CSR REPORTING FRAMEWORKS AND AGENCY COST – EVIDENCE FROM EUROPEAN UNION

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Synopsis

The research problem

CSR reporting works as a tool of governance to monitor managers' action as managers have discretion over strategic decision-making regarding CSR disclosure. Numerous CSR frameworks/standards/guidelines have been developed to address stakeholders' demand. CSR reporting can be more advanced in some regions such as EU because of unique requirements of CSR reporting, namely EU Directive 2014/95/EU. This unique setting allows us to examine how CSR reporting support stakeholders in evaluating and monitoring firms' activities.

Motivation

Global CSR reporting frameworks/standards/guidelines are likely to contribute to stakeholders' decision making by providing valuable information that support them to check their expectations are in line with corporate behaviour. This should lower the opportunity to exploit firms' resources by managers. Agency theory is employed to explore how those CSR frameworks/standards/guidelines are aligned with stakeholders' interest.

The test hypotheses

The hypothesis for this study is that the multiple CSR frameworks lowers the agency costs.

Target population

A sample of 2,605 EU firms-year observations that voluntarily use CSR frameworks/standards/guidelines is drawn from across 24 countries between the year 2015 to 2019.

Adopted methodology

We used multivariate regressions to test the hypothesis.

Analyses

We examined the relationship between multiple CSR frameworks/standards/guidelines and agency costs by using Principal Component Analysis. Agency cost is calculated by including six types of agency costs. Various firm characteristics and country-related variables that are likely to be associated with agency costs are also included in the model.

Findings

We found that the multiple CSR frameworks/standards/guidelines are associated with lower agency costs. These results suggest that multiple CSR frameworks/standards/guidelines supports stakeholders' assessment of firms' CSR performance by improving information environment. These results are robust after testing for endogeneity arising from omitted variables and reverse causality. Used econometrics techniques include: lagged analysis; firm fixed effects; Propensity Score Matching; Heckman Selection Bias test; and Two-stage least squares instrumental variable. Findings suggest that use of multiple CSR frameworks/standards/guidelines have a disciplining role for managers, and hence should be of interest to preparers and users of CSR reports, regulators, standard-setters, and academics.

Key words: CSR reporting framework, agency cost, European Union.
JEL Classification: C21, M14, M41,
Data availability: Data are available from the specific databases cited in the text.

1. Introduction

Corporate Social Responsibility (CSR) concerns society's expectations of corporate behaviour and it reflects the social imperatives and consequences of business success (Matten & Moon, 2008). A main rationale for publishing CSR reporting is to address such expectations, to legitimise corporate behaviour, and to demonstrate accountability for the impacts of corporate activity on society. By addressing such expectations from stakeholders, CSR reporting works as a tool of governance to monitor managers' actions, as managers have discretion over strategic decision-making regarding CSR disclosure. Due to separation of ownership and control between managers (agents) and shareholders (principals), agency problems might arise because of conflict of interests between the two (e.g., managers commit to projects to gain private benefits). This separation of duty provides managers with better access to information about the firm's affairs, which they may exploit to misapply firm resources to serve their own self-interest. According to Meckling and Jensen (1976), agency costs arise from managers who use firms' resources inefficiently and ineffectively. Agency costs reflect the conflicting incentives between shareholders and managers. Such conflicts might detract from performance of capital markets, because shareholders cannot distinguish between "good" and "bad" business actions. Managers who commit "bad" actions will try to defend themselves by claiming "good" actions, and shareholders will value both "bad" and "good" actions at the same level. Healy and Palepu (2001) suggest that capital market participants will undervalue some "good" actions and overvalue "bad" actions, which leads to an adverse selection problem. Such problems might be addressed by improving the quality of information provided to stakeholders, which includes CSR reporting. This study examines whether CSR reporting is associated with lower agency costs.

Recent events related to the formation of The International Sustainability Standards Board (ISSB) have emphasised the importance of CSR reporting. The Integrated Reporting (IR) framework is one of the concepts embedded in the new ISSB standards, the key objectives of which include providing comprehensive sustainability information to global capital markets (Internatioanl Accounting Standard Board (IASB), 2023). The current study has the potential to inform and support the work of the ISSB because it examines effects of multiple CSR frameworks (including the IR) on agency costs.

Matuszak and Różańska (2017) note that since the Global Financial Crisis, Europe has become the most active region in promoting transparency and disclosure of CSR. The European Union (EU) issued a summary report (European Commission, 2011) that revealed high levels of heterogeneity in disclosure requirements amongst member states, which in turn led to fragmentation in the EU legislative framework. Some member states made the disclosure of non-financial information mandatory, while others adopted a "comply or explain" approach. The scope of requirements also varied. Some member states referred to international reporting guidelines [2] while others established their own national reporting guidelines. Given this heterogeneity in reporting, the European Commission (2011) report suggests that demand had grown in the EU for improving the comparability, reliability, and relevance of information published by companies, including issues relating to social and environmental aspects.

According to the European Commission (2011), in order to improve the consistency and comparability of non-financial information published throughout the EU, certain large companies should be required to prepare a non-financial statement including information relating to at least environmental, social, and employee-related matters. In October 2014,

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[2] The development of key international CSR reporting frameworks/standards over the timeline is available in the appendix B.

Directive 2014/95/EU was issued, which required large companies to disclose non-financial and diversity information. However, the Directive did not specify what global CSR frameworks/standards to use when creating CSR reports. Macuda et al. (2015) note that companies' CSR reports still differed in form and extent. Adams (2020) suggests that the European Commission had an opportunity to lead the world in refocussing corporate CSR efforts in a post-COVID-19 world. At the time of writing, companies that are required to comply with Directive 2014/95/EU will have to shift to European Sustainability Reporting Standards (ESRS) in the 2024 financial year, with the first sustainability statements to be published in 2025 (European Commission, 2023).

The diversity in form and extent of CSR reports, which the ISSB and European Financial Reporting Advisory Group (EFRAG) seek to address, could be due to the unique characteristics of non-financial reporting. Tschopp and Nastanski (2014) suggest that CSR reports have a wider audience than that for financial reports. Consequently, CSR reports have more diverse objectives for a wider range of interests and preferences, both within and beyond the firm. This is reflected in the large number of CSR frameworks/standards available as those frameworks/standards may seek to address different audiences or objectives. One central point of criticism regarding CSR reporting is that of selectivity in what is reported. Lack of balance regarding what to report reduces comparability and transparency; the choice of framework(s)/standard(s) may contribute to this lack of balance.

Examining CSR in a voluntary setting raises unique challenges, particularly in terms of self-selection since firms that expect to derive benefits from using CSR frameworks/standards are more likely to choose to adopt them. This study therefore employs several econometric approaches including propensity score matching (PSM), a Heckman approach, instrumental variables, and lagged analysis. Following Obeng et al. (2021), and Rezaee and Tuo (2019),

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data about firms' usage of CSR frameworks/standards is collected from the Global Reporting Initiative (GRI) database for the period 2015-2019. This study finds that firms that use multiple CSR frameworks/standards have lower agency costs. The model includes several control variables to promote reliable results in seeking to answer the research question: does use of multiple CSR frameworks/standards in reporting contribute to reducing agency costs? Financial reporting quality is controlled for, to reduce the possibility that our measure of CSR captures the tendency of some firms to provide higher quality or more credible information. In addition, other firm characteristics, including country, industry, and year fixed effects, are also controlled for in the models. Furthermore, the results are robust when addressing endogeneity.

Addressing this research question makes several contributions to the literature. First, this study contributes to extant research on the governance role of accounting and non-financial information. Huang and Zhang (2012) point out that empirical evidence on the disciplinary function of extensive disclosure is scarce. According to Obeng et al. (2021), most studies examining the disciplining role of disclosure have focused on capital market effects. However, disclosures can influence capital market outcomes through channels not directly related to agency costs. Previous studies, such as Huang and Zhang (2012) and Obeng et al. (2021), use a measure of traditional disclosure quality based on industry-level scores and quality of IR based on the ASSET4 database, respectively, to examine the relation between disclosure and agency costs. This study uses multiple global CSR frameworks/standards to examine the relationship between disclosure and agency costs. Past literature focuses largely on examining the effect of applying a particular CSR framework/standard such as GRI standards. However, the International Accounting Standards Board (IASB) notes that firms were potentially opting to report using multiple CSR frameworks/standards (IASB, 2020). Given these developments

and recent trends in reporting (KPMG, 2022), this study examines the effect of using multiple global CSR frameworks/standards.

Second, our findings extend the literature on the incremental benefits of non-financial disclosure, such as Dhaliwal et al. (2011) and Obeng et al. (2021). Those studies focus on a single CSR framework/standard, while Obeng et al. (2021) focuses on IR that combines both financial and non-financial information. Arguably, it may be difficult for firms to comprehensively address all concerns/expectations of a wide range of stakeholders by relying on a single CSR framework/set of standards. This is emphasised in past literature, such as Flower (2015), which criticises the integration of financial and non-financial information into a single report. Flower (2015) notes that the IR framework is unlikely to encourage renewed, broader, or integrated thinking of value, because providers of financial capital remain the primary users of corporate reports. Flower (2015) claims that the IR framework proposes a non-innovative CSR framework that results in the same limitations as those of the traditional financial reporting regime, which are clearly focused on investors. Relying only on IR or a single CSR framework might not fully reveal the disciplining role of disclosure.

Using multiple, rather than single, frameworks could contribute to higher quality of CSR reporting. Elalfy et al. (2021) show that Sustainable Development Goals (SDGs) can serve as a framework of strategic CSR and provide an opportunity to improve quality of CSR reporting. Firms employing both SDGs and GRI standards tend to integrate the SDGs into their CSR reports, and thus provide a holistic view of CSR activities. This could be similar for other international standards such as the Organisation for Economic Co-operation and Development (OECD), Carbon Disclosure Project (CDP), International Finance Corporation (IFC), International Organization for Standardization (ISO), and the United Nations Global Compact (UNGC). García-Sánchez et al. (2019) find that firms using both the GRI's guidelines and the

IFC's Performance Standards promote accurate representation of managerial commitments and approaches in CSR reports. Multiple frameworks should therefore lower agency cost (AC) by providing more information to stakeholders. Furthermore, although Obeng et al. (2021) examine how extensiveness of IR contributes to lower agency cost, they did not consider other CSR frameworks/standards/guidelines, including GRI standards, the most commonly used standards (KPMG, 2020), so they may not comprehensively capture quality and quantity of CSR reporting.

Although those possible benefits may be obtained, managers may not employ multiple CSR frameworks/standards/guidelines. Durand et al. (2019) suggest that substantive CSR requires significant resource mobilisation and tangible, costly, and non-easily reversible actions. Perez-Batres et al. (2012) suggest that implementing GRI standards is an example of substantive CSR. In addition, the benefits that can be obtained from CSR tend to be long-term and might not be measurable in monetary terms (Christensen et al., 2021). These would make managers reluctant to employ CSR frameworks. Therefore, although employing multiple CSR frameworks could reduce AC, some firms may decide against doing so due to cost constraints. This study considers multiple global CSR frameworks/sets of standards to fill this gap in the literature.

The remainder of this study is organised as follows. Section 2 covers the theoretical framework, followed by the literature review of relevant articles in Section 3. Section 4 then describes the sample and research methods. Section 5 provides the main findings and Section 6 shows the results of additional analyses, including tests designed to address endogeneity concerns. Section 7 provides a summary and conclusion.

2. Theoretical framework

This study refers to Agency theory and how CSR is likely to be linked to agency costs. Meckling and Jensen (1976) describe how the separation of ownership and control creates an agency problem due to conflicting incentives between shareholders and managers. Managers, therefore, tend to behave opportunistically to maximise their self-interest. Meckling and Jensen (1976) discuss the need to institute mechanisms that can reduce managers' self-interested behaviour and improve incentive alignment between managers and outside investors. DeAngelo (1988) and Eisenhardt (1989) note that these corporate control mechanisms may include various monitoring and contracting activities undertaken within the agency relationship. Prior studies, such as Bushman and Smith (2001) and Kothari (2001), recognise the relevance of accounting disclosure as a governance mechanism. Accounting disclosure can be used by outside investors to monitor the behaviour of management. Furthermore, accounting information can be used as direct or indirect inputs into corporate control mechanisms, such as compensation contracts that align the interests of managers and shareholders in order to reduce agency costs.

Stiglitz and Weiss (1981) suggest that in theory, when a reporting system promotes a high level of transparency, shareholders' monitoring ability is strengthened. They contend that incentives to expropriate corporate resources are reduced as managers' behaviour becomes more visible. In this study setting, CSR reporting can improve transparency because firms with better CSR performance are more likely to disclose their CSR activities to market participants. The increase in transparency due to greater information or better presentation could reduce managers' misbehaviour by aligning incentives. For example, Bushman and Smith (2001) show that more specific information about a firm's valuation creation process could support shareholders to write compensation contracts that are based on a wider range of metrics than

the traditional accounting measures, which can be noisy. Eccles et al. (2014) show that superior CSR performance is associated with better stakeholder engagement, which reduces the likelihood of short-term opportunistic behaviour by managers. Two complementary mechanisms are activated as explained below.

First, Jones (1995) contends that superior CSR performance captures a firm's commitment to engagement with stakeholders, based on mutual trust and cooperation. He notes that ethical solutions to address problems are more efficient than other measures designed to curb opportunism, because firms experience reduced agency costs, transaction costs, and costs associated with team production, by contracting with stakeholders on the basis of mutual trust and cooperation. Furthermore, Choi and Wang (2009) suggest that superior engagement with stakeholders could improve a firm's revenue or profit generation through higher quality relationships with customers and new product development. In other words, superior stakeholder engagement may reduce the incentives for short-term opportunistic behaviour (Eccles et al., 2014). It also implies a more efficient form of contracting with key stakeholders that could improve revenue or profit generation as long-term benefits are ultimately rewarded by the markets.

Second, Dhaliwal et al. (2011) show that firms with superior CSR performance are more willing to publicly disclose their CSR strategies by issuing CSR reports, while Simnett et al. (2009) find firms are more likely to obtain assurance for such reports from third parties. This promotes the credibility of such reports. CSR reporting that is assured therefore: (1) increases transparency regarding the social and environmental impact of companies and their governance structure; and (2) may improve governance and internal control systems, hence also compliance with regulations. This, in turn, decreases information asymmetry/increases information transparency. Ioannou and Serafeim (2017) also contend that changes in internal

managerial practices might reduce the likelihood of agency costs in the form of short-termism. Jo and Harjoto (2011) further suggest that managers use CSR engagement to resolve conflicts among stakeholders leading to decreased agency costs. Similarly, Becht et al. (2003) suggest that a systematic approach to reducing agency costs is to develop effective internal corporate governance mechanisms that encourage firms to be directed and controlled as expected by principals. Other prior literature such as Cheng et al. (2014), and El Ghoul et al. (2011) also supports this logic. In sum, higher quality CSR reporting is likely to reduce agency costs and align management incentives through increased stakeholder engagement and transparency.

Fields et al. (2001) distinguish between the following types of agency costs: bonus hypothesis (managers and shareholders), debt hypothesis (managers and debtholders), and political cost (managers and regulators, as well as other powerful groups like trade unions). CSR reporting tends to address demands of stakeholders beyond those of shareholders, so detailed CSR reporting may not necessarily be aligned with the interests of shareholders. However, Herz et al. (2017) suggest that investors increasingly look beyond financial statements to include sustainability measures (i.e. beyond traditional financial measures). CSR information, therefore, allows investors to more comprehensively examine matters, such as companies' value creation processes and climate risk management, and hence make better-informed capital allocations. Richer reporting of CSR information may, therefore, increasingly align with the interests of shareholders in addition to satisfying other stakeholders.

This study expands on prior research by examining the effects of adopting multiple CSR frameworks/sets of standards on transparency, appropriate resource allocation, and better alignment of incentives.

3. Literature review and hypothesis development

A primary benefit of corporate disclosure is to mitigate information asymmetries between a firm and its stakeholders. The effect of CSR reporting on firm-level accounting variables has been explored from several perspectives in the literature. Prior literature, such as Dhaliwal et al. (2014), and Muslu et al. (2019), conduct studies using cross-country samples. Similarly, Dhaliwal et al. (2014) provide evidence on the informativeness of standalone CSR reports by showing a reduction of information asymmetry after CSR reporting. Muslu et al. (2019) develop a disclosure score based on the tone, readability, length, and numerical and horizon content of CSR report narratives. They also examine the relationship between CSR disclosure scores and analyst forecasts. Muslu et al. (2019) find that CSR reports with higher disclosure scores are associated with more accurate forecasts, which implies better quality CSR reports reduce information asymmetry. Analyses of CSR report quality show similar results. Plumlee et al. (2015) suggest that firm value proxied by cost of equity (future cash flows) are negatively (positively) associated with CSR report quality. Similarly, Rezaee and Tuo (2019) show that the extent and quality of CSR reports measured against GRI guidelines and standards are positively associated with earnings quality, enhancing the role of CSR reports in investors' decision-making processes. Disclosure about a firm's CSR performance can potentially reduce information asymmetry to the extent that CSR performance has an effect on a firm's risk and value.

Research focusing on IR has reached similar conclusions. According to Zhou et al. (2017), higher levels of alignment with the IR framework leads to improved analyst forecast accuracy for listed firms on the Johannesburg Stock Exchange during 2009-2012. Barth et al. (2017) find that high-quality IR supports investor decision-making processes and increases firm liquidity. Caglio et al. (2020) confirm these findings by analysing the textual attributes of

integrated reports. They find that readability of reports contributes to greater market value, conciseness contributes to greater stock liquidity, and a balanced tone improves analyst forecast accuracy. According to Obeng et al. (2020), stakeholders might use IR to evaluate the quality of CSR management, and related firm risks. If stakeholders are convinced that the management strategy is effective and if they expect a low probability of greenwashing, they tend to reward firms with a lower risk premium due to lower information asymmetry issues.

Some prior literature does not use financial performance proxies, but instead focuses on specific components of firm value. Stock liquidity is one of these subgroups, according to Velte (2022). Numerous studies, including Zúñiga et al. (2020), Barth et al. (2017), Obeng et al. (2021), and Pavlopoulos et al. (2017), find a positive impact of IR quality on liquidity. Zúñiga et al. (2020) and Barth et al. (2017) find support for this relationship in a South African context, while Obeng et al. (2021) and Pavlopoulos et al. (2017) find evidence in international settings. IR quality also leads to lower agency costs, which leads to better stock liquidity in voluntary IR settings. Investors are especially interested in future cash flows. Barth et al. (2017) study the impact of IR on the ability of investors to forecast cash flows. They suggest that IR improves investors' ability to estimate future cash flows, in comparison to classical financial reports.

Overall, prior literature suggests that an increased CSR information set and improved CSR information quality can enhance monitoring by investors, allowing them to better assess the actions of management and constrain opportunism. However, this study has not identified any prior studies that have examined the effect of the use of multiple global CSR frameworks. Previous literature usually focuses on measuring the adoption or quality of the CSR framework using a particular framework or set of standards (e.g., IR or GRI). This study differs from the

previous literature because it attempts to examine the effect of using multiple global CSR frameworks on information asymmetry/agency costs.

Christensen et al. (2021) describe key features contributing to differences between CSR reporting and financial reporting. These include diversity of users, topics, objectives, measurement, the voluntary nature of CSR activities, and short versus long-term horizons. According to Christensen et al. (2021), the potential audience for CSR reporting is broader than for financial reporting. Although both the financial report and the CSR report can be read by anyone once they are disclosed, the users of CSR information may include groups that have relatively little experience in reading corporate disclosures (e.g., consumers). In addition, these groups could use CSR information for a variety of purposes beyond traditional financial analysis, such as to check whether a firm adheres to policies that are consistent with sustainability norms and ethical values.

As CSR and sustainability are not sharply defined, they include a broad range of environmental, social, and governance (ESG) topics, activities, and policies. According to Christensen et al. (2021), the topics differ significantly across firms, industries, and countries. CSR reporting is, therefore, multidimensional, leading to a broad variety of disclosures, reporting formats, standards, and reporting frameworks, which makes comparison difficult. In their global qualitative survey, Amel-Zadeh and Serafeim (2018) concur, suggesting that the greatest challenges investors face in integrating ESG information into their decision-making process are the lack of cross-company comparability and the lack of standards governing the reporting of ESG information. CSR reporting's diversity of users and topics, makes it difficult to meet the expectations of all stakeholders. Over time, different CSR frameworks and

standards have evolved to suit differing key users, and objectives.[3] Due to the diversity of users and topics, CSR reporting has several objectives and responds to a wide range of interests and preferences from within and outside the firm. These interests and preferences can change quickly over time. For example, Baron (2001) shows that when a firm becomes the target of a social activist campaign this will have a direct effect on costs and strategy due to changed competitive positions of firms in that industry. Changes in interests are also found by Bonetti et al. (2015), who find that Japanese firms bear a lower increase in the cost of capital after the Fukushima Nuclear Disaster, if they issue stand-alone CSR reports.

Many CSR activities show in observable and measurable behaviours or outputs (e.g., CO_2 emissions, number of trees saved), but they are not necessarily measurable in monetary terms (Kitzmueller & Shimshack, 2012). According to Cohen and Simnett (2015), it is challenging to apply typical accounting conventions, such as double-entry bookkeeping or basic accounting principles, like materiality and relevance, to CSR reporting. One reason may be that many CSR activities and policies are voluntary and go beyond legal, regulatory, and contractual requirements. For instance, a firm may reduce pollution beyond what is required by law, or it might offer a public good to the local community. Consequently, what firms report under a mandate may be a function of their underlying CSR choices (or lack thereof). According to Bénabou and Tirole (2010), CSR is often viewed as a "strategic" activity that prioritises the firms' long-term benefits and foregoes short-term profits for the firm. CSR reporting thus frequently has to deal with long-term prospects that are difficult to quantify and are intangible in nature (e.g., consumer goodwill or employee relations).

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[3] Ligteringen and Zadek (2005) confirm that approximately 300 CSR framework/standards exist globally.

The use of global CSR frameworks should promote a firm's ability to address multiple stakeholders' expectations while still enabling reporting, which is comparable (Hąbek & Wolniak, 2016). KPMG (2020) note that leading global firms tend to use multiple CSR frameworks and their behaviour usually predicts future reporting. Prior literature suggests that this tends to improve the quality and quantity of information, which leads to lower information asymmetry. If companies are applying multiple CSR frameworks effectively, their stakeholders should have lower information asymmetry than firms using only one type of CSR framework or non-CSR firms. This study therefore proposes the following hypothesis:

H1: Firms using multiple global CSR frameworks are associated with lower agency costs.

4. Sample and results

4.1.1. Sample

This section provides empirical evidence relating to the effects of CSR disclosure quality on agency cost by using longitudinal data on global CSR frameworks/standards in an international setting. The study's sample consists of all EU firms covered by the GRI database, Compustat Global, Bloomberg, Worldscope, DataStream, Eikon, and World Bank. The year 2015 is selected as the first year of data collection because the European Parliament and Council issued Directive 2014/95/EU, which dealt with the disclosure of non-financial environmental and social information and imposed mandatory disclosure of non-financial information for public interest entities with more than 500 employees (European Union, 2014). Directive 2014/95/EU was enforced on December 2014, and therefore the year 2015 is selected as the first year of data collection because companies' disclosures are expected to be affected 2014 onwards. The year 2019 is selected as the final year for data collection to avoid the potentially significant influence of COVID-19 on CSR disclosures.

Following Rezaee and Tuo (2019), the study identifies voluntary adopters of global CSR frameworks from the GRI database. The sample consists of all EU firm-years recorded in the GRI database. The GRI database also tracks other sustainability reporting information, which is used to ascertain what other CSR frameworks, standards, and guidelines firms may use in addition to the GRI standards/guidelines. A key advantage of using the GRI database to collect data on global CSR frameworks is that it includes numerous types of global CSR frameworks, including GRI, IR, SDGs, CDP, IFC, the OECD guidelines, the UNGC, ISO, and AccountAbility (AA1000). Firm level financial and stock return data is obtained from Compustat Global and Bloomberg, non-financial data from Refinitiv Worldscope (previously Thomson Reuters ASSET4), DataStream, and Eikon, and country-level data is obtained from the World Bank.

This results in a total sample size of 2605 firm-year observations from 770 unique firms from 24 countries. Table 1 details the sample selection process.

4.1.2. Measurement of Agency Cost (AC)

Following Ang et al. (2000); Easterbrook (1984); Henry (2010); Jurkus et al. (2011); Obeng et al. (2021), we use six proxies to capture agency cost: free cash flows (FREE_CF), selling, general and administrative expense ratio (SGA_EXP), dividend payout ratio (DIV_PAYOUT), asset utilisation (ASSET_UTL), cash holdings (CASH_HOLD), and capital expenditure (CAPEX).

According to Jensen (1986), when a corporation has funds that exceed those required for positive net present value projects, a conflict of interest may arise which leads to inefficiencies when the funds are not properly utilised by managers. Jensen (1986) contends that this has been characterised as the agency cost of free cash flow. Following Ferrell et al. (2016), the first AC proxy is therefore (FREE_CF), being free cash flow divided by total assets,

where FREE_CF equals earnings before interest and taxes plus change in net assets. A higher value indicates greater AC associated with free cash flows.

The second proxy for AC is the selling, general, and administrative expenses ratio (SGA_EXP). Ang et al. (2000) contend that this expense ratio shows excessive spending on the part of management. Following Florackis (2008), SGA_EXP is measured as the ratio of selling, general, and administrative expenses to annual sales. According to Florackis (2008), a higher value indicates higher AC because greater expenses relative to sales is likely to include managers' consumption of perquisites.

Following John et al. (2015), the third proxy for AC is the ratio of cash dividends to the sum of dividends and interest (DIV_PAYOUT). They contend that the payment of dividends works as a mechanism for preventing possible overinvestment as excess funds are made available to shareholders. AC is therefore high when DIV_PAYOUT is low.

Following Ang et al. (2000), this study uses the ratio of annual sales to total assets, or asset turnover ratio (ASSET_UTL) as a fourth proxy for AC. Ang et al. (2000) suggest that self-interested managers may make poor investments that generate less revenue or simply produce less effort in generating revenue. AC is high when ASSET_UTL is low.

Furthermore, following Obeng et al. (2021), cash holdings (CASH_HOLD) and capital expenditures (CAPEX), the fifth and sixth proxies, are also used to measure AC. CASH_HOLD is measured as the ratio of cash holdings to total assets, and CAPEX is calculated as capital expenditures scaled by total assets. AC is high when CASH_HOLD is high because it represents inefficient funds that are not properly utilised by managers. AC is also high when CAPEX is high because a higher value is likely to include managers' consumption of perquisites.

Following Obeng et al. (2021), this study multiplies ASSET_UTL and DIV_PAYOUT by −1 to ensure consistent interpretation. This translates to high values representing high AC. In addition, following Obeng et al. (2021), this study uses principal component analysis (PCA) to identify which of the six agency costs, described above, should be used as a main dependent variable.

4.1.3. Measurement of frameworks

Following Ioannou and Serafeim (2012), this study creates a dummy variable for each type of CSR framework/set of standards. It equals 1 when a firm is using a particular CSR framework/set of standards and 0 otherwise. The GRI Sustainability Disclosure Database[4] is used to collect this data.

Prior CSR literature using international samples occasionally employs aggregated CSR measures to capture a holistic dimension of CSR. Waddock and Graves (1997, p. 304) emphasise the "need for a multidimensional measure applied across a wide range of industries and larger samples of companies". Therefore, this study uses a total of nine global CSR frameworks/sets of standards for this study. The variable FRAMEWORK is calculated as the average of these.

4.1.4. Empirical models

Following Jurkus et al. (2011) and Obeng et al. (2021), this study employs an ordinary least squares (OLS) regression estimation to test the hypothesis. To test H1, the following model is used:

$$AC_{it} = \beta_0 + \beta_1 FRAMEWORK_{it} + \Sigma\beta_{1+k} Controls_{it} + \text{fixed effects} + \varepsilon_{it}$$

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[4] Available on 18 November 2020 at https://database.globalreporting.org/

where AC represents the first principal component of six agency costs, as described above, and FRAMEWORK represents the average score for 9 types of CSR sets of standards/frameworks. Following prior literature (Barth et al., 2017; Jurkus et al., 2011; Rashid, 2016), several control variables are likely to be associated with AC. This study controls for firm diversification, as Barth et al. (2017) suggest that diversified firms are more likely to have agency issues due to communication and control problems. Following Mazboudi et al. (2020), this study measures diversification (FOREIGN_SALES) as the ratio of foreign sales to total sales. Furthermore, following Jurkus et al. (2011), Obeng et al. (2021), and Rashid (2016), this study controls for a number of other firm characteristics, namely leverage (LEV), profitability (PROFIT), firm size (SIZE), growth opportunities (MTB), intangibility intensity (INTANGIBLE), financial reporting quality (FRQ), and stock price volatility (PRICE_VOL). LEV is expected to be negatively associated with AC, because Harvey et al. (2004) find that debt lessens the agency problem of overinvestment. According to Michaels and Grüning (2017), PROFIT and SIZE are expected to be negatively associated with AC as these characteristics are negatively related with information asymmetry. Michaels and Grüning (2017) suggest that MTB reflects the expectations of market participants compared to accounting valuation. Higher MTB might imply the anticipation of short-term growth, so MTB is expected to be negatively associated with AC. INTANGIBLE is expected to be positively associated with AC as intangible assets are positively related to information opaqueness (Jin et al., 2022). Shahzad et al. (2019) find that FRQ reduces information asymmetry and agency problems by reducing the over- and under-investment problems. They suggest that higher FRQ allows principals to sign efficient contracts that align interest between principals (shareholders) and agents (managers). Meckling and Jensen (1976) suggest that the overinvestment problem tends to be more severe in riskier firms, so a higher price volatility (PRICE_VOL) is expected to be associated with higher AC.

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Since this study has an international setting, country factors that might be associated with AC are also added, namely country-level investor protection (INVPRO), GDP, and an indicator variable that is equal to 1 if a country has a civil law base, otherwise 0 (CIVIL). INVPRO represents a degree of country governance, and following Lu and Wang (2021) it equals the average of six dimensions of Worldwide Governance Indicators: voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption. Higher value indicates greater country-level investor protection, and is expected to be negatively associated with AC. GDP is the natural log of GDP per capita. Ferrell et al. (2016) find that GDP is negatively associated with AC, as GDP is a measure of the financial openness of an economy and represents financial integration. According to Porta et al. (2008), countries with a civil law framework have a more stakeholder-oriented approach than those which rely on common law. A civil law framework approach is more likely to enforce legal requirements for firms in relation to CSR. The objective of such an approach is that the law should protect the interests of various stakeholders such as employees, consumers, and the wider community. Porta et al. (2008) suggest that CSR is more likely to be a mandatory regulatory requirement rather than a voluntary action in civil law countries. Similarly, Jo et al. (2016) find the average CSR score of firms in civil law countries is significantly higher than in common law countries. To control unspecified, invariant effects related to years, industries, and countries, this study includes year, industry, and country fixed effects in all the models. All variables are defined in the Appendix. Based on H1, β_1 is expected to be negative and significant. It represents the contribution towards reducing AC through use of multiple global CSR frameworks/standards.

4.2. Empirical results

4.2.1. Descriptive statistics

Panel A, Table 2 shows the descriptive statistics of the variables used in the regression analysis. The descriptive statistics reveal a mean firm-level AC of -0.0016 and median of -0.1255, but all other statistics indicate that there is considerable variation in the AC of sample firms. The FRAMEWORK statistics show that sample firms use up to 7 types of CSR frameworks/standards, but the mean (0.2753) and median (0.2222) suggest that most firms use around 2 types of CSR framework/standards.

The mean of FOREIGN_SALES, LEV, PROFIT, SIZE, MTB, INTANGIBLE, FRQ, and PRICE_VOL are 55.9003, 0.1924, 0.0812, 8.4067, 2.5557, 0.2315, -0.0047, and 0.6595, which are consistent with previous literature (e.g., Cowan et al., 2013). The mean and median of INVPRO is 1.2831 and 1.4138 respectively. These values are in line with Lu and Wang (2021). The mean value of the natural logarithm of GDP is US$10.5935, implying that, on average, the sample countries have US$38,648 GDP per capita. This value is close to what Yu et al. (2018) find, which is US$10,5370. On average, 78.50% of sample firms are based in civil-law countries.

Panel B, Table 2 provides sample distribution by year. Year-wise distribution shows that the year 2017 accounts for the largest number of observations (554 = 21.27%), followed by 2015 (552 = 21.19%), while 2019 has the lowest number of observations (428 = 16.43%). The low number of observations in 2019 is mainly due to the absence of data in the GRI database. Companies using GRI guidelines/standards are not necessarily using the GRI database as its use is voluntary. The large decrease in 2019 is likely due to a decision to discontinue updating the GRI database in December 2020, followed by its closure in April 2021 (Schwery, 2021).

Panel C, Table 2 C provides country distributions of sample firms. The sample covers 24 countries and is dominated by firms from the United Kingdom (UK) (19.96%), followed by France (14.59%), while Cyprus and Latvia have the lowest number of observations (0.04%). Panel D, Table 2 provides sample distribution by industry. The sample consists of companies in a variety of industries as classified using the Standard Industry Classification Codes (SIC). The industry distribution reveals that the sample is dominated by firms operating in the manufacturing industry (47.33%), followed by the transportation and communications industry (16.51%), while the agriculture, forestry, and fishing industry has the lowest number of observations (0.38%).

4.2.2. Correlation analysis

Table 3 describes the correlation matrix of the variables used in the regression model. According to the correlation matrix, firms that issue CSR reports (FRAMEWORK) are significantly and negatively associated with AC, which is in line with expectation. This implies that firms employing global CSR frameworks/standards tend to be efficient and effective in allocating resources. Enhanced efficiency and effectiveness could arise from a higher level of transparency through CSR reporting, which possibly improves shareholders' monitoring ability. Consistent with Obeng et al. (2021) and Ferrell et al. (2016), LEV, FRQ, and GDP are statistically and negatively associated with AC while PRICE_VOL is statistically and positively associated with AC. Further, the correlation matrix shows that the potential for multicollinearity in the regression models is unlikely. Gujarati and Porter (2009) note that correlations between variables with values below 0.80 do not create any multicollinearity issues in regression models. Therefore, there is no observable multicollinearity issue in the regression models.

4.2.3. Regression results

This study applies the OLS to examine the relationship between FRAMEWORK and ACs in multivariate regression tests. Table 4 shows evidence for the main hypothesis. It provides the relation between FRAMEWORK and ACs. The coefficient of FRAMEWORK is negative and statistically significant (Coefficient -0.4089, p value<0.001), supporting the empirical model. Furthermore, the R-square of the model is 43.31%. This suggests that using multiple global CSR frameworks is associated with lower information asymmetry measured through AC. The results of the OLS regression, therefore, support the hypothesis. In terms of economic significance, on average, a one standard deviation (0.1910) increase in FRAMEWORK is associated with a 7.5128% reduction in AC.

The finding is in line with Agency theory's propositions that better information quality and quantity lead to less information asymmetry between principals and managers. The finding also suggests that firms using multiple global CSR frameworks/standards use their resources more effectively and efficiently, and that their incentives are more closely aligned with stakeholders' expectations, possibly through better stakeholder engagement. Among the remaining control variables, the results show that firm profit, market to book ratio, and price volatility are positively and significantly related to AC. This suggests that firms with greater profit, market to book ratio, and volatile price have a higher level of AC. On the other hand, foreign sales, leverage, firm size, intangible, FRQ, and GDP are negatively associated with AC. The FRQ's coefficient tends to be high and strongly significant. Foreign sales, leverage, intangible, and GDP have significant explanatory power in reducing firm AC.

According to Obeng et al. (2021), AC could be correlated period-to-period. Table 5, therefore, shows results for a lagged analysis. AC is negatively associated with FRAMEWORK_LAG. This shows that the past variables have little significant impact on

future AC. The main findings therefore still hold after controlling for lagged variables. Table 6 provides results for the regression analysis with firm fixed effects and the main result still holds. AC has significant negative coefficients with FRAMEWORK. Table 7 provides results for the regression analysis excluding Germany, France, and UK as our sample is dominated by those three countries and the main result still holds.

To conclude this sub-section, AC remains negatively associated with FRAMEWORK after controlling for lag effects and firm fixed effects as well as after excluding dominant samples from Germany, France, and UK. Overall, this provides evidence consistent with the hypothesis: use of multiple CSR frameworks/standards is negatively associated with AC. This suggests that use of multiple global CSR frameworks/standards contribute to improved information quality, which supports monitoring by investors, allowing them to better assess the actions of management and constrain opportunism.

4.3. Additional analysis and robustness tests

The major empirical challenge this research question faces is the endogenous relationship between the voluntary adoption of global CSR frameworks and AC. Specifically, omitted variables and reverse causality could violate the validity of the results. Consequently, this study conducts a series of additional tests to address endogeneity concerns.

4.3.1 Propensity score matching

First, to address concerns that firms self-select into the superior CSR reporting group, this study uses Propensity Score Matching (PSM) to form a matched control sample of lower CSR reporting firms (Tucker, 2010). For example, firms that actively engage in CSR are usually those firms with financial advantages, or reputable firms. Small firms or financially weaker firms are less capable of bearing the additional costs of engaging in CSR. Consequently, firm size or reputation may correlate with the CSR of the firm, which raises an endogeneity concern.

The first stage of PSM models the probability of being a superior CSR reporting firm using a logit model that contains firm, governance, and country-level variables. Specifically, this study models the high/low CSR choice as a function of the extent of diverse sales, leverage, profitability, firm size, market to book ratio, intangible, financial reporting quality, price volatility, country level investor protection, GDP, and civil law. This study divides the sample into two groups based on the application of GRI guidelines/standards. The objective of this model is not to identify the determinants of CSR adoption, but rather is to identify a wide range of variables that can be applied to match the low and high CSR firms.

Using the estimated coefficients from the probit model, this study computes the expected probability of being a high CSR firm for each firm-year observation and uses these propensity scores to match each high CSR observation to a low CSR observation using a caliper matching method with distance of 0.001 without replacement. After matching, 426 firm-year observations related to 213 treatment (high CSR) and 213 control (low or no CSR) firms are identified. The t-test shows the differences in means between the matched firms for the AC and 11 variables included in the first stage model are not significant except for AC (see Table 8, Panel A for details). Panel B of Table 8 provides the regression results for the matched sample. The results show a result consistent with the main regression analysis, i.e., that FRAMEWORK is significantly and negatively associated with AC (coefficient= -0.5632, p-value <0.1).

4.3.2. Heckman two-stage model

Second, this study employs a Heckman two-stage model. As Tucker (2010) explains, while PSM controls for selection bias due to observable differences, the Heckman two-stage method could be used to address selection bias due to unobservable differences. It is critical to consider the possibility of unobservable self-selection bias as the sample of this study consists of only those firms that voluntarily issue CSR reports. To further address concerns about selection bias

for this research question, the Heckman approach is therefore employed to develop a probit model for the CSR practice level (i.e., GRI/framework score). In the first stage of the Heckman model, this study uses GRI standards as a dummy variable that equals to 1 if the firm prepares CSR reports with GRI standards, and zero otherwise (GRI). The sample size in the first-stage model is 2,590 firm-year observations. The first-stage model should include a variable that satisfies the exclusion restriction. In this study, such a variable should be related to the choice of GRI/framework score, but unrelated to AC. The Inverse Mills Ratio (IMR), estimated from the first-stage model as an additional independent variable in the equation is then used. Our first-stage probit model is specified below:

CSRHigh= a_0+a_1Env$_{it}$+Σa_2Controls$_{it}$+ fixed effects + ε_{it}

Env is a measure of environmental performance score, being an average score of country i in year t, which is obtained from Eikon. *Env* is used to satisfy the exclusion restriction. Specifically, firms in countries with superior environmental performance are likely to have a higher demand for non-financial information, and firms would have more incentives to report more regarding their performance (Dhaliwal et al., 2011). These firms would be more likely to use global CSR frameworks to report effectively and efficiently. However, environmental performance is unlikely to be directly related to agency costs, which emanate from the principal-agent relationship except when reported through or via CSR reporting frameworks/standards. If there is no separation of ownership and conflict of interest between stakeholders and managers, environmental performance should directly influence AC. When a conflict of interest between the two exists, CSR reporting acts as a conflict-resolution device between stakeholders and managers. Even if a company has superior environmental performance, stakeholders are unlikely to be notified if that information is not published. In addition, we include several variables following Obeng et al. (2021).

Table 9 presents the results of the Heckman two-step model. In column 1, *Env* is positively and significantly (p<0.01) associated with a higher level of CSR practice, which is consistent with expectations, suggesting that *Env* is an exogeneous variable to satisfy the exclusion restriction criteria. Other variables are also significantly related to the CSR level, such as leverage firm size, country-level investor protection, GDP, and civil law, and the model has a pseudo-R^2 of 37.87%. In the second stage for the level test, the coefficients of FRAMEWORK remain negative and significant (coefficient= -0.4012, p-value <0.01), consistent with firms adopting multiple global CSR frameworks having lower AC. The results are therefore consistent after controlling for unobservable differences between high CSR and low CSR firms.

4.3.3. Two-stage least squares instrumental variable

Third, since the Heckman two-step model only considers endogeneity due to sample selection bias, this study also employs a two-stage least squares (2SLS) instrumental variable (IV) approach to address other sources of endogeneity such as omitted variables and simultaneity. IVs that are related to CSR practice, but which have not been identified as a determinant of AC are needed. In line with Ferrell et al. (2016); Lin et al. (2011); Obeng et al. (2021), and Sun et al. (2020), this study uses two peer scores for our instruments. Specifically, country-industry mean FRAMEWORK (INDCOUN_FRAMEWORK) and country-year mean FRAMEWORK (YEARCOUN_FRAMEWORK) are selected. These variables are the mean score of FRAMEWORK by country and year, and mean score of FRAMEWORK by country and

industry. These instruments represent the average FRAMEWORK score of firms within the same industry, and across years, in a given country.[5]

This variable is useful because peer effect is likely to dictate a firm's CSR practice and thus would be correlated with CSR frameworks. However, the peer CSR score should not be correlated with the AC of a particular firm, except through the global CSR framework channel. INDCOUN_FRAMEWORK and YEARCOUN_FRAMEWORK are expected to be positively and significantly associated with FRAMEWORK. This study conducts the analysis using the first stage of the 2SLS model as follows:

$$FRAMEWORK_{i,t} = a + \beta_1 \ INDCOUN\_FRAMEWORK_{it} + \beta_2 \ YEARCOUN\_FRAMEWORK_{it} + Controls_{i,t} + fixed \ effects + \varepsilon_{it}$$

where FRAMEWORK is an average of CSR frameworks and the control variables are the same as those used in the main regression analysis. The sample size in the model with IV is 2,605 firm-year observations.

Table 10 provides the results of the IV model. In column 1, the first stage model shows that INDCOUN_FRAMEWORK and YEARCOUN_FRAMEWORK are positively and significantly associated with FRAMEWORK (coefficient=0.7711, p value<0.001, coefficient=0.7937, p value<0.001). This shows that a firm's choice of global CSR framework/standards is determined by both industry and country characteristics. In column 2, for the second stage model that uses the predicted value, the coefficient for the predicted CSR level is -1.1548, which is significant at the 1% level, consistent with the main results. Similar

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[5] We acknowledge the limitation inherent in using industry-average as the instrument. Larcker and Rusticus (2010) suggest that accounting researchers often use regulatory changes to address endogeneity concerns. However, we could not identify a universal regulatory shock due to the international nature of our study.

to Sun et al. (2020), this study conducts three tests to check the validity of our instruments in Table 10. First, the under-identification test, or Kleibergen-Paap rk LM statistic shows that our model is identified (p= 0.0000). Second, the result of the weak identification test or Kleibergen-Paap rk Wald F statistic (Kleibergen & Paap, 2006) shows that the F-statistic is very high in our sample (127.881), suggesting that our instruments are relevant and strong. Third, Sargan statistic or the Hansen's J statistic (Hansen, 1982) is used to test the over-identification concern. The p-value of the Hansen's J statistic is high for this test (0.7931), suggesting that we cannot reject the null hypothesis that the instruments are exogeneous. This shows that other sources of endogeneity such as omitted variables or simultaneity issues are unlikely in the model. Overall, our post-estimation tests confirm both the relevance and the exclusion restrictions of our instruments.

5. Conclusion

This study investigates the relationship between global CSR frameworks/sets of standards and AC using a sample of 2,605 firm-year observations in a cross-country setting (24 countries from the EU). Due to the unique characteristics of CSR reporting, such as diversity of users and objectives, it was expected that employing multiple global CSR frameworks/standards could help restrain managerial opportunism by providing a more complete information set that would improve monitoring and allow for the design of better incentive-alignment mechanisms.

This study finds that firms that comply with a greater number of global CSR frameworks/standards have lower AC. These results suggest that relying on a single CSR framework/set of standards does not necessarily serve the needs of all stakeholders and that stakeholders reward firms which use multiple global CSR frameworks.

Endogeneity is a major concern that could diminish the relevance of the findings. This study addresses this concern in multiple ways. First, a lagged analysis is performed. Second,

regression analysis with firm fixed effects is applied. Third, propensity score matching (PSM) is used to test whether results for firms adopting CSR frameworks/sets of standards are similar to those of firms that do not adopt CSR frameworks/sets of standards. Fourth, a two-stage Heckman analysis is used to control for unknown factors that may be influencing the decision to adopt CSR frameworks/sets of standards. Fifth, instrumental variable analysis is adopted to address concerns about omitted variables and causality. While none of these tests by themselves rule out endogeneity, combined, they increase confidence that the results are not driven by self-selection, omitted variables, or reverse causality.

For future study, it would be relevant to explore this relationship further, beyond EU countries. Although the EU does represent a large proportion of global market capitalisation, the inclusion of other large economies, such as China, India, and the USA, may shed additional light on the relationships examined in this study.

Past studies, such as Adams (2020), suggest that the EU Commission has an opportunity to lead the world in refocussing corporate efforts in a post-COVID-19 world. More recent developments include the ISSB and EFRAG progress towards more unified international sustainability standards. This study supports further progress by those bodies by providing empirical evidence on the use of multiple CSR frameworks/sets of standards. The setting for our study is perhaps more relevant to the ESRS situation (e.g., EU jurisdiction, GRI base, and inclusion of SDGs). Consequently, future studies could build on the results of this study to facilitate comparison of ISSB standards and ESRS. This study's evidence on the role of multiple CSR frameworks/sets of standards as a disciplining mechanism should be of interest to both parties, as well as in general to preparers and users of CSR reports, regulators, standard-setters, and academics.

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Appendix A: Variable definitions

Variable	Definition	Source
AC	First principal component of 6 agency costs as below:	Compustat and Bloomberg (2015-2019)
FREE_CF	Earnings before interest and taxes plus change in net asset	Compustat and Bloomberg (2015-2019)
SGA_EXP	Ratio of sales, general and administrative expense and annual sales	Compustat and Bloomberg (2015-2019)
DIV_PAYOUT	Cash dividend divided by the sum of cash dividend and interest and related expense then multiplied by -1 to interpret the result consistently.	Compustat and Bloomberg (2015-2019)
ASSET_UTL	Ratio of annual sales and total asset then multiplied by -1 to interpret the result consistently.	Compustat and Bloomberg (2015-2019)
CAPEX	Ratio of capital expenditure and total asset	Compustat and Bloomberg (2015-2019)
CASH_HOLD	Ratio of cash and total asset	Compustat and Bloomberg (2015-2019)
FRAMEWORK	Average of 9types of CSR frameworks/standards	GRI database (2015-2019)
FOREIGN_SALES	Ratio of foreign sales to total sales	Worldscope (2015-2019)
LEV	Long-term debt divided by total asset	Compustat and Bloomberg (2015-2019)
PROFIT	Net income divided by total sales	Compustat and Bloomberg (2015-2019)
SIZE	Natural logarithm of total sales	Compustat and Bloomberg (2015-2019)
MTB	The ratio of market value of equity, measured as shares outstanding multiplied by share price at year-end, to book value of total equity.	Compustat, Bloomberg and Worldscope (2015-2019)
INTANGIBLE	Ratio of intangible asset to total asset	Compustat and Bloomberg (2015-2019)

FRQ	The absolute value of abnormal accrual for firm I in year t using the Modified jones model	Compustat and Bloomberg (2015-2019)
PRICE_VOL	Natural logarithm of the standard deviation of stock price over 1 year	Worldscope (2015-2019)
INVPRO	Average of six Worldwide Governance Indicators, which are: voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption	World Bank (2015-2019)
GDP	Natural logarithm of GDP per capital in US$	World Bank (2015-2019)
CIVIL	Indicator variable equal to 1 if a country has civil law base, otherwise 0.	World Bank (2015-2019)
Treatment	Indicator variable equal to 1 for firms that uses GRI guidelines/standards during any sample period, 0 otherwise.	GRI database (2015-2019)
GRI	Indicator variable equal to 1 for firms that uses GRI guidelines/standards in a sample year, 0 otherwise.	GRI database (2015-2019)
ENV	Level of environmental quality, and country-average score is calculated.	Eikon (2015-2019)
INDCOUN_FRAMEWORK	Average score of FRAMEWORK by industry and country.	GRI database (2015-2019)
YEARCOUN_FRAMEWORK	Average score of FRAMEWORK by year and country.	GRI database (2015-2019)

Appendix B: Timeline of key events of CSR frameworks

1946
• ISO established

1956
• IFC established

1960
• OECD established

1996
• AA1000 started

1999
• Published the first GRI guideline

2000
• CDP and UNGC were established

2001
• EFRAG was developed

2013
• IR framework was officially released

2015
• Launch of the UN SDGs

2021
• ISSB established

2023
• ESRS released
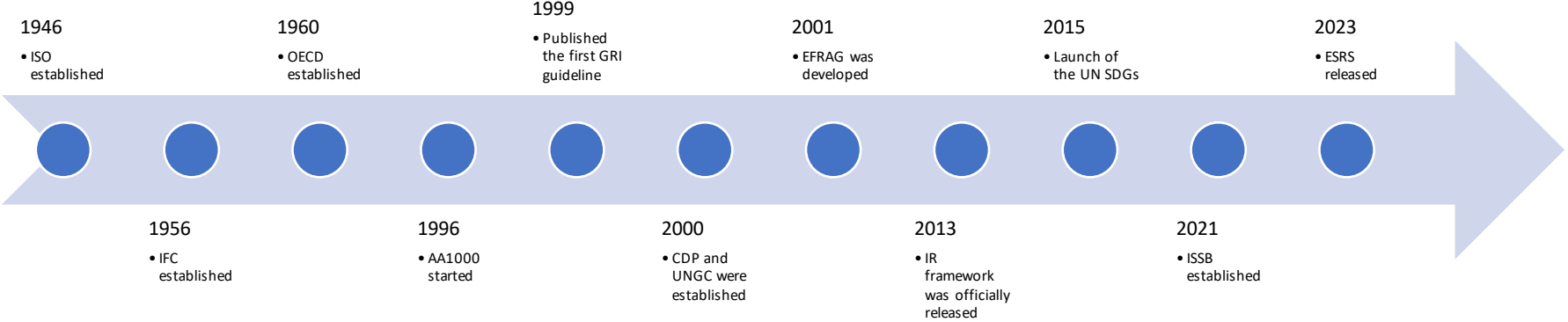
Table1: Sample selection

Sample selection process		
	Firms	N
Firms/observations on the GRI database from countries in EU (2015-2019)	1375	4729
Less: Firms with no data on accounting or corporate governance on DataStream and Eikon for the study period	605	2124
Final sample	770	2605

Table2: Descriptive statistics

Panel A: Full sample

Variable(s)	N	Mean	SD	p25	p50	p75	Min	Max
AC	2605	-0.0016	1.2231	-0.9186	-0.1255	0.7164	-2.4867	3.5174
FRAMEWORK	2605	0.2753	0.1910	0.1111	0.2222	0.4444	0.0000	0.7778
FOREIGN_SALES	2605	55.9003	34.6609	23.3900	64.2700	86.7000	0.0000	100
LEV	2605	0.1924	0.1323	0.0912	0.1804	0.2778	0.0000	0.5529
PROFIT	2605	0.0812	0.1008	0.0292	0.0610	0.1107	-0.1926	0.5567
SIZE	2605	8.4067	1.6068	7.2319	8.3345	9.6081	4.8073	12.0537
MTB	2605	2.5557	2.7954	0.8831	1.7707	3.2317	0.0570	17.2334
INTANGIBLE	2605	0.2315	0.2011	0.0504	0.1858	0.3883	0.0004	0.7457
FRQ	2605	-0.0047	0.0610	-0.0398	-0.0104	0.0290	-0.1828	0.1904
PRICE_VOL	2605	0.6595	1.5489	-0.2443	0.7374	1.7572	-3.8531	3.7448
INVPRO	2605	1.2831	0.3953	1.0905	1.4138	1.5239	0.1825	1.7937
GDP	2605	10.5935	0.3123	10.5204	10.6487	10.7535	9.4397	11.2786
CIVIL	2605	0.7850	0.4109	1.0000	1.0000	1.0000	0.0000	1.0000

Note: All variable definitions are in Appendix A

Panel B: Sample distribution by year

Year	N	%	AC	FRAMEWORK
2015	552	21.19	0.0803	0.2321
2016	543	20.84	-0.0034	0.2468
2017	554	21.27	0.1175	0.2690
2018	528	20.27	0.0414	0.2948
2019	428	16.43	-0.3123	0.3512
Total	2605	100		

Note: All variable definitions are in Appendix A

Panel C: Sample distribution by country

Country	N	%	AC	FRAMEWORK
Austria	80	3.07	-0.0788	0.3556
Belgium	65	2.5	-0.0258	0.3214
Croatia	4	0.15	-0.4160	0.1389
Cyprus	1	0.04	-0.7365	0.2222
Czech Republic	10	0.38	0.3888	0.1111
Denmark	91	3.49	0.8361	0.1990
Finland	177	6.79	0.1700	0.3057
France	380	14.59	-0.1353	0.2637
Germany	334	12.82	-0.1318	0.3393
Greece	63	2.42	-0.3346	0.3192
Hungary	4	0.15	1.3313	0.1667
Ireland	39	1.5	-0.2531	0.1339
Italy	188	7.22	-0.3679	0.3032
Latvia	1	0.04	-0.4698	0.0000
Lithuania	3	0.12	-0.6373	0.0741
Luxembourg	19	0.73	-0.5710	0.0760
Netherlands	99	3.8	-0.0619	0.3322
Poland	63	2.42	0.2290	0.1922
Portugal	46	1.77	-0.1869	0.2923
Romania	6	0.23	-0.4069	0.2778
Slovenia	13	0.5	0.0152	0.1624
Spain	150	5.76	-0.6412	0.3993
Sweden	249	9.56	0.2141	0.3664
United Kingdom	520	19.96	0.2786	0.1579
Total	2605	100		

Note: All variable definitions are in Appendix A

Panel D: Sample distribution by industry

Industry	N	%	AC	Framework
Construction	140	5.37	0.0020	0.2706
Mining	61	2.34	-0.5725	0.3206
Retail trade	153	5.87	0.7280	0.2004
Wholesale trade	74	2.84	0.6050	0.2042
Agriculture, forestry and fishing	10	0.38	-0.9454	0.1444
Financial industries	186	7.14	-0.9724	0.2951
Manufacturing	1,233	47.33	0.2214	0.2869
Other	36	1.38	-0.4863	0.2562
Services	282	10.83	0.1420	0.2124
Transportation and communications service	430	16.51	-0.5371	0.3132
Total	2605	100		

Note: All variable definitions are in Appendix A

Table 3: Correlation Matrix

Variable(s)	1	2	3	4	5	6	7	8	9	10	11	12	13
AC(1)	1												
FRAMEWORK(2)	-0.20***	1											
	(<0.01)												
FOREIGN_SALES(3)	0.09***	0.16***	1										
	(<0.01)	(<0.01)											
LEV(4)	-0.38***	0.10***	-0.10***	1									
	(<0.01)	(<0.01)	(<0.01)										
PROFIT(5)	0.07***	-0.03	-0.13***	0.02	1								
	(<0.01)	0.17	(<0.01)	0.35									
SIZE(6)	-0.11***	0.46***	0.25***	0.04*	-0.21***	1							
	(<0.01)	(<0.01)	(<0.01)	(<0.1)	(<0.01)								
MTB(7)	0.31***	-0.16***	0.03*	0.07***	0.17***	-0.19***	1						
	(<0.01)	(<0.01)	(<0.1)	(<0.01)	(<0.01)	(<0.01)							
INTANGIBLE(8)	-0.03*	-0.06***	0.13***	0.18***	-0.08***	0.06***	0.16***	1					
	(<0.1)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)						
FRQ(9)	-0.14***	0.07***	-0.08***	0.07***	0.37***	-0.07***	-0.15***	-0.39***	1				
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)					
PRICE_VOL(10)	0.10***	0.11***	0.19***	-0.09***	0.02	0.11***	0.12***	0.01	-0.04**	1			
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	0.27	(<0.01)	(<0.01)	0.78	(<0.05)				
INVPRO(11)	0.15***	-0.01	0.24***	-0.08***	-0.01	0.12***	0.05**	0.11***	-0.07***	0.08***	1		
	(<0.01)	0.53	(<0.01)	(<0.01)	0.73	(<0.01)	(<0.05)	(<0.01)	(<0.01)	(<0.01)			
GDP(12)	0.09***	0.01	0.26***	-0.01	0.04**	0.11***	0.08***	0.18***	-0.09***	0.14***	0.77***	1	
	(<0.01)	0.61	(<0.01)	0.70	(<0.05)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)		
CIVIL(13)	-0.10***	0.33***	0.03	0.00	-0.03	0.15***	-0.31***	-0.12***	0.01	0.20***	-0.17***	-0.18***	1
	(<0.01)	(<0.01)	0.11	0.88	0.18	(<0.01)	(<0.01)	(<0.01)	0.60	(<0.01)	(<0.01)	(<0.01)	

Note: All variable definitions are in Appendix A. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

Table 4: Main regression
Agency cost and multiple global CSR frameworks/standards

Variable(s)	DEP=AC
	Coefficient
	(t-value)
FRAMEWORK	-0.4089***
	(-3.25)
FOREIGN_SALES	-0.0012*
	(-1.73)
LEV	-2.6591***
	(-17.50)
PROFIT	2.9005***
	(11.85)
SIZE	-0.0159
	(-1.02)
MTB	0.1013***
	(12.81)
INTANGIBLE	-1.3962***
	(-12.04)
FRQ	-4.6649***
	(-12.15)
PRICE_VOL	0.0342**
	(2.43)
INVPRO	0.9476
	(1.57)
GDP	-1.0309*
	(-1.77)
CIVIL	0.0322
	(0.25)
CONSTANT	10.1764*
	(1.72)
YEAR_FE	Yes
INDUSTRY_FE	Yes
COUNTRY_FE	Yes
N	2605
F	43.32
Adj.R2	0.4331

Note: Table 4 reports the OLS regressions result of testing the relationship between Agency cost and multiple global CSR frameworks/standards. The dependent variable is agency cost takes principal component of 6 agency costs: ASSET_UTL(Ratio of annual sales and total asset); DIV_PAYOUT (Cash dividend divided by the sum of cash dividend and interest and related expense); SGA_EXP (Ratio of sales, general and administrative expense and annual sales); FREE_CF (Earnings before interest and taxes plus change in net asset); CASH_HOLD (Ratio of cash and total asset); and CAPEX (Ratio of capital expenditure and total asset). All variable definitions are in Appendix A.

***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

Table 5: Lagged analysis
Agency costs and multiple global CSR frameworks/standards with lagged variables.

Variable(s)	DEP=AC
	Coefficient
	(t-value)
FRAMEWORK_LAG	-0.4448***
	(-2.85)
FOREIGN_SALES_LAG	-0.0006
	(-0.7)
LEV_LAG	-2.619***
	(-13.84)
PROFIT_LAG	1.876***
	(6.11)
SIZE_LAG	-0.0226
	(-1.17)
MTB_LAG	0.1056***
	(10.85)
INTANGIBLE_LAG	-0.9269***
	(-6.5)
FRQ_LAG	-3.4761***
	(-7.35)
PRICE_VOL_LAG	0.0403**
	(2.31)
INVPRO_LAG	-0.6988
	(-1.16)
GDP_LAG	-0.4173
	(-0.98)
CIVIL_LAG	0.0311
	(0.21)
CONSTANT	6.0387
	(1.29)
YEAR_FE	Yes
INDUSTRY_FE	Yes
COUNTRY_FE	Yes
N	1843
F	27.31
Adj.R2	0.3913

Note: Table 5 reports the OLS regressions result of testing the relationship between Agency cost and multiple global CSR frameworks/standards. The dependent variable is agency cost takes principal component of 6 agency costs: ASSET_UTL (Ratio of annual sales and total asset); DIV_PAYOUT (Cash dividend divided by the sum of cash dividend and interest and related expense); SGA_EXP (Ratio of sales, general and administrative expense and annual sales); FREE_CF (Earnings before interest and taxes plus change in net asset); CASH_HOLD (Ratio of cash and total asset); and CAPEX (Ratio of capital expenditure and total asset). The all independent and control variables are one year lagged. All variable definitions are in Appendix A.
***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

Table 6: Firm fixed effect
Agency costs and multiple global CSR frameworks/standards with firm fixed effect.

Variable(s)	DEP=AC
	Coefficient
	(t-value)
FRAMEWORK	-0.4089**
	-2.51
FOREIGN_SALES	-0.0012
	-1.22
LEV	-2.6591***
	-10.13
PROFIT	2.9005***
	5.77
SIZE	-0.0159
	-0.6
MTB	0.1013***
	5.93
INTANGIBLE	-1.3962***
	-7
FRQ	-4.6649***
	-7.43
PRICE_VOL	0.0342**
	2.09
INVPRO	0.9476*
	1.7
GDP	-1.0309**
	-2.05
CIVIL	0.0322
	0.19
CONSTANT	10.1764*
	2
YEAR_FE	Yes
INDUSTRY_FE	Yes
COUNTRY_FE	Yes
FIRM_FE	Yes
N	2605
F	-
AdjR2	0.4433

Note: Table 6 reports the OLS regressions result of testing the relationship between Agency cost and multiple global CSR frameworks/standards with firm fixed effects. The dependent variable is agency cost takes principal component of 6 agency costs: ASSET_UTL (Ratio of annual sales and total asset); DIV_PAYOUT (Cash dividend divided by the sum of cash dividend and interest and related expense); SGA_EXP (Ratio of sales, general and administrative expense and annual sales); FREE_CF (Earnings before interest and taxes plus change in net asset); CASH_HOLD (Ratio of cash and total asset); and CAPEX (Ratio of capital expenditure and total asset). All variable definitions are in Appendix A.
***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

Table 7: Excluding samples
Agency cost and multiple global CSR frameworks/standards excluding Germany, France, and UK

Variable(s)	DEP=AC
	Coefficient
	(t-value)
FRAMEWORK	-0.4361***
	-2.64
FOREIGN_SALES	0.0008
	0.76
LEV	-1.7729***
	-8.43
PROFIT	2.9685***
	8.68
SIZE	0.0470**
	2.19
MTB	0.1083***
	7.97
INTANGIBLE	-2.1834***
	-13.2
FRQ	-4.8241***
	-9.24
PRICE_VOL	0.0048
	0.24
INVPRO	1.5058*
	1.84
GDP	-1.2909
	-1.35
CIVIL	-0.5016
	-1.14
CONSTANT	11.9042
	1.1
YEAR_FE	Yes
INDUSTRY_FE	Yes
COUNTRY_FE	Yes
N	1371
F	32.39
Adj.R2	0.4963

Note: Table 7 reports the OLS regressions result of testing the relationship between Agency cost and multiple global CSR frameworks/standards excluding sample firms from Germany, France and UK. The dependent variable is agency cost takes principal component of 6 agency costs: ASSET_UTL(Ratio of annual sales and total asset); DIV_PAYOUT (Cash dividend divided by the sum of cash dividend and interest and related expense); SGA_EXP (Ratio of sales, general and administrative expense and annual sales); FREE_CF (Earnings before interest and taxes plus change in net asset); CASH_HOLD (Ratio of cash and total asset); and CAPEX (Ratio of capital expenditure and total asset). All variable definitions are in Appendix A.

***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

Table 8: Propensity Score Matching (PSM) analysis

Panel A: Matching

Variable(s)	Treatment firms	Control firms	Difference	t-statistics
AC	0.0734	0.3710	-0.2976	-2.41**
FOREIGN_SALES	56.9120	55.7740	1.1380	0.34
LEV	0.1905	0.1881	0.0025	0.19
PROFIT	0.0883	0.0902	-0.0020	-0.18
SIZE	8.1017	8.2960	-0.1943	-1.31
MTB	2.6961	2.7707	-0.0746	-0.27
INTANGIBLE	0.2592	0.2476	0.0115	0.59
FRQ	-0.0015	-0.0074	0.0058	0.92
PRICE_VOL	0.5900	0.6249	-0.0349	-0.22
INVPRO	1.3968	1.3554	0.0414	1.55
GDP	10.6580	10.6460	0.0120	0.49
CIVIL	0.6620	0.6432	0.0188	0.41

Note: Panel A shows the mean of the treatment and control firms dependent and control variables after PSM procedure. The dependent variable is agency cost takes principal component of 6 agency costs: ASSET_UTL(Ratio of annual sales and total asset); DIV_PAYOUT (Cash dividend divided by the sum of cash dividend and interest and related expense); SGA_EXP (Ratio of sales, general and administrative expense and annual sales); FREE_CF (Earnings before interest and taxes plus change in net asset); CASH_HOLD (Ratio of cash and total asset); and CAPEX (Ratio of capital expenditure and total asset). All variable definitions are in Appendix A.

***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

Table 8: PSM analysis (continued)
Panel B: PSM regression
Agency cost and multiple global CSR frameworks/standards with matched samples

Variable(s)	DEP=AC
	Coefficient
	(t-value)
FRAMEWORK	-0.5632*

	-1.77
FOREIGN_SALES	-0.0026
	-1.29
LEV	-3.1269***
	-7.63
PROFIT	2.6164***
	3.74
SIZE	0.0650
	1.41
MTB	0.1279***
	5
INTANGIBLE	-1.3483***
	-4.07
FRQ	-4.9836***
	-4.87
PRICE_VOL	0.0232
	0.7
INVPRO	2.0044
	0.89
GDP	-1.7695
	-1.09
CIVIL	0.9645
	1.54
CONSTANT	15.9429
	1.04
YEAR_FE	Yes
INDUSTRY_FE	Yes
COUNTRY_FE	Yes
N	426
F	-
Adj.R2	0.4952

Note: Panel B Table 8 reports the OLS regressions result of testing the relationship between Agency cost and multiple global CSR frameworks/standards with matched samples (213 treated firms and 213 control firms). The dependent variable is agency cost takes principal component of 6 agency costs: ASSET_UTL(Ratio of annual sales and total asset); DIV_PAYOUT (Cash dividend divided by the sum of cash dividend and interest and related expense); SGA_EXP (Ratio of sales, general and administrative expense and annual sales); FREE_CF (Earnings before interest and taxes plus change in net asset); CASH_HOLD (Ratio of cash and total asset); and CAPEX (Ratio of capital expenditure and total asset). All variable definitions are in Appendix A.
***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

Table 9: Heckman Selection Bias Analysis

Variable(s)	1st stage	2nd stage
	DEP= GRI	DEP= AC
	Coefficient (t-value)	Coefficient (t-value)
ENV	1.0946***	
	6.55	
FRAMEWORK		-0.4012***
		-3.18
FOREIGN_SALES	-0.0005	-0.0012*
	-0.41	-1.69
LEV	0.7725***	-2.5631***
	2.88	-16.01
PROFIT	0.2687	2.9081***
	0.62	11.81
SIZE	0.2611***	0.0051
	10.41	0.24
MTB	-0.0120	0.0994***
	-0.88	12.46
INTANGIBLE	0.0320	-1.3929***
	0.16	-12.03
FRQ	0.3839	-4.6025***
	0.58	-11.97
PRICE_VOL	0.0324	0.0375***
	1.34	2.63
INVPRO	7.9910***	1.4394**
	6.62	2.13
GDP	-3.2714***	-1.2412**
	-3.14	-2.07
CIVIL	-11.4539***	0.2378
	-5.78	1.29
LAMBDA		0.1796
		1.59
CONSTANT	-38.3131***	11.2350*
	-2.73	1.88
YEAR_FE	Yes	Yes
INDUSTRY_FE	Yes	Yes
COUNTRY_FE	Yes	Yes
N	2590	2590
F	1267.02	47.34
Adj.R2	0.3787	0.4349

Note: Table 9 reports the Heckman Selection Bias result of testing the relationship between Agency cost and multiple global CSR frameworks/standards. The first stage dependent variable is GRI (Indicator variable equal to 1 for firms that uses GRI guidelines/standards, 0 otherwise). The second stage dependent variable is agency cost takes principal component of 6 agency costs: ASSET_UTL (Ratio of annual sales and total asset); DIV_PAYOUT (Cash dividend divided by the sum of cash dividend and interest and related expense); SGA_EXP (Ratio of sales, general and administrative expense and annual sales); FREE_CF (Earnings before interest and taxes plus change in net asset); CASH_HOLD (Ratio of cash and total asset); and CAPEX (Ratio of capital expenditure and total asset) controlling inverse mail ratio obtained in first stage. All variable definitions are in Appendix A.
***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively (two-tailed tests).

Table 10: Instrumental Variable analysis

Variable(s)	1st stage	2nd stage
	DEP=FRAMWORK	DEP=AC
	Coefficient	Coefficient
	(t-value)	(t-value)
FRAMEWORK		-1.1548***
		-2.77
FOREIGN_SALES	0.0002*	-0.0010
	1.98	-1.46
LEV	0.0697***	-2.6166***
	3.07	-17.07
PROFIT	0.1090***	2.9671***
	2.98	12.03
SIZE	0.0522***	0.0261
	24.85	0.96
MTB	-0.0001	0.1011***
	-0.1	12.82
INTANGIBLE	-0.0001	-1.3811***
	-0.01	-11.91
FRQ	0.0808	-4.5355***
	1.4	-11.65
PRICE_VOL	0.0041*	0.0378***
	1.95	2.66
INVPRO	0.0080	1.2583*
	0.07	2.02
GDP	0.0214	-1.1677*
	0.23	-1.99
CIVIL	-0.1225***	0.1621
	-3.91	1.1
INDCOUN_FRAMEWORK	0.7711***	
	14.35	
YEARCOUN_FRAMEWORK	0.7937***	
	6.81	
CONSTANT	-0.7819	10.9094*
	-0.86	1.84
Year	Yes	Yes
Industry	Yes	Yes
Country	Yes	Yes
N	2605	2605
F	50.92	42.67
Uncentered R2	0.8339	0.4357
Underidentification		236.955
Weak identification test		127.881
Sargan statistic		0.069(0.7931)

Note: Table 10 reports the results on the first stage of instrumental variable using FRAMEWORK as a dependent variable. Panel B shows the second stage results on the effect of Agency cost and multiple global CSR frameworks/standards, controlling for predicted FRAMEWORK score obtained in first stage. All variable definitions appear in Appendix. ***, ** and * represent statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively (two-tailed tests).