies and incentives, and also taking into consideration the potential impact in terms of future performance.

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Table 1. Sample Selection and Distribution

Panel A. Distribution of observations

Year	Freq.	%	Cum. %
2003	602	10.27	10.27
2004	619	10.56	20.86
2005	844	14.40	35.24
2006	894	15.25	50.50
2007	929	15.85	66.37
2008	956	16.31	82.66
2009	1,019	17.38	100.00
Total	**5,863**	**100.00**	

Panel B. Breakdown of observations by country and year

	Year							
Country	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Total**
AUSTRALIA	13	16	35	34	35	38	43	214
BELGIUM	2	2	3	3	3	3	3	19
CHINA & HONG KONG	3	4	10	10	8	9	15	59
DENMARK	4	4	4	5	4	4	4	29
FINLAND	0	0	1	1	1	1	1	5
FRANCE	23	26	27	29	32	34	33	204
GERMANY	21	22	23	25	25	26	25	167
GREECE	1	1	2	1	1	1	0	7
IRELAND	0	0	0	1	1	1	1	4
ISRAEL	0	0	1	2	1	1	6	11
ITALY	4	4	5	5	7	10	9	44
JAPAN	213	213	281	300	313	323	324	1,967
SOUTH KOREA	0	0	0	6	0	0	47	53
NETHERLANDS	4	4	5	5	6	8	8	40
NEW ZEALAND	0	0	0	0	0	2	2	4
NORWAY	0	0	1	3	4	4	4	16
SINGAPORE	3	6	12	14	14	11	11	71
SPAIN	0	2	10	10	11	11	7	51
SWEDEN	12	12	14	12	11	11	13	85
SWITZERLAND	17	17	19	18	19	20	20	130
THAILAND	0	0	0	0	1	1	1	3
UNITED KINGDOM	54	54	63	60	61	57	55	404
UNITED STATES	228	232	328	350	371	380	387	2,276
Total	**602**	**619**	**844**	**894**	**929**	**956**	**1,019**	**5,863**

Panel C. Breakdown of observations by industry

Agriculture, Forestry and Fishing	5
Mining	256
Construction	198
Manufacturing	3,441
Transportation and Utilities	727
Trade	624
Services	612
Total	**5,863**

Table 2. Descriptive statistics

Panel A. Overall sample

Variables	**N**	**Mean**	**SD**	**25thperc.**	**50thperc.**	**75thperc.**
DA	5,863	0.011	0.073	-0.021	0.008	0.044
REAL	5,863	0.007	0.287	-0.128	0.013	0.144
CSR	5,863	6.722	2.139	5.130	6.620	8.440
ENFORCEMENT	5,863	0.596	0.491	0.000	1.000	1.000
SIZE	5,863	8.892	1.076	8.099	8.820	9.739
LEV	5,863	0.170	0.146	0.055	0.151	0.243
ADJ_ROA	5,863	0.191	0.506	0.008	0.063	0.208
GROWTH	5,863	0.737	5.019	-0.103	0.254	0.817
MTB	5,863	3.417	4.992	1.461	2.376	4.053
BELOW	5,863	0.030	0.172	0.000	0.000	0.000
HIGH	5,863	0.706	0.456	0.000	1.000	1.000
IFRS	5,863	0.166	0.372	0.000	0.000	0.000
MKT_CAP	5,863	1.230	0.414	0.984	1.234	1.437
LITIGATION	5,863	0.192	0.394	0.000	0.000	0.000
NOA	5,863	26.810	63.079	0.455	1.114	35.812
GDP	5,863	10.230	0.219	10.235	10.235	10.416
ESSI	5,863	0.238	0.426	0.000	0.000	0.000

Variable are defined in Appendix 3. The table reports descriptive statistics for the main variables used in the analysis.

Table 3. Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 EM_ALL	1																
2 REM_vs_AEM	0.002	1															
3 CSR	-0.151***	-0.036**	1														
4 ENFORCEMENT	0.262***	-0.025	-0.144***	1													
5 SIZE	0.071***	0.056***	0.440***	0.013	1												
6 LEV	0.147***	0.098***	0.028*	0.175***	0.224***	1											
7 ADJ_ROA	0.040**	-0.023	-0.077***	0.105***	-0.027*	-0.034**	1										
8 GROWTH	0.012	-0.008	-0.054***	0.034**	-0.002	0.069***	0.011	1									
9 MTB	-0.042**	-0.116***	0.029*	0.198***	0.070***	-0.083***	0.062***	0.026*	1								
10 BELOW	0.094***	-0.026*	0.009	-0.057***	-0.025	0.004	-0.040**	0.091***	-0.037**	1							
11 HIGH	-0.148***	0.038**	0.269***	-0.432***	0.444***	-0.103***	-0.057***	-0.023	-0.022	0.114***	1						
12 IFRS	-0.068***	0.023	0.303***	0.101***	0.151***	0.077***	-0.007	0.029*	0.057***	-0.028*	-0.096***	1					
13 MKT_CAP	0.121***	-0.015	-0.116***	0.493***	-0.074***	0.048***	0.026*	0.051***	0.158***	-0.017	-0.271***	0.038**	1				
14 LITIGATION	-0.044***	-0.075***	-0.039**	0.058***	-0.035**	-0.157***	0.014	-0.032*	0.071***	-0.005	-0.01	-0.088***	0.036**	1			
15 NOA	-0.131***	0.034*	0.034**	-0.489***	-0.018	-0.035**	-0.064***	0.134***	-0.119***	0.044***	0.258***	-0.178***	-0.200***	-0.059***	1		
16 GDP	-0.032*	-0.038**	-0.086***	-0.311***	-0.042**	-0.178***	-0.026*	-0.088***	-0.072***	-0.035**	0.271***	-0.351***	-0.164***	0.064***	-0.097***	1	1
17 ESSI	0.003	-0.052***	0.232***	-0.066***	0.144***	0.098***	-0.018	0.005	0.046***	-0.050***	0.126***	0.070***	-0.068***	-0.041**	0.083***	0.002	0.002

Variables are defined in Appendix 3. The table shows Pearson correlation coefficients among the main variables involved in the analysis. *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two tailed.

Table 4. CSR and Earnings Management Strategies

Dependent Variable:	CSR I stage (1)	EM_ALL II stage Full Sample (2)	EM_ALL II stage Non-US (3)	DA OLS Full Sample (4)	REAL OLS Full Sample (5)	DA OLS Beta Coeff (6)	REAL OLS Beta Coeff (7)	REM_vs_AEM 2SLS Full Sample (8)
CSR		-1.121***	-1.214***	-0.001*	-0.021***	-0.037*	-0.156***	-0.075***
		[0.004]	[0.005]	[0.079]	[0.000]	[0.079]	[0.000]	[0.000]
CSR_IV	0.454***							
	[0.000]							
SIZE	0.817***	1.345***	1.120***	0.006***	0.055***	0.083***	0.205***	0.071***
	[0.000]	[0.000]	[0.004]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
LEV	-0.822***	0.519	0.678	-0.009	0.151***	-0.018	0.077***	0.054
	[0.006]	[0.506]	[0.472]	[0.438]	[0.003]	[0.438]	[0.003]	[0.177]
ADJ_ROA	-0.131**	-0.002	-0.199	0.004*	-0.004	0.025*	-0.008	-0.014*
	[0.013]	[0.990]	[0.228]	[0.053]	[0.636]	[0.053]	[0.636]	[0.056]
GROWTH	-0.019**	-0.037**	-0.032**	-0.000*	-0.002	-0.017*	-0.030	-0.001
	[0.021]	[0.022]	[0.021]	[0.090]	[0.243]	[0.090]	[0.243]	[0.152]
MTB	0.009	-0.075***	-0.120***	0.000	-0.009***	0.029	-0.150***	-0.003***
	[0.126]	[0.000]	[0.000]	[0.155]	[0.000]	[0.155]	[0.000]	[0.002]
BELOW	0.218	3.902***	4.810***	0.059***	0.098***	0.137***	0.058***	-0.031
	[0.217]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.121]
HIGH	0.070	-0.986***	-1.459***	-0.017***	-0.046**	-0.104***	-0.072**	0.017
	[0.512]	[0.001]	[0.000]	[0.000]	[0.034]	[0.000]	[0.034]	[0.240]
IFRS	0.237	0.417	0.286	0.003	0.032	0.013	0.042	0.026
	[0.111]	[0.255]	[0.434]	[0.677]	[0.216]	[0.677]	[0.216]	[0.211]
MKT_CAP	0.707***	0.266	0.268	-0.007	-0.005	-0.040	-0.007	0.055*
	[0.006]	[0.689]	[0.672]	[0.505]	[0.890]	[0.505]	[0.890]	[0.072]
LITIGATION	0.195*	-0.589**	-0.705**	-0.006*	-0.038*	-0.032*	-0.052*	-0.018
	[0.084]	[0.036]	[0.033]	[0.069]	[0.080]	[0.069]	[0.080]	[0.186]
NOA	-0.004***	0.002	0.003	0.000**	0.000	0.048**	0.046	-0.000**
	[0.007]	[0.459]	[0.366]	[0.024]	[0.167]	[0.024]	[0.167]	[0.025]
GDP	-4.023	1.143	-1.097	0.104	-0.162	0.301	-0.123	-0.572***
	[0.112]	[0.837]	[0.787]	[0.160]	[0.513]	[0.160]	[0.513]	[0.000]
ESSI	0.467***	1.278***	1.238***	0.015***	-0.025	0.090***	-0.037	0.031
	[0.000]	[0.001]	[0.003]	[0.000]	[0.240]	[0.000]	[0.240]	[0.119]
Constant	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Test								
Chi2						83.83		
Prob						0.000		
Observations	5,863	5,863	3,587	5,863	5,863	5,863	5,863	5,863
R-squared	0.430	0.083	0.008	0.087	0.134	0.087	0.134	0.058

Variables are defined in Appendix 3. The table reports 2SLS estimates from model (1). *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two tailed and are reported in brackets. Standard errors are clustered at firm-level.

Table 5. CSR, Legal Enforcement and the Trade-off amongst Earnings Management Strategies

Dependent Variable:	REM_vs_AEM	
	2SLS	
	Coefficient	*P-value*
CSR	-0.035**	[0.019]
ENFORCEMENT	0.568***	[0.000]
CSR*ENFORCEMENT	-0.074***	[0.000]
SIZE	0.065***	[0.000]
LEV	0.032	[0.480]
ADJ_ROA	-0.014*	[0.080]
GROWTH	-0.002**	[0.041]
MTB	-0.003***	[0.008]
BELOW	-0.054***	[0.008]
HIGH	0.069***	[0.001]
IFRS	0.065**	[0.013]
MKT_CAP	0.016	[0.630]
LITIGATION	-0.013	[0.411]
NOA	-0.000*	[0.090]
GDP	-0.578***	[0.000]
ESSI	0.032	[0.124]
Constant	5.828***	[0.000]
Year fixed effects	YES	
Country fixed effects	YES	
Observations	5,863	
R-squared	0.060	

Variables are defined in Appendix 3. The table reports 2SLS estimates from model (2). In the un-tabulated first-stage, we use the mean of the CSR orientation in year t of all firms belonging to firm's i 2-digit SIC code as instrument for CSR. *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two-tailed and are reported in brackets. Standard errors are clustered at firm-level.

Table. 6. CSR, Real Earnings Management and Future Performance

Dependent Variable:	Tobin's Q (1)	REM_vs_AEM (2)	Tobin's Q (3)
CSR	0.033***	-0.008***	0.027***
	[0.001]	[0.000]	[0.005]
REM_vs_AEM			-0.630***
			[0.000]
SIZE	-0.302***	0.015***	-0.291***
	[0.000]	[0.000]	[0.000]
LEV	-0.418**	0.108***	-0.345*
	[0.022]	[0.000]	[0.056]
ADJ_ROA	0.117***	-0.005	0.115***
	[0.000]	[0.288]	[0.000]
GROWTH	0.001	-0.000	0.001
	[0.310]	[0.686]	[0.336]
HIGH	0.166***	0.009	0.170***
	[0.001]	[0.232]	[0.000]
MTB	0.051***	-0.004***	0.049***
	[0.000]	[0.000]	[0.000]
GDP	0.815	-0.319**	0.631
	[0.433]	[0.013]	[0.575]
ESSI	0.005	-0.024***	-0.011
	[0.913]	[0.000]	[0.787]
BELOW		-0.048***	
		[0.001]	
IFRS		0.007	
		[0.545]	
MKT_CAP		0.006	
		[0.786]	
LITIGATION		-0.026***	
		[0.000]	
NOA		-0.000	
		[0.335]	
Year fixed effects	YES	YES	YES
Country fixed effects	YES	YES	YES
		Sobel Test	
		Z-test = 4.13	
		P > |Z| = 0.000	

Variables are defined in Appendix 3. The table reports results from the Sobel Test described in Figures 1 and 2. *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two tailed and are reported in brackets. Standard errors are clustered at firm-level.

Table 7. Subsample of Firms that Met/Beat Analysts' Consensus Forecast

Dependent Variable:	REM_vs_AEM Subsample 2SLS	
	Coefficient	*P-value*
CSR	-0.035**	[0.034]
ENFORCEMENT	0.543***	[0.001]
CSR*ENFORCEMENT	-0.069***	[0.001]
SIZE	0.068***	[0.001]
LEV	0.064	[0.158]
ADJ_ROA	-0.013	[0.149]
GROWTH	-0.013***	[0.007]
MTB	-0.002	[0.125]
BELOW	-0.052*	[0.077]
HIGH	0.067***	[0.003]
IFRS	0.091***	[0.002]
MKT_CAP	0.012	[0.753]
LITIGATION	-0.014	[0.377]
NOA	-0.000*	[0.074]
GDP	-0.571***	[0.000]
ESSI	0.025	[0.302]
Constant	5.727***	[0.000]
Year fixed effects	YES	
Country fixed effects	YES	
Observations	3,818	
R-squared	0.067	

Variables are defined in Appendix 3. The table reports 2SLS estimates from model (2) estimated using the subsample of firms that met/beat analysts' forecasts. In the un-tabulated first-stage, we use the mean of the CSR orientation in year t of all firms belonging to firm's i 2-digit SIC code as instrument for CSR. *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two-tailed and are reported in brackets. Standard errors are clustered at firm-level.

Table 8. CSR, Legal Enforcement and Earnings Management Strategies

Dependent Variable:	EM_ALL2 II stage Full Sample (1)		REM2_vs_AEM II stage Full Sample (2)	
	Coefficient	*P-value*	*Coefficient*	*P-value*
CSR	-1.232***	[0.002]	-0.038***	[0.009]
ENFORCEMENT			0.564***	[0.000]
CSR*ENFORCEMENT			-0.081***	[0.000]
SIZE	1.531***	[0.000]	0.075***	[0.000]
LEV	1.259	[0.121]	0.062	[0.172]
ADJ_ROA	-0.150	[0.321]	-0.022***	[0.006]
GROWTH	-0.046**	[0.015]	-0.003**	[0.025]
MTB	-0.073***	[0.000]	-0.003**	[0.012]
BELOW	5.246***	[0.000]	0.000	[0.991]
HIGH	-1.295***	[0.000]	0.056***	[0.008]
IFRS	0.545	[0.137]	0.067**	[0.015]
MKT_CAP	0.320	[0.692]	0.022	[0.549]
LITIGATION	-0.607**	[0.035]	-0.012	[0.417]
NOA	0.002	[0.542]	-0.000**	[0.050]
GDP	0.782	[0.912]	-0.659**	[0.040]
ESSI	1.463***	[0.000]	0.042*	[0.052]
Constant	-2.693	[0.970]	6.603**	[0.043]
Year fixed effects	YES		YES	
Country fixed effects	YES		YES	
Observations	5,863		5,863	

Variables are defined in Appendix 3. The table reports 2SLS estimates from model (1) (column 1) and model (2) (column 2) estimated using an alternative proxy of real earnings management. In the un-tabulated first-stage, we use the mean of the CSR orientation in year t of all firms belonging to firm's i 2-digit SIC code as instrument for CSR. *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two-tailed and are reported in brackets. Standard errors are clustered at firm-level.

Figure 1. Mediation effect

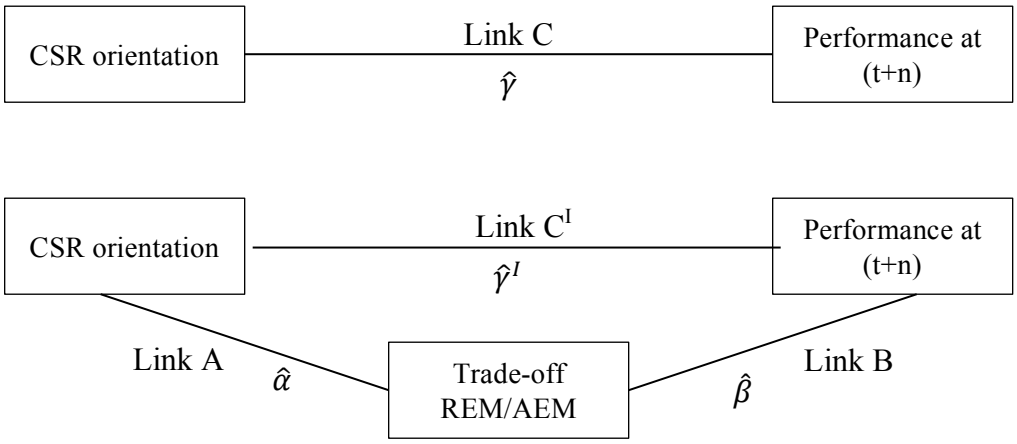
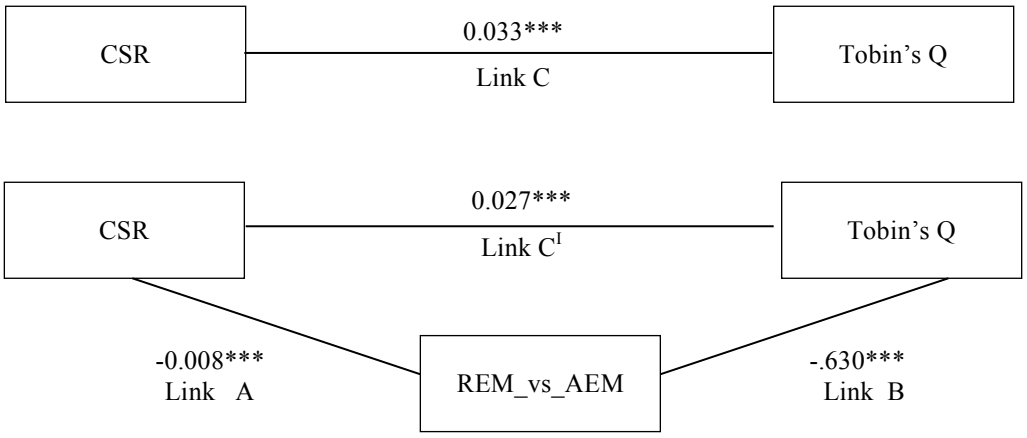


Figure 2. Mediation tests



Sobel Test
Z-test = 4.13
P>|Z|= 0.000

Variables are defined in Appendix 3.

Appendix 1

We used CSR scores for three dimensions of CSR performance available in the EIRIS dataset: 1) Employee performance, 2) Environmental performance, and 3) Community performance.

As regards Employee performance, the EIRIS dataset contains a textual judgment on the following sub-dimensions:

a) Health and safety systems
b) Training and development systems
c) Systems for maintaining good employee relations
d) Systems/practices for job creation and security
e) Equal opportunities policy
f) Equal opportunities systems and practice

Each sub-dimension contains one of the following three textual judgments:

- Little or no evidence
- Some evidence
- Clear evidence

We first converted the textual judgment in a numeric score ranging from 1 to 3, and secondly we summed all the scores to obtain a single score for the dimension "employee performance" which therefore ranges from 6 to 18.

We did the same for the Environmental performance dimension. The EIRIS dataset contains a textual judgment on the following sub-dimensions:

a) Environmental impact improvements
b) Environmental management system
c) Environmental policy and commitment
d) Environmental reporting

Each sub-dimension contains one of the following textual judgments:

- Inadequate
- Weak
- Moderate
- Good
- Exceptional

We converted the textual judgment in a numeric score ranging from 1 to 5 and we summed all the scores to obtain a single score for the dimension "Environmental performance" which therefore ranges from 4 to 20. Finally, for the Community performance dimension, the EIRIS dataset only contains one sub-dimension and we converted the textual score in a numeric score ranging from 1 to 4.

At this point we had a unique score of the three CSR dimensions (Employee, Environment, and Community) with a maximum score of 18, 20, and 4, respectively. In order to ensure that each dimension has the same weight, we further normalize the Employee and Environmental score to a scale out of 4. Finally, we computed the overall CSR metric by summing the three normalized scores. Since each standardized metric ranges from one to four, the overall metric ranges from three to twelve.

To further illustrate the measures, we provide a numeric example:

Company ALFA

Employee performance's scores in EIRIS:

- Health and safety systems: ***LITTLE***
- Training and development systems: ***LITTLE***
- Systems for maintaining good employee relations: ***MEDIUM***
- Systems/practices for job creation and security: ***LITTLE***
- Equal opportunities policy: ***LITTLE***
- Equal opportunities systems and practice: ***LITTLE***

Score Employee performance: (1+1+2+1+1+1) = 7
Normalized Score for Employee performance = 7 / (Max Employee Score / 4) = 7 / (18/4) = 1.56

Environmental performance's scores in EIRIS:

- Environmental impact improvements: ***WEAK***
- Environmental management system: ***WEAK***
- Environmental policy and commitment: ***GOOD***

Score Environmental performance: (2+2+4) = 8
Normalized Score for Environmental performance = 8 / (Max Environ. score / 4) = 8 / (20/4) = 1.60

Community performance's scores in EIRIS:

- Commitment to community or charitable work: ***LITTLE***

Score Community performance: 1

Normalized Score Employee performance = 1.56
Normalized Score Environmental performance = 1.60
Normalized Score Community performance = 1
Normalized Score Overall CSR = (1.56+1.60+1) = 4.16

These are the metrics used in the regression analyses.

Appendix 2

Accrual-based earnings management

We use the modified cross-sectional Jones model (Jones, 1991), as described in Dechow et al. (1995) to estimate for each two-digit SIC-year-country grouping as follows:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta S_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (1)$$

where TA is equal to total accruals in year t measured as net income before extraordinary items less operating cash flow; A is the firm's total assets; ΔS is the change in sales and PPE is equal to property plan and equipment gross.

The coefficient estimates from equation (1) are used to estimate firm-specific normal accruals (NA):

$$\frac{NA_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta S_{it} - \Delta AR_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (2)$$

where ΔAR is the change in accounting receivables. Our measure of discretionary accruals (AEM) is the difference between total accruals and the fitted normal accruals, defined as

$$AEM_{it} = \frac{TA_{it}}{A_{it-1}} - \frac{NA_{it}}{A_{it-1}} (3)$$

Real earnings management

As in Roychowdhury (2006) and Cohen et al. (2008), we use the abnormal levels of cash flow from operation (*R_CFO*), the abnormal level of production costs (*R_PROD*), and the abnormal level of discretionary expenses (*R_DEXP*) to capture the extent of real earnings management activity. Following the model developed by Dechow et al. (1998), as implemented in Roychowdhury (2006), we express normal cash flow from operations as a linear function of sales and changes in sales in the current period. Through this equation we identify price discounts or more lenient credit terms that permit firms to inflate current year sales by accelerating sales from the next year. Firms that accelerate sales are likely to have lower operating cash flow for given sales. In order to estimate the model, we run the following cross-sectional regression model for each country, industry, and year:

$$\frac{CFO_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta S_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (4)$$

where CFO is operating cash flow and it is expressed as a linear function of sales (S) and the change in sales (ΔS). For every firm-year, abnormal cash flow from operations (R_CFO) is the actual CFO minus the normal level of CFO calculated using the estimated coefficient from equation (4).

Overproduction is another way companies might use to record higher earnings in the current year since fixed production costs remain lodged in inventory. The incremental marginal costs incurred in producing additional inventories result in abnormally high production costs given sales (Athanasakou et al. JBFA 2011). Production costs are defined as the sum of costs of goods sold (COGS) and the change in inventory during the year (ΔINV):

$$PROD_{it} = COGS_{it} + \Delta INV_{it} (5)$$

We estimate normal production costs (COGS) by using Roychowdhury's (2006) model as follows:

$$\frac{COGS_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (6)$$

and similarly, the model for normal inventory growth is estimated as:

$$\frac{\Delta \mathrm{INV}_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta S_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta S_{it-1}}{A_{it-1}} + \varepsilon_{it} \qquad (7)$$

For every firm-year, abnormal production costs (R_PROD) is the actual production costs (Cost of goods sold plus the change in inventories) minus the normal level of production costs as in equation (5) calculated using the estimated coefficient from equations (6) and (7).

A third way to operate in order to achieve better results is through managing discretionary expenses as research and development costs (R&D), selling, general, and administrative costs cutting (SG&A), and advertising costs (ADV).

$$DEXP_{it} = R\&D_{it} + \text{SG\&}A_{it} + \text{ADV}_{it} (8)$$

The normal level of research and development costs (R&D), selling, general, and administrative costs cutting (SG&A), and advertising costs (ADV) is modeled as in models (9) – (11) respectively:

$$\frac{\text{R\&}D_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it-1}}{A_{it-1}} + \varepsilon_{it} \qquad (9)$$

$$\frac{\text{SG\&}A_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it-1}}{A_{it-1}} + \varepsilon_{it} \qquad (10)$$

$$\frac{\text{ADV}_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it-1}}{A_{it-1}} + \varepsilon_{it} \qquad (11)$$

For every firm-year, abnormal discretionary costs (R_DEXP) is the actual discretionary costs (research and development costs plus selling, general and administrative costs cutting plus advertising costs) minus normal level of discretionary costs as in equation (8) calculated using the estimated coefficient from equations (9), (10) and (11).

Appendix 3

DA	Discretionary accruals measured using the Modified Jones Model (Jones, 1991). See Appendix 2.
REAL	Sum of abnormal production costs and abnormal discretionary expenses (multiplied by minus 1), computed as in Roychowdhury (2006). See Appendix 2.
REAL2	Sum of abnormal cash flow from operations and abnormal discretionary expenses (both of them multiplied by minus 1), computed as in Roychowdhury (2006). See Appendix 2.
EM_ALL	Decile (DA) + Decile (REAL)
REM_vs_AEM	Decile (REAL) /[Decile (DA) + Decile (REAL)]
EM_ALL2	Decile (DA) + Decile (REAL2)
REM2_vs_AEM	Decile (REAL2) /[Decile (DA) + Decile (REAL2)]
CSR	EIRIS's CSR score. See Appendix 1.
CSR_IV	Mean of the CSR orientation in year t of all firms belonging to firm's i 2-digit SIC code, excluding firm i.
ENFORCEMENT	Dummy variable which takes the value of 1 (0) for countries with a strong (weak) legal enforcement according to the "Rule of Law."
SIZE	Logarithm of the firm's total sales.
LEV	End-of-year total liabilities divided by the end-of-year book value of equity.
ADJ_ROA	Difference between the firm's profitability (ROA computed as operating income over the mean value of total assets between year t and year t-1) and the industry median for a given year.
GROWTH	Percentage change in sales.
MTB	Market value of equity divided by book value of equity.
BELOW	Dummy equal to 1 when the pre-managed earnings (measured by the operating cash flow) are less than zero, 0 otherwise.
HIGH	Dummy equal to 1 when the firm is outperforming (operating cash flow above the sample 75^{th} percentile), 0 otherwise.
IFRS	Dummy equal to 1 if the firm adopts IFRS and 0 if reports are prepared using domestic GAAP.
MKT_CAP	Logarithm of stock market capitalization.
LITIGATION	Dummy variable equal to 1 if the firm belongs to a high-risk industry, 0 otherwise.
NOA	Lagged net operating assets scaled by lagged sales.
GDP	Logarithm of gross domestic product per capita.
ESSI	Dummy equal to 1 for socially and environmentally sensitive industries, 0 otherwise.
Tobin's Q	Firm's Tobin's Q computed one year ahead as (total assets – book value of equity + market value of equity) scaled by total assets.

Panel B. Breakdown by country

Country		DA	REAL	CSR	ENFORCEMENT*
AUSTRALIA	Mean	0.028	-0.081	6.819	1.755
	Median	0.017	-0.055	6.455	1.748
BELGIUM	Mean	-0.012	-0.074	8.046	1.296
	Median	-0.008	-0.021	8.290	1.309
CHINA & HONG KONG	Mean	-0.005	-0.002	5.329	1.358
	Median	-0.009	-0.001	5.130	1.549
DENMARK	Mean	-0.020	-0.062	7.798	1.942
	Median	-0.017	0.018	8.090	1.950
FINLAND	Mean	0.025	0.058	9.406	1.943
	Median	0.050	0.175	9.510	1.957
FRANCE	Mean	0.011	-0.029	8.020	1.424
	Median	0.006	-0.021	8.490	1.436
GERMANY	Mean	0.005	-0.080	7.930	1.665
	Median	0.002	-0.037	8.470	1.654
GREECE	Mean	-0.046	-0.080	8.630	0.810
	Median	-0.056	-0.069	7.400	0.789
IRELAND	Mean	0.013	-0.124	3.580	1.746
	Median	-0.013	-0.113	3.580	1.741
ISRAEL	Mean	-0.028	-0.020	4.658	0.837
	Median	0.003	0.053	3.800	0.809
ITALY	Mean	0.008	0.000	8.021	0.402
	Median	0.005	-0.002	8.490	0.354
JAPAN	Mean	-0.004	-0.059	6.980	1.289
	Median	-0.003	-0.015	7.510	1.290
KOREA, SOUTH	Mean	-0.026	-0.085	7.398	0.961
	Median	-0.031	-0.039	7.220	0.979
NETHERLANDS	Mean	0.002	-0.027	9.066	1.764
	Median	0.002	-0.020	9.290	1.763
NEW ZEALAND	Mean	-0.021	0.008	7.028	1.897
	Median	-0.022	0.017	7.645	1.897
NORWAY	Mean	0.035	0.075	7.724	1.945
	Median	0.001	0.011	8.270	1.943
SINGAPORE	Mean	-0.018	0.031	5.046	1.682
	Median	-0.025	0.051	5.330	1.675
SPAIN	Mean	-0.004	-0.031	8.343	1.109
	Median	0.005	-0.011	8.580	1.099
SWEDEN	Mean	-0.002	0.097	6.963	1.881
	Median	0.001	0.066	7.270	1.894
SWITZERLAND	Mean	-0.004	-0.103	6.857	1.842
	Median	0.001	-0.124	6.820	1.849
THAILAND	Mean	-0.002	0.014	5.130	-0.136
	Median	-0.003	0.101	5.130	-0.109
UNITED KINGDOM	Mean	-0.004	0.047	8.488	1.664
	Median	0.000	0.010	8.440	1.668
UNITED STATES	Mean	0.030	0.082	5.899	1.559
	Median	0.033	0.077	5.780	1.540

* Continuous variable measured as the Kaufmann's Rule of Law

Variables are defined in Appendix 3.

Table 3. Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 EM_ALL	1																
2 REM_vs_AEM	0.002	1															
3 CSR	-0.151***	-0.036**	1														
4 ENFORCEMENT	0.262***	-0.025	-0.144***	1													
5 SIZE	0.071***	0.056***	0.440***	0.013	1												
6 LEV	0.147***	0.098***	0.028*	0.175***	0.224***	1											
7 ADJ_ROA	0.040**	-0.023	-0.077***	0.105***	-0.027*	-0.034**	1										
8 GROWTH	0.012	-0.008	-0.054***	0.034**	-0.002	0.069***	0.011	1									
9 MTB	-0.042**	-0.116***	0.029*	0.198***	0.070***	-0.083***	0.062***	0.026*	1								
10 BELOW	0.094***	-0.026*	0.009	-0.057***	-0.025	0.004	-0.040**	0.091***	-0.037**	1							
11 HIGH	-0.148***	0.038**	0.269***	-0.432***	0.444***	-0.103***	-0.057***	-0.023	-0.022	0.114***	1						
12 IFRS	-0.068***	0.023	0.303***	0.101***	0.151***	0.077***	-0.007	0.029*	0.057***	-0.028*	-0.096***	1					
13 MKT_CAP	0.121***	-0.015	-0.116***	0.493***	-0.074***	0.048***	0.026*	0.051***	0.158***	-0.017	-0.271***	0.038**	1				
14 LITIGATION	-0.044***	-0.075***	-0.039**	0.058***	-0.035**	-0.157***	0.014	-0.032*	0.071***	-0.005	-0.01	-0.088***	0.036**	1			
15 NOA	-0.131***	0.034*	0.034**	-0.489***	-0.018	-0.035**	-0.064***	0.134***	-0.119***	0.044***	0.258***	-0.178***	-0.200***	-0.059***	1		
16 GDP	-0.032*	-0.038**	-0.086***	-0.311***	-0.042**	-0.178***	-0.026*	-0.088***	-0.072***	-0.035**	0.271***	-0.351***	-0.164***	0.064***	-0.097***	1	1
17 ESSI	0.003	-0.052***	0.232***	-0.066***	0.144***	0.098***	-0.018	0.005	0.046***	-0.050***	0.126***	0.070***	-0.068***	-0.041**	0.083***	0.002	0.002

Variables are defined in Appendix 3. The table shows Pearson correlation coefficients among the main variables involved in the analysis. *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two tailed.

Table 4. CSR and Earnings Management Strategies

Dependent Variable:	CSR I stage (1)	EM_ALL II stage Full Sample (2)	EM_ALL II stage Non-US (3)	DA OLS Full Sample (4)	REAL OLS Full Sample (5)	DA OLS Beta Coeff (6)	REAL OLS Beta Coeff (7)	REM_ 2 Full (
CSR		-1.121***	-1.214***	-0.001*	-0.021***	-0.037*	-0.156***	-0.0
		[0.004]	[0.005]	[0.079]	[0.000]	[0.079]	[0.000]	[0.
CSR_IV	0.454***							
	[0.000]							
SIZE	0.817***	1.345***	1.120***	0.006***	0.055***	0.083***	0.205***	0.0
	[0.000]	[0.000]	[0.004]	[0.000]	[0.000]	[0.000]	[0.000]	[0.
LEV	-0.822***	0.519	0.678	-0.009	0.151***	-0.018	0.077***	0.
	[0.006]	[0.506]	[0.472]	[0.438]	[0.003]	[0.438]	[0.003]	[0.
ADJ_ROA	-0.131**	-0.002	-0.199	0.004*	-0.004	0.025*	-0.008	-0.
	[0.013]	[0.990]	[0.228]	[0.053]	[0.636]	[0.053]	[0.636]	[0.
GROWTH	-0.019**	-0.037**	-0.032**	-0.000*	-0.002	-0.017*	-0.030	-0
	[0.021]	[0.022]	[0.021]	[0.090]	[0.243]	[0.090]	[0.243]	[0.
MTB	0.009	-0.075***	-0.120***	0.000	-0.009***	0.029	-0.150***	-0.0
	[0.126]	[0.000]	[0.000]	[0.155]	[0.000]	[0.155]	[0.000]	[0.
BELOW	0.218	3.902***	4.810***	0.059***	0.098***	0.137***	0.058***	-0
	[0.217]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.
HIGH	0.070	-0.986***	-1.459***	-0.017***	-0.046**	-0.104***	-0.072**	0.
	[0.512]	[0.001]	[0.000]	[0.000]	[0.034]	[0.000]	[0.034]	[0.
IFRS	0.237	0.417	0.286	0.003	0.032	0.013	0.042	0.
	[0.111]	[0.255]	[0.434]	[0.677]	[0.216]	[0.677]	[0.216]	[0.
MKT_CAP	0.707***	0.266	0.268	-0.007	-0.005	-0.040	-0.007	0.(
	[0.006]	[0.689]	[0.672]	[0.505]	[0.890]	[0.505]	[0.890]	[0.
LITIGATION	0.195*	-0.589**	-0.705**	-0.006*	-0.038*	-0.032*	-0.052*	-0
	[0.084]	[0.036]	[0.033]	[0.069]	[0.080]	[0.069]	[0.080]	[0.
NOA	-0.004***	0.002	0.003	0.000**	0.000	0.048**	0.046	-0.(
	[0.007]	[0.459]	[0.366]	[0.024]	[0.167]	[0.024]	[0.167]	[0.
GDP	-4.023	1.143	-1.097	0.104	-0.162	0.301	-0.123	-0.5
	[0.112]	[0.837]	[0.787]	[0.160]	[0.513]	[0.160]	[0.513]	[0.
ESSI	0.467***	1.278***	1.238***	0.015***	-0.025	0.090***	-0.037	0.
	[0.000]	[0.001]	[0.003]	[0.000]	[0.240]	[0.000]	[0.240]	[0.
Constant	YES	YES	YES	YES	YES	YES	YES	Y
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	Y
Country fixed effects	YES	YES	YES	YES	YES	YES	YES	Y
Test								
Chi2						83.83		
Prob						0.000		
Observations	5,863	5,863	3,587	5,863	5,863	5,863	5,863	5,
R-squared	0.430	0.083	0.008	0.087	0.134	0.087	0.134	0.

Variables are defined in Appendix 3. The table reports 2SLS estimates from model (1). *,**,*** indicate stat
significance at 10%, 5%, 1% level, respectively. P-values are two tailed and are reported in brackets. Standar
are clustered at firm-level.

Table 5. CSR, Legal Enforcement and the Trade-off amongst Earnings Management Strategies

Dependent Variable:	REM_vs_AEM	
	2SLS	
	Coefficient	*P-value*
CSR	-0.035**	[0.019]
ENFORCEMENT	0.568***	[0.000]
CSR*ENFORCEMENT	-0.074***	[0.000]
SIZE	0.065***	[0.000]
LEV	0.032	[0.480]
ADJ_ROA	-0.014*	[0.080]
GROWTH	-0.002**	[0.041]
MTB	-0.003***	[0.008]
BELOW	-0.054***	[0.008]
HIGH	0.069***	[0.001]
IFRS	0.065**	[0.013]
MKT_CAP	0.016	[0.630]
LITIGATION	-0.013	[0.411]
NOA	-0.000*	[0.090]
GDP	-0.578***	[0.000]
ESSI	0.032	[0.124]
Constant	5.828***	[0.000]
Year fixed effects	YES	
Country fixed effects	YES	
Observations	5,863	
R-squared	0.060	

Variables are defined in Appendix 3. The table reports 2SLS estimates from model (2). In the un-tabulated first-stage, we use the mean of the CSR orientation in year t of all firms belonging to firm's i 2-digit SIC code as instrument for CSR. *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two-tailed and are reported in brackets. Standard errors are clustered at firm-level.

Table. 6. CSR, Real Earnings Management and Future Performance

Dependent Variable:	Tobin's Q (1)	REM_vs_AEM (2)	Tobin's Q (3)
CSR	0.033***	-0.008***	0.027***
	[0.001]	[0.000]	[0.005]
REM_vs_AEM			-0.630***
			[0.000]
SIZE	-0.302***	0.015***	-0.291***
	[0.000]	[0.000]	[0.000]
LEV	-0.418**	0.108***	-0.345*
	[0.022]	[0.000]	[0.056]
ADJ_ROA	0.117***	-0.005	0.115***
	[0.000]	[0.288]	[0.000]
GROWTH	0.001	-0.000	0.001
	[0.310]	[0.686]	[0.336]
HIGH	0.166***	0.009	0.170***
	[0.001]	[0.232]	[0.000]
MTB	0.051***	-0.004***	0.049***
	[0.000]	[0.000]	[0.000]
GDP	0.815	-0.319**	0.631
	[0.433]	[0.013]	[0.575]
ESSI	0.005	-0.024***	-0.011
	[0.913]	[0.000]	[0.787]
BELOW		-0.048***	
		[0.001]	
IFRS		0.007	
		[0.545]	
MKT_CAP		0.006	
		[0.786]	
LITIGATION		-0.026***	
		[0.000]	
NOA		-0.000	
		[0.335]	
Year fixed effects	YES	YES	YES
Country fixed effects	YES	YES	YES
		Sobel Test	
		Z-test = 4.13	
		P > |Z| = 0.000	

Variables are defined in Appendix 3. The table reports results from the Sobel Test described in Figures 1 and 2. *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two tailed and are reported in brackets. Standard errors are clustered at firm-level.

Table 7. Subsample of Firms that Met/Beat Analysts' Consensus Forecast

Dependent Variable:	REM_vs_AEM Subsample 2SLS	
	Coefficient	*P-value*
CSR	-0.035**	[0.034]
ENFORCEMENT	0.543***	[0.001]
CSR*ENFORCEMENT	-0.069***	[0.001]
SIZE	0.068***	[0.001]
LEV	0.064	[0.158]
ADJ_ROA	-0.013	[0.149]
GROWTH	-0.013***	[0.007]
MTB	-0.002	[0.125]
BELOW	-0.052*	[0.077]
HIGH	0.067***	[0.003]
IFRS	0.091***	[0.002]
MKT_CAP	0.012	[0.753]
LITIGATION	-0.014	[0.377]
NOA	-0.000*	[0.074]
GDP	-0.571***	[0.000]
ESSI	0.025	[0.302]
Constant	5.727***	[0.000]
Year fixed effects	YES	
Country fixed effects	YES	
Observations	3,818	
R-squared	0.067	

Variables are defined in Appendix 3. The table reports 2SLS estimates from model (2) estimated using the subsample of firms that met/beat analysts' forecasts. In the un-tabulated first-stage, we use the mean of the CSR orientation in year t of all firms belonging to firm's i 2-digit SIC code as instrument for CSR. *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two-tailed and are reported in brackets. Standard errors are clustered at firm-level.

Table 8. CSR, Legal Enforcement and Earnings Management Strategies

Dependent Variable:	EM_ALL2 II stage Full Sample (1)		REM2_vs_AEM II stage Full Sample (2)	
	Coefficient	*P-value*	*Coefficient*	*P-value*
CSR	-1.232***	[0.002]	-0.038***	[0.009]
ENFORCEMENT			0.564***	[0.000]
CSR*ENFORCEMENT			-0.081***	[0.000]
SIZE	1.531***	[0.000]	0.075***	[0.000]
LEV	1.259	[0.121]	0.062	[0.172]
ADJ_ROA	-0.150	[0.321]	-0.022***	[0.006]
GROWTH	-0.046**	[0.015]	-0.003**	[0.025]
MTB	-0.073***	[0.000]	-0.003**	[0.012]
BELOW	5.246***	[0.000]	0.000	[0.991]
HIGH	-1.295***	[0.000]	0.056***	[0.008]
IFRS	0.545	[0.137]	0.067**	[0.015]
MKT_CAP	0.320	[0.692]	0.022	[0.549]
LITIGATION	-0.607**	[0.035]	-0.012	[0.417]
NOA	0.002	[0.542]	-0.000**	[0.050]
GDP	0.782	[0.912]	-0.659**	[0.040]
ESSI	1.463***	[0.000]	0.042*	[0.052]
Constant	-2.693	[0.970]	6.603**	[0.043]
Year fixed effects	YES		YES	
Country fixed effects	YES		YES	
Observations	5,863		5,863	

Variables are defined in Appendix 3. The table reports 2SLS estimates from model (1) (column 1) and model (2) (column 2) estimated using an alternative proxy of real earnings management. In the un-tabulated first-stage, we use the mean of the CSR orientation in year t of all firms belonging to firm's i 2-digit SIC code as instrument for CSR. *,**,*** indicate statistical significance at 10%, 5%, 1% level, respectively. P-values are two-tailed and are reported in brackets. Standard errors are clustered at firm-level.

Figure 1. Mediation effect

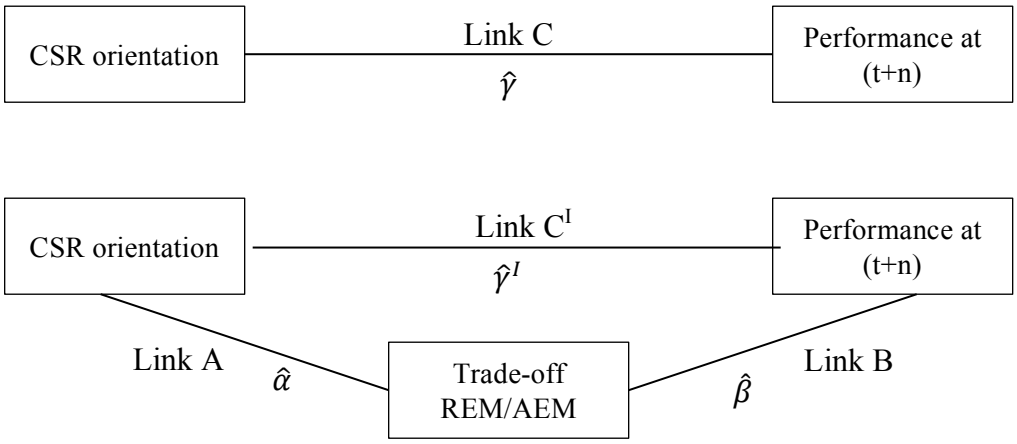
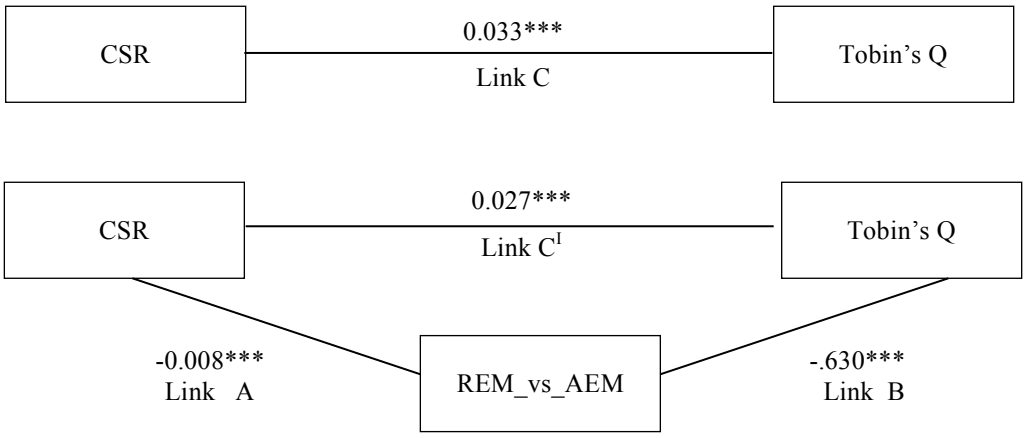


Figure 2. Mediation tests



Sobel Test
Z-test = 4.13
P>|Z|= 0.000

Variables are defined in Appendix 3.

Appendix 1

We used CSR scores for three dimensions of CSR performance available in the EIRIS dataset: 1) Employee performance, 2) Environmental performance, and 3) Community performance.

As regards Employee performance, the EIRIS dataset contains a textual judgment on the following sub-dimensions:

a) Health and safety systems
b) Training and development systems
c) Systems for maintaining good employee relations
d) Systems/practices for job creation and security
e) Equal opportunities policy
f) Equal opportunities systems and practice

Each sub-dimension contains one of the following three textual judgments:

- Little or no evidence
- Some evidence
- Clear evidence

We first converted the textual judgment in a numeric score ranging from 1 to 3, and secondly we summed all the scores to obtain a single score for the dimension "employee performance" which therefore ranges from 6 to 18.

We did the same for the Environmental performance dimension. The EIRIS dataset contains a textual judgment on the following sub-dimensions:

a) Environmental impact improvements
b) Environmental management system
c) Environmental policy and commitment
d) Environmental reporting

Each sub-dimension contains one of the following textual judgments:

- Inadequate
- Weak
- Moderate
- Good
- Exceptional

We converted the textual judgment in a numeric score ranging from 1 to 5 and we summed all the scores to obtain a single score for the dimension "Environmental performance" which therefore ranges from 4 to 20. Finally, for the Community performance dimension, the EIRIS dataset only contains one sub-dimension and we converted the textual score in a numeric score ranging from 1 to 4.

At this point we had a unique score of the three CSR dimensions (Employee, Environment, and Community) with a maximum score of 18, 20, and 4, respectively. In order to ensure that each dimension has the same weight, we further normalize the Employee and Environmental score to a scale out of 4. Finally, we computed the overall CSR metric by summing the three normalized scores. Since each standardized metric ranges from one to four, the overall metric ranges from three to twelve.

To further illustrate the measures, we provide a numeric example:

Company ALFA

Employee performance's scores in EIRIS:

- Health and safety systems: ***LITTLE***
- Training and development systems: ***LITTLE***
- Systems for maintaining good employee relations: ***MEDIUM***
- Systems/practices for job creation and security: ***LITTLE***
- Equal opportunities policy: ***LITTLE***
- Equal opportunities systems and practice: ***LITTLE***

Score Employee performance: (1+1+2+1+1+1) = 7
Normalized Score for Employee performance = 7 / (Max Employee Score / 4) = 7 / (18/4) = 1.56

Environmental performance's scores in EIRIS:

- Environmental impact improvements: ***WEAK***
- Environmental management system: ***WEAK***
- Environmental policy and commitment: ***GOOD***

Score Environmental performance: (2+2+4) = 8
Normalized Score for Environmental performance = 8 / (Max Environ. score / 4) = 8 / (20/4) = 1.60

Community performance's scores in EIRIS:

- Commitment to community or charitable work: ***LITTLE***

Score Community performance: 1

Normalized Score Employee performance = 1.56
Normalized Score Environmental performance = 1.60
Normalized Score Community performance = 1
Normalized Score Overall CSR = (1.56+1.60+1) = 4.16

These are the metrics used in the regression analyses.

Appendix 2

Accrual-based earnings management

We use the modified cross-sectional Jones model (Jones, 1991), as described in Dechow et al. (1995) to estimate for each two-digit SIC-year-country grouping as follows:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta S_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (1)$$

where TA is equal to total accruals in year t measured as net income before extraordinary items less operating cash flow; A is the firm's total assets; ΔS is the change in sales and PPE is equal to property plan and equipment gross.

The coefficient estimates from equation (1) are used to estimate firm-specific normal accruals (NA):

$$\frac{NA_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta S_{it} - \Delta AR_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (2)$$

where ΔAR is the change in accounting receivables. Our measure of discretionary accruals (AEM) is the difference between total accruals and the fitted normal accruals, defined as

$$AEM_{it} = \frac{TA_{it}}{A_{it-1}} - \frac{NA_{it}}{A_{it-1}} (3)$$

Real earnings management

As in Roychowdhury (2006) and Cohen et al. (2008), we use the abnormal levels of cash flow from operation (*R_CFO*), the abnormal level of production costs (*R_PROD*), and the abnormal level of discretionary expenses (*R_DEXP*) to capture the extent of real earnings management activity. Following the model developed by Dechow et al. (1998), as implemented in Roychowdhury (2006), we express normal cash flow from operations as a linear function of sales and changes in sales in the current period. Through this equation we identify price discounts or more lenient credit terms that permit firms to inflate current year sales by accelerating sales from the next year. Firms that accelerate sales are likely to have lower operating cash flow for given sales. In order to estimate the model, we run the following cross-sectional regression model for each country, industry, and year:

$$\frac{CFO_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta S_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (4)$$

where CFO is operating cash flow and it is expressed as a linear function of sales (S) and the change in sales (ΔS). For every firm-year, abnormal cash flow from operations (R_CFO) is the actual CFO minus the normal level of CFO calculated using the estimated coefficient from equation (4).

Overproduction is another way companies might use to record higher earnings in the current year since fixed production costs remain lodged in inventory. The incremental marginal costs incurred in producing additional inventories result in abnormally high production costs given sales (Athanasakou et al. JBFA 2011). Production costs are defined as the sum of costs of goods sold (COGS) and the change in inventory during the year (ΔINV):

$$PROD_{it} = COGS_{it} + \Delta INV_{it} (5)$$

We estimate normal production costs (COGS) by using Roychowdhury's (2006) model as follows:

$$\frac{COGS_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (6)$$

and similarly, the model for normal inventory growth is estimated as:

$$\frac{\Delta \mathrm{INV}_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta S_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta S_{it-1}}{A_{it-1}} + \varepsilon_{it} \qquad (7)$$

For every firm-year, abnormal production costs (R_PROD) is the actual production costs (Cost of goods sold plus the change in inventories) minus the normal level of production costs as in equation (5) calculated using the estimated coefficient from equations (6) and (7).

A third way to operate in order to achieve better results is through managing discretionary expenses as research and development costs (R&D), selling, general, and administrative costs cutting (SG&A), and advertising costs (ADV).

$$DEXP_{it} = R\&D_{it} + \text{SG\&}A_{it} + \text{ADV}_{it} (8)$$

The normal level of research and development costs (R&D), selling, general, and administrative costs cutting (SG&A), and advertising costs (ADV) is modeled as in models (9) – (11) respectively:

$$\frac{\text{R\&}D_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it-1}}{A_{it-1}} + \varepsilon_{it} \qquad (9)$$

$$\frac{\text{SG\&}A_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it-1}}{A_{it-1}} + \varepsilon_{it} \qquad (10)$$

$$\frac{\text{ADV}_{it}}{A_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{S_{it-1}}{A_{it-1}} + \varepsilon_{it} \qquad (11)$$

For every firm-year, abnormal discretionary costs (R_DEXP) is the actual discretionary costs (research and development costs plus selling, general and administrative costs cutting plus advertising costs) minus normal level of discretionary costs as in equation (8) calculated using the estimated coefficient from equations (9), (10) and (11).

Appendix 3

DA	Discretionary accruals measured using the Modified Jones Model (Jones, 1991). See Appendix 2.
REAL	Sum of abnormal production costs and abnormal discretionary expenses (multiplied by minus 1), computed as in Roychowdhury (2006). See Appendix 2.
REAL2	Sum of abnormal cash flow from operations and abnormal discretionary expenses (both of them multiplied by minus 1), computed as in Roychowdhury (2006). See Appendix 2.
EM_ALL	Decile (DA) + Decile (REAL)
REM_vs_AEM	Decile (REAL) /[Decile (DA) + Decile (REAL)]
EM_ALL2	Decile (DA) + Decile (REAL2)
REM2_vs_AEM	Decile (REAL2) /[Decile (DA) + Decile (REAL2)]
CSR	EIRIS's CSR score. See Appendix 1.
CSR_IV	Mean of the CSR orientation in year t of all firms belonging to firm's i 2-digit SIC code, excluding firm i.
ENFORCEMENT	Dummy variable which takes the value of 1 (0) for countries with a strong (weak) legal enforcement according to the "Rule of Law."
SIZE	Logarithm of the firm's total sales.
LEV	End-of-year total liabilities divided by the end-of-year book value of equity.
ADJ_ROA	Difference between the firm's profitability (ROA computed as operating income over the mean value of total assets between year t and year t-1) and the industry median for a given year.
GROWTH	Percentage change in sales.
MTB	Market value of equity divided by book value of equity.
BELOW	Dummy equal to 1 when the pre-managed earnings (measured by the operating cash flow) are less than zero, 0 otherwise.
HIGH	Dummy equal to 1 when the firm is outperforming (operating cash flow above the sample 75^{th} percentile), 0 otherwise.
IFRS	Dummy equal to 1 if the firm adopts IFRS and 0 if reports are prepared using domestic GAAP.
MKT_CAP	Logarithm of stock market capitalization.
LITIGATION	Dummy variable equal to 1 if the firm belongs to a high-risk industry, 0 otherwise.
NOA	Lagged net operating assets scaled by lagged sales.
GDP	Logarithm of gross domestic product per capita.
ESSI	Dummy equal to 1 for socially and environmentally sensitive industries, 0 otherwise.
Tobin's Q	Firm's Tobin's Q computed one year ahead as (total assets – book value of equity + market value of equity) scaled by total assets.