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Agency problem – a missing link between corporate social responsibility reporting and firm performance

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Abstract: This study investigates the mediating impact of agency problem on the effect of CSR reporting to firm performance. Using the OLS regression method to analyse a dataset of 5,831 firm-year observations of 833 large firms from 30 countries across seven years from 2013 to 2019, the study finds that agency problem is a missing link that mediates the influence of CSR reporting on a firm's economic performance. The results hold in the system GMM estimations. The study unpacks the black box of CSR-firm performance relation in which CSR reporting benefits firm performance through diminishing the agency problem. Unlike the existing literature that only emphasises the role of a corporate board to handle agency problem, this study highlights the role of CSR reporting as an alternative mechanism to mitigate agency problem. Our finding confirms that CSR reporting is fruitful to shareholders; CSR reporting can be employed as a measure to improve principle-agent relationship.

Keywords: agency problem; corporate social responsibility; CSR; CSR reporting; performance.

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1 Introduction

Corporate social responsibility (CSR) reporting can be understood as a firm's communication about what the firm has done to their employees, communities, environment, and society at large (Garcia-Torea et al., 2020; Liao et al., 2017). Such communication has been widely presented in sustainability reports or CSR reports. Despite a significant amount of research examining CSR and corporate performance relation, a prudent question about the contribution of the CSR reporting to firm performance remains inconclusive (Andrew and Baker, 2020; Kong et al., 2020). We argue that the inconclusive findings in the literature happen because most of the extant research only focuses on the direct effect of CSR reporting on economic performance of

the firm while the relationship may be indeed mediated and moderated by other factors (Zattoni and Van Ees, 2012).

Agency theorists have concerns that CSR and CSR reporting is employed to forward the interests of managers (or stakeholders) at the expense of shareholder value, and hence corporate governance mechanisms are focused on reducing agency problems resulting from the separation of ownership and control (Desender et al., 2020). In our research, we investigate the impact of agency problem on the effect of CSR reporting to firm performance. We draw on agency theory-based literature and stakeholder theory-based literature to posit that agency problem is a missing link that mediates the influence of CSR reporting on a firm's economic performance.

The objective of this paper is to investigate the mediating impact of agency problem on the effect of CSR reporting to firm performance. This paper uses data of 5,831 firm-year observations of 833 large corporations from 30 countries during the period 2013 to 2019. Using the OLS estimation method to analyse the dataset, the paper finds that the impact of CSR reporting on firms' financial performance is transferred mainly through mitigating agency problem.

This study adds two theoretical contributions. *First*, this study unpacks the black box of CSR-firm performance relation by highlighting that CSR reporting benefits firm performance through diminishing the agency problem. Various literature reviews of research that investigates the CSR-CP relation (Ullmann, 1985; Wang et al., 2016; Brooks and Oikonomou, 2018) reveal the lack of knowledge about the mechanism that CSR contributes to firm performance. In contrast to the prior research, this study offers insight into how CSR contributes to the economic performance that is done by mitigating the agency problem in a firm. *Second*, this study features that CSR reporting can be employed as one of the measures to solve the agency problem in a firm. It can be seen from many reviews of literature (Yoshikawa and Rasheed, 2009; Bebchuk and Weisbach, 2010; Brown et al., 2011; Colli and Colpan, 2016; Cuomo et al., 2016) that CSR reporting is yet evidenced in the existing literature as an effective corporate governance regime. We extend the literature with an empirical evidence of impact of CSR reporting in congruence of interest of shareholders (the principal) and managers (the agent).

2 Literature review and hypotheses

2.1 CSR reporting and corporate performance

The stakeholder theory (Freeman, 1984) contends that a firm's primary stakeholders, including employees, customers, suppliers, investors can support or hinder the execution and therefore, outcomes of corporate decisions. Meeting stakeholders' expectations may help a firm to obtain their favours. Similarly, addressing stakeholders' concerns may enable a firm to avoid choices that make stakeholders act against a firm's objectives (Wang et al., 2016).

Findings from both practitioners and academic researchers demonstrate that key stakeholder groups such as employees, consumers, and shareholders are more probably to take measures to reward good corporate citizens and punish bad players (Du et al., 2010). For stakeholders to realise that a firm is a good corporate citizen, the firm should keep the public informed of their CSR activities. When a firm provides information about their CSR activities, the firm can be seen as a good corporate citizen in the eyes of their

primary constituents. The latter, according to stakeholder theory, have the potential to influence the achievement of economic outcomes of the firm. Specifically, a firm's CSR effort may serve as an added advantage for the firm and so attract a positive customer response, purchase intention and loyalty (Brooks and Oikonomou, 2018).

As such, by reporting CSR information, a firm may entice consumers to buy a product or service. Another benefit that CSR reporting adds to firm value is through gaining employees' engagement (Flammer and Luo, 2017). Dutton et al. (1994) suggest that employees show greater commitment and a feel of belonging to a firm that shows it is socially responsible business. Gaining employees' engagement is the key to improving productivity and so the enhancement of CFP. Also, a firm showing what it has done in relation to its social responsibility is more likely to attract capital from investors and receive more favourable terms from suppliers because many individuals nowadays wish to align their business with their moral aims (Sprinkle and Maines, 2010). Taken together, CSR reporting can help a firm gain favour from a wide range of stakeholders, such as customers, employees, suppliers, investors that potentially lead to lower cost, higher revenue and so greater financial performance. Therefore, we expect:

H1 CSR reporting of a firm is positively associated with the firm's economic performance.

Note that the findings into how CSR reporting influences corporate performance stay inconsistent as reported in many literature review papers such as Ullmann (1985), Brooks and Oikonomou (2018), Andrew and Baker (2020) and Kong et al. (2020). The inconsistent findings have been attributed to various drawbacks: "a lack in theory, inappropriate definition of key terms, and deficiencies in the empirical databases currently available" [Ullmann, (1985), p.540]. To address the theoretical voids, several scholars such as Kong et al. (2020) call for a focus on the boundary conditions that may influence the relationship. We argue that agency problem is one of such boundary conditions that alter the CSR-CP relation.

2.2 CSR reporting and agency problem

Agency problem happens in a corporate when there is a split-up of ownership and control, coupled with the conflict of interest between firm-owners and managers (Jensen and Meckling, 1976). The extant theoretical work has proposed the usage of various corporate governance regimes like managerial ownership, board independence to diminish agency problem. Based on this assumption, a large volume of research focuses on evaluating the effects of various corporate governance regimes on corporate performance as reported by many reviews of literature (Yoshikawa and Rasheed, 2009; Bebchuk and Weisbach, 2010; Brown et al., 2011; Colli and Colpan, 2016; Cuomo et al., 2016). However, hardly a study advances further to examine if CSR report could be used as an instrument to mitigate agency problem. Meanwhile, in practice, many global firms started to use code of conduct, a core part of CSR practices, to govern their global supply chain since the early 2000s.

Critical features of agency problem in a firm are the divergence of interest between the firm-owners and managers and asymmetric information about what the managers do (Bosse and Phillips, 2016). The information asymmetry may induce managers to make business decision benefiting themselves at the cost of the firm's owners. Reporting of CSR information may help lessen the information asymmetry (Agbola et al., 2019) and

enhance transparency. Indeed, CSR reporting can improve transparency through multiple mechanisms. First, CSR reporting to the public makes the firm more transparent to stakeholders (Cho et al., 2013). Second, CSR reporting lessens information asymmetry between managers and shareholders, thereby reducing estimation risk for shareholders/investors. Third, transparency reduces the monitoring cost (Lombardo and Pagano, 2002). The findings from Martínez-Ferrero et al. (2018) indicate that asymmetric information is significant in firms that disclose little CSR information. Some empirical studies such as Ok and Thomas (2008) prove that information asymmetry lower for firms that reporting governance information to the public. Therefore, the more CSR information is revealed, the more transparent and less information asymmetry between managers and firm owners are. Less information asymmetry is likely to mitigate the chances in which managers can make managerial decisions benefiting themselves rather than their owners.

Moreover, when a firm engages in CSR and reports CSR information, CSR practices by a firm could contribute to the development of business ethic norms within a corporation. Flammer and Luo (2017) suggest that CSR is an effective employee governance tool, mitigating adverse behaviour at the workplace (e.g., shirking, absenteeism). In other words, these CSR reporting practices can promote ethics and integrity among staff in a firm, and hence demotivate managers' self-interest seeking behaviours. Taken together, we propose:

H2 CSR reporting mitigates the agency problem in a firm.

2.3 Agency problem and corporate performance

The effect of agency problem on corporate performance can be traced back to Berle and Means (1932) seminal work that implies the diffuse ownership adversely affects firm performance. Berle and Means (1932) suggest this dispersal of ownership and control leads to the appropriation of power by the firm's managers. Managers may have interests not necessarily in line with those of the stockholders. For example, managers may prefer either to reinvest the profits to further their own privileges, in the form of higher salaries or 'perks' while owners prefer that profits be returned to them in the form of dividends (Mizruchi, 2004). Managers are people who run the firm's business, so better informed about the firm's business activities than the firm-owners are. The information asymmetry may induce managers to make business decision benefiting themselves at the cost of the firm's owners. Consequently, managers have chances to divert resources to self-benefit (Nilakant and Rao, 1994). If managers have motives to follow their own benefit, this self-interest seeking actions by managers likely undermines the firm's economic performance. As such, we expect that:

H3 The agency problem negatively affects the economic performance of a firm.

CSR reporting might affect firm performance indirectly (Zattoni and Van Ees, 2012). This is because CSR reporting practices can promote transparency in the reporting firm (Agbola et al., 2019; Cho et al., 2013), and integrity among staff of the firm (Jamali and Dirani, 2013), and hence demotivate managers' opportunistic behaviours. A firm's CSR disclosure can also help strengthen public scrutiny over the firm's actions and outcomes (Chalmers and van den Broek, 2019). As a result, CSR reporting is likely to reduce agency problem caused by the selfish managers. At the same time, less agency problem

might result in better corporate performance. These arguments suggest that the agency problem is a channel that transfers the effect of CSR reporting on corporate performance. Accordingly, we propose:

H4 The agency problem mediates the impact of CSR reporting on the economic performance of a firm.

3 Research methodology

3.1 Estimation models

The OLS regression method is used to estimate the research model using the Bloomberg data. The independent variables are chosen to be a one-year lag of the dependent variable. This strategy allows for a justification that it takes some time for the explanatory factors to take effect, also enables a reduction of the endogeneity problem of the models. To overcome the heteroscedasticity of the models, the Stata command *robust* is used to compute robust variance estimator of the models.

To confirm the mediation relationship, following Baron and Kenney (1986), the following conditions must be met in the results to support mediation:

1 The independent variable is shown to significantly influence the dependent variable in the first regression equation.

2 Independent variable is shown to significantly influence the mediator in the second regression equation.

3 The mediator is significantly related to dependent variable in third equation.

4 Mediator must significantly influence the dependent variable in the fourth equation in which the independent variable and mediator are entered as predictors. Complete mediation is present when the independent variable no longer influences the dependent variable after the mediator has been controlled and all of the three above conditions are met.

To test H1, equation (1) in which corporate performance is the explained variable, and CSR reporting is the predictor is developed. The control variables are included in equation (1). They are firm size (measured by employee number and total asset), and corporate governance (CEO duality, board independence, and financial leverage), the average performance (mean ROA) of the firm's industry, country of a firm headquarter, industry effect, the global financial crisis year and the year effect.

$$\begin{aligned} Performance_{i;t+1} = {} & \beta_0 + \beta_1 CSRreporting_{i;t} + \beta_2 CEOduality_{i;t} \\ & + \beta_3 Bindependence_{i;t} + \beta_4 Employee_{i;t} \\ & + \beta_5 Industryaverage_{i;t} + \beta_6 Idustrydummy_i \\ & + \beta_7 Countrydummy_i + \beta_8 Yeardummy_i + \varepsilon_{it} \end{aligned} \tag{1}$$

To test H2, we develop equation (2) in which agency problem is the explained variable, and CSR reporting is a predictor. We also include the equation's (1) control variables in equation (2) because of their potential effect on agency problem. Moreover, we add a firm's leverage to the control variables of equation (2) following Singh and Davidson

(2003). The independent variables are also set to be a one-year lag of the dependent variable.

$$\begin{aligned} Agencyproblem_{i;t} = {} & \beta_0 + \beta_1 CSRreporting_{i;t-1} + \beta_2 CEOduality_{i;t-1} \\ & + \beta_3 Bindependence_{i;t-1} + \beta_4 Employee_{i;t-1} \\ & + \beta_5 Industryaverage_{i;t-1} + \beta_6 Idustrydummy_i \\ & + \beta_7 Country_i + \beta_8 Yeardummy_i + \lambda_{i;t} \end{aligned} \quad (2)$$

To test H3, we develop equation (3) in which agency problem is the key explanatory variable, to explain for corporate performance. Control variables in this equation are CSR reporting, firm size (the number of employees), corporate governance (CEO duality, board independence and financial leverage); the industry characteristic (average performance – mean of ROA of the firm's industry); the country of a firm's headquarter, industry effect, the effect of the global financial crisis, and the year effect. Similar to the above equations, the independent variables are designed to be one-year-lag data of the dependent variable.

$$\begin{aligned} Performance_{i;t+1} = {} & \beta_0 + \beta_1 Agencyproblem_{i;t} + \beta_2 Leverage_{i;t} \\ & + \beta_3 CEOduality_{i;t} + \beta_4 Bindependence_{i;t} \\ & + \beta_5 Employee_{i;t} + \beta_6 Industrydummy_i \\ & + \beta_7 Countrydummy_i + \beta_8 Yeardummy_i \\ & + \beta_9 Industryaverage_{i;t} + \varepsilon_{it} \end{aligned} \quad (3)$$

To test H4, we follow Baron and Kenny (1986), using the results obtained from regressions of equations (1), (2) and (3) to check if the agency problem mediates the CSR reporting-corporate performance relation, and a simultaneous structure of equations (2) and (3). Note that we include CSR reporting in equation (3) as per guidance by Baron and Kenny (1986) that the mediator must be related to the explained variable while the independent variable is controlled in the model. At this time, we use the same-year data for all of the variables to run the SEM regressions.

$$\begin{aligned} Performance_{i;t+1} = {} & \beta_0 + \beta_1 CSRreporting_{i;t} + \beta_2 Agencyproblem_{i;t} \\ & + \beta_3 CEOduality_{i;t} + \beta_4 Bindependence_{i;t} \\ & + \beta_5 Employee_{i;t} + \beta_6 Industryaverage_{i;t} \\ & + \beta_7 Industrydummy_i + \beta_8 Countydummy_i \\ & + \beta_9 Yeardummy_i + \varepsilon_{it} \end{aligned} \quad (4)$$

The use of these variables in the equations are explained as follows:

3.1.1 Firm's economic performance (ROA, ROE, and TobinQ)

We measure a firm's economic performance with ROA, ROE and Tobin's Q. These indicators are the most common indicators used to reflect a firm's economic performance in existing literature (Abbott and Monsen, 1979; Rashid, 2015, 2016).

3.1.2 Agency problem (Agencyproblem)

The prior research makes great attempts in quantifying agency problem through output-based measure which is agency cost. In particular, considering agency cost as a consequence of agency problem, Jensen and Meckling (1976) defined agency costs as the sum of

1 the monitoring expenditures by the principal

2 the bonding expenditures by the agent

3 the residual loss.

Ang et al. (2000) specify the agency costs further. They suggest that the agency costs arise since the manager acts in the following ways: makes poor investment decisions, exerts insufficient effort, resulting in lower revenues; consumes executive perquisites, so that the firm purchases unproductive assets, such as excessively fancy office space, automobiles, and resort properties. Drawing on this premise, Ang et al. (2000) develop the indicator to measure agency costs, proxied by the expense ratio in which operating expense is scaled by annual sales. This ratio mirrors how efficiently the firm's management controls operating costs.

Since the work of Ang et al. (2000), expense ratio have been widely employed to proxy for agency cost or the agency problem in later studies (e.g., Singh and Davidson, 2003; Fleming et al., 2005; McKnight and Weir, 2009; Rashid, 2015, 2016). In line with these studies, we adopt Ang et al. (2000) approach to proxy for the agency problem but only use expense ratio (i.e., total-cost-to-sale ratio and operating-cost-to-sale ratio). There are two rationales for this choice. First, because expense ratio is a ratio made of two factors which vary along the time; it can capture the variation of agency problem better than asset utilisation ratio which is made of one less varying factor – total asset and one varying factor – sale. Second, as one of the three alternative measures of the dependent variable is ROA, using asset utilisation ratio to proxy for agency problem will cause spurious relationship/correlation between these two variables, where the spurious regression provides misleading statistical evidence of a linear relationship. In brief, this study uses the expense ratio to proxy for agency problem. Specifically, we use operating-cost-to-sale ratio (*Agencyproblem*).

3.1.3 CSR reporting (CSRreporting)

Following prior studies (e.g., Aragón-Correa et al., 2016; Lai et al., 2016), CSR reporting is proxied with ESG disclosure scores released by Bloomberg. This score is computed based on the amount of environmental, social and governance (ESG) information that companies communicate to the public mainly through their CSR reports or sustainability reports.

These scores are measured by Proprietary Bloomberg ESG group based on the extent of company disclosure of ESG data. The scores were tailored to different industries; in this way, each company was evaluated in terms of the data relevant to its industry sector. Companies that are not covered by the Proprietary Bloomberg ESG group and companies that do not disclose anything have no score. The scores range from 0.1 for companies that disclosed a minimum amount of data to 100 for those that disclosed every data point. Each data point is weighted in terms of importance, with environmental data carrying a

greater weight than other disclosures in EGS, greenhouse gas emission carrying greater weight than other environmental disclosures in *E*; workforce data carrying greater weight than other social disclosures in *S*, and with board of director data carrying more weight than other governance disclosures in *G*.

3.1.4 Control variables

- *CEO duality (CEOduality):* CEO duality indicates the situation that the CEO is the chairman of a board. CEO duality, hence, strengthens CEO power. Powerful CEO may stiffen agency problem and consequently diminish firm performance (Peng, 2004). We, thus, include CEO duality as a control variable in equations (1), (2) and (3).
- *Financial leverage (Leverage):* Financial leverage was popularly controlled in previous studies of the link between corporate governance and performance (Singh and Davidson, 2003). Therefore, financial leverage is controlled in the equation (3). *Leverage* is the natural logarithm of the debt to equity ratio.
- *Board independence* refers to proportions of independent (outside) directors on a board. It is widely suggested to as mechanism to reduce agency problem and so improve firm performance. We, therefore, control for board independence in all of the equations. It is measured by the percentage of independent directors on a board of a firm in a year, following existing research (Rashid, 2015, 2016).
- *Firm size* may stiffen agency problem and enhance firm performance (Rashid, 2015). It is thus controlled in all of the equations. We use employee number of a firm to reflect the firm size as popularly done in prior studies. Natural logarithm of employee number was obtained to reduce skewness and kurtosis of the data.
- *Industry effect:* The heterogeneity in industry structures is likely to contribute to variations in corporate governance practices and the performance of firms in different industries. Thus, we control the potential industry-specific effects on performance and agency problem in a firm. We use industry specific dummy (*Industrydummy*) for control as popularly done in previous research. We also control the industry's average performance (*Industryaverage*) which is measured by industry mean average ROA of the firms in each industry in a year (Le and O'Brien, 2010).
- *Country (Countrydummy):* Home country factors such as macro-economic conditions or culture and geographical location can potentially affect firm performance and business ethics that is associated with agency problem. Thus, we control the potential country effects on performance and agency problem in a firm.
- *Year effect (Yeardummy):* Macro-environment can have a potential impact on business ethics that is associated with agency problem and the performance of firms that in that year. To capture time effect, we also control for year effect (*Yeardummy*) in the model.

3.2 Data collection and research sample

The process of collecting data comprised of three stages. We first chose a sample of the large companies in the Bloomberg data repository. The sample includes large companies from 30 countries spanning across four continents, which enables the generalisability of our findings. These countries include Australia, Belgium, Brazil, Canada, China, Denmark, Finland, France, Germany, Hong Kong, India, Ireland, Italy, Japan, Luxembourg, Malaysia, Mexico, Netherlands, Norway, Russia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey, the UK and the USA.

We collected 2013–2019 annual data on annual environment, social and governance disclosure score, ROA, ROE, Tobin's Q, operating expenses, sales revenue; and other information relating to a firm's characteristics, which include the percentage of non-executive members in a board, financial leverage of debt to equity, CEO duality, employee number in a firm, board diversity, and industrial classification in Bloomberg.

The dataset of 5,831 firm-year observations of the 833 firms. This is a balanced dataset. We used STATA 16 software package to analyse the dataset.

3.3 Endogeneity issue and robustness check

In our models, the key independent variable, *CSRreporting*, could be correlated to the error term due to unobserved factors, and reversal causality could exit. We use IV 2SLS regression method (Wooldridge, 2013) to address the endogeneity issue of *CSRreporting*. We assume that a firm that has board gender diversity is more willing to disclose CSR information (Harjoto et al., 2015). Therefore, there is likelihood that board gender diversity of a firm and CSR reporting of that firm might be positively correlated to each other. Board gender diversity (*Boardiversity*) is used as the instrument variable for *CSRreporting*. The data for *Boardiversity* is collected from Bloomberg. The minimum number of women on board of a firm is 0 and the maximum number of 10 in our dataset.

To examine if the endogeneity of *CSRreporting* is sorted by the use of the instrument variable, we conduct the Wu-Hausman test and the Durbin test of endogeneity to see if the IV is correlated with the error term of the model (H_o: variables are exogenous). The large p-values ($p > 0.05$) demonstrate that the hypothesis of exogenous regressor cannot be rejected in the models. Importantly, we check if the IV is weak; the results of first-stage regression summary statistics show that $p = 0.00$ indicating that the IV is not weak. Therefore, the endogeneity issue of *CSRreporting* in the models was resolved.

We run equations (1), (2), (3), and (4) using the system GMM method to see if the baseline results hold.

4 Results

The median average of the total assets of a firm in our dataset is USD25,267 million. Regarding the number of employees, the median average firm size is 33,588 staff. The smallest firm has ten staff, while the largest firm had 2,300,000 employees. The mean average CSR reporting score is 38.47. The mean average ROA [ROE] [Tobin's Q] is 4.71 [16.80] [1.71] respectively. The descriptive statistics of the variables are displayed in Table 1.

Table 1 Variables and descriptive statistics

Variable		*Mean*	*SD*	*Min*	*Max*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1	*ROA*	4.72	7.18	–104.46	127.51	1									
2	*ROE*	16.81	42.75	–527.02	1,048.62	0.44***	1								
3	*TobinQ*	1.71	1.04	0.04	13.93	0.50***	0.32***	1							
4	*ESG*	38.48	16.04	6.2	78.1	–0.01	0.02	–0.04*	1						
5	*Agencyproblem*	0.75	0.27	0.11	1.06	–0.20***	–0.07**	–0.09***	–0.13***	1					
6	*CEOduality*	0.39	0.49	0	1	0.05***	0.05***	0.07***	–0.02	0.04	1				
7	*Bindependent*	74.48	21.17	0	100	0.09***	0.12***	0.21***	–0.07***	0.14***	0.14***	1			
8	*Leverage*	121.68	129.21	8.99	513.75	–0.15***	0.20***	0.03*	–0.01	–0.01	0	0.05***	1		
9	*Employee*	70,602.7	123,000	10	2,300,000	0.03*	0.05***	0	0.21***	–0.08***	–0.02	–0.13***	0.01	1	
10	*Industryaverage*	4.72	1.61	1.48	6.52	0.22***	0.11***	0.29***	–0.13***	–0.18***	–0.01	–0.02	–0.06***	0.13***	1

Notes: *Agencyproblem* is measured by operating expenses divided by annual sales, Winsorised at 5%; *Leverage* is the debt to equity ratio, Winsorised at 5%; *Employee* is Winsorised at 5%; mean VIFs < 10.

Table 1 also reports the correlation coefficients of each pair of the variables. The mean VIFs, which are less than the threshold of 10, indicates that multicollinearity does not present in the dataset as per guidance by Mansfield and Helms (1982).

Table 2 Effect of CSR reporting on corporate performance – OLS estimation

	Equation (1)			*Equation (4)*		
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
	ROA	*ROE*	*TobinQ*	*ROA*	*ROE*	*TobinQ*
L.ESG	*0.033***	*0.227***	*0.008***	*0.007*	*0.128*	*0.001*
	(0.000)	*(0.000)*	*(0.000)*	*(0.619)*	*(0.126)*	*(0.829)*
L.Agencyproblem				*–4.407***	*–7.841*	*–0.485***
				(0.000)	*(0.131)*	*(0.002)*
L.CEOduality	0.416*	3.096*	0.055	–0.230	–5.574***	–0.091
	(0.085)	(0.059)	(0.141)	(0.555)	(0.006)	(0.247)
L.Bindependent	0.006	0.135***	0.003***	–0.011	0.075	0.005**
	(0.491)	(0.000)	(0.000)	(0.578)	(0.300)	(0.034)
L.Employee	0.000	0.000**	0.000	0.000***	0.000***	0.000***
	(0.456)	(0.034)	(0.639)	(0.006)	(0.003)	(0.001)
L.Industryaverage	1.393***	4.341***	0.196***	0.810*	1.052	0.095***
	(0.000)	(0.000)	(0.000)	(0.059)	(0.514)	(0.001)
Countrydummy	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Industrydummy	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Yeardummy	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
N	4,103	4,006	4,067	1,603	1,559	1,583
R^2	0.094	0.051	0.185	0.129	0.088	0.182

Notes: *p*-values in parentheses; *$p < 0.1$, **$p < 0.05$, and ***$p < 0.01$.

Table 3 Effect of CSR reporting on agency problem – OLS estimation

Equation (2)	*Model 7*
	Agencyproblem
L.ESG	*–0.001** (0.013)*
L.CEOduality	–0.017 (0.180)
L.Bindependent	0.000 (0.632)
L.Employee	0.000*** (0.005)
L.Industryaverage	0.000 (0.999)
Countrydummy	Controlled
Industrydummy	Controlled
Yeardummy	Controlled
N	1,685
R^2	0.280

Notes: *p*-values in parentheses; *$p < 0.1$, **$p < 0.05$, and ***$p < 0.01$.

Table 4 Effect of agency problem on corporate performance – OLS estimation

Equation (3)	*Model 8*	*Model 9*	*Model 10*
	ROA	*ROE*	*TobinQ*
L.Agencyproblem	*–3.582*** (0.000)*	*–12.932*** (0.007)*	*–0.322** (0.030)*
L.Leverage	–0.006*** (0.000)	0.102*** (0.000)	–0.000* (0.098)
L.CEOduality	–0.556 (0.141)	–4.056** (0.035)	–0.151** (0.040)
L.Bindependent	–0.006 (0.712)	0.129* (0.054)	0.004* (0.083)
L.Employee	0.000*** (0.000)	0.000*** (0.003)	0.000*** (0.000)
L.Industryaverage	0.650 (0.123)	3.960** (0.021)	0.074*** (0.010)
Countrydummy	Controlled	Controlled	Controlled
Yeardummy	Controlled	Controlled	Controlled
Industrydummy	Controlled	Controlled	Controlled
N	1,571	1,559	1,551
R^2	0.139	0.172	0.194

Note: *p*-values in parentheses; *$p < 0.1$, **$p < 0.05$, and ***$p < 0.01$.

Table 5 Effect of CSR reporting on corporate performance – system GMM estimation

	Equation (1)			*Equation (4)*		
	*Model 1**	*Model 2**	*Model 3**	*Model 4**	*Model 5**	*Model 6**
	ROA	*ROA*	*TobinQ*	*ROA*	*ROE*	*TobinQ*
L.ROA	0.201***			0.266***		
	(0.000)			(0.000)		
L.ROE		0.012*			0.704***	
		(0.062)			(0.000)	
L.TobinQ			0.755***			0.931***
			(0.000)			(0.000)
L.ESG	*0.132***	*0.142***	*0.002***	*0.050*	*–0.029*	*0.001*
	(0.008)	*(0.007)*	*(0.010)*	*(0.392)*	*(0.389)*	*(0.349)*
L.Agencyproblem				*–2.945***	*–7.250***	*–0.007*
				(0.017)	*(0.004)*	*(0.888)*
L.CEOduality	0.370	0.047	0.021	0.280	0.044	–0.041*
	(0.283)	(0.916)	(0.276)	(0.590)	(0.969)	(0.052)
L.Bindependent	0.031***	0.033***	0.002***	0.010	0.102***	0.001*
	(0.000)	(0.000)	(0.000)	(0.655)	(0.010)	(0.081)
L.Employee	–0.000	–0.000	0.000*	-0.000	0.000**	0.000*
	(0.230)	(0.181)	(0.051)	(0.777)	(0.019)	(0.075)
L.Industryaverage	–0.352	–0.187	0.030***	0.751**	–0.135	–0.003
	(0.330)	(0.624)	(0.005)	(0.022)	(0.801)	(0.773)

Notes: *p*-values in parentheses; *$p < 0.1$, **$p < 0.05$, and ***$p < 0.01$.

Table 5 Effect of CSR reporting on corporate performance – system GMM estimation (continued)

	Equation (1)			*Equation (4)*		
	*Model 1**	*Model 2**	*Model 3**	*Model 4**	*Model 5**	*Model 6**
	ROA	*ROA*	*TobinQ*	*ROA*	*ROE*	*TobinQ*
Countrydummy	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Industrydummy	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Yeardummy	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Arellano-Bond test for AR(1)	–3.25***	–2.59***	–6.47***	–4.11***	–1.70*	–4.91***
Hansen test (p-value)	0.17	0.21	0.12	0.16	0.33	0.47
N	4,102	3,992	4,062	1,601	1,551	1,580

Notes: *p*-values in parentheses; *$p < 0.1$, **$p < 0.05$, and ***$p < 0.01$.

Table 6 Effect of CSR reporting on agency problem – system GMM estimation

Equation (2)	*Model 7**
	Agencyproblem
L.Agencyproblem	0.747*** (0.000)
L.ESG	*–0.001*** (0.003)*
L.CEOduality	–0.003 (0.628)
L.Bindependent	0.001*** (0.000)
L.Employee	0.000 (0.897)
L.Industryaverage	0.014*** (0.001)
Countrydummy	Controlled
Industrydummy	Controlled
Yeardummy	Controlled
Arellano-Bond test for AR(1)	–3.42***
Hansen test (p-value)	0.16
N	1,601

Notes: *p*-values in parentheses; *$p < 0.1$, **$p < 0.05$, and ***$p < 0.01$.

The results obtained from the OLS regression of equations (1) using ROA, ROE and Tobin's Q alternatively as the dependent variable presented in Table 2 indicate that CSR reporting is significantly and positively associated ROA ($\beta = 0.033$; $p = 0.00$ in model 1), ROE ($\beta = 0.227$; $p = 0.00$ in model 2), and Tobin's Q ($\beta = 0.008$; $p = 0.00$ in model 3). Therefore, H1 on the direct and positive effect of CSR reporting on firm performance is accepted.

However, when controlling agency problem in the models as specified in equation (4) (see the OLS regression results in models 8, 9 and 10), CSR reporting is no longer significantly associated with firm performance.

The outcomes from the OLS regression of equation (2) are reported in Table 3. The impact of CSR reporting on agency problem is significantly negative for agency problem ($\beta = –0.001$; $p = 0.013$ for *Agencyproblem* in model 4). Hence, H2 is accepted.

Table 7 Effect of agency problem on corporate performance – system GMM estimation

Equation (3)	*Model 8**	*Model 9**	*Model 10**
	ROA	*ROE*	*TobinQ*
L.ROA	0.201*** (0.000)		
L.ROE		0.585*** (0.000)	
L.TobinQ			0.808*** (0.000)
L.Agencyproblem	*–3.719*** (0.001)*	*–20.475** (0.045)*	*–0.122* (0.066)*
L.Leverage	–0.009*** (0.000)	0.100*** (0.000)	0.000 (0.175)
L.CEOduality	–0.188 (0.710)	0.893 (0.729)	–0.177*** (0.000)
L.Bindependent	0.021 (0.235)	0.230** (0.044)	0.003*** (0.009)
L.Employee	0.000 (0.255)	0.000*** (0.001)	0.000*** (0.000)
L.Industryaverage	1.179*** (0.000)	–1.185 (0.399)	–0.026 (0.203)
Countrydummy	Controlled	Controlled	Controlled
Yeardummy	Controlled	Controlled	Controlled
Industrydummy	Controlled	Controlled	Controlled
Arellano-Bond test for AR(1)	–5.10***	–1.70*	–4.03***
Hansen test (p-value)	0.11	0.19	0.12
N	1,569	1,553	1,550

Notes: *p*-values in parentheses; *$p < 0.1$, **$p < 0.05$, and ***$p < 0.01$.

Table 4 presents the output obtained from the OLS regression of equation (3). The impact of agency problem on corporate performance is significantly negative for all indicators of firm performance and agency problem (β = –3.582, p = 0.00 for ROA in model 5; β = –12.932, p = 0.007 for ROE in model 6; β = –0.322, p = 0.03 for Tobin's Q in model 7). Hence, H3 is accepted.

Following the criteria in Baron and Kenny (1986) for a full mediator, the results in Tables 2, 3 and 4 suggest the mediating effect of the agency problem could be in the way that CSR reporting significantly and fully mitigates agency problem, which in turn increases firm performance significantly. Hence, H4 is accepted.

The results hold in the system GMM models. Taken together, our results associated with the four hypotheses are robust; the four hypotheses are confirmed.

5 Discussion and conclusions

This paper examines the mediating role of agency problem on the effect of CSR reporting to firm performance measured by ROA, ROE and Tobin's Q. Using the OLS regression method to analyse a dataset of 5,831 firm-year observations of 833 large firms from 30 countries across seven years from 2013 to 2019, the study finds that agency problem completely mediates the influence of CSR reporting on a firm's performance. The four hypotheses are supported in this paper. The study finds the significant and positive effect of CSR reporting on firm performance. More noteworthy, the study discovers that agency problem exerts a mediating effect between CSR reporting and firm performance.

Our finding that CSR reporting contributes to the economic performance by mitigating the agency problem in a firm is novel. Given the inconsistent finding of the CSR-CFP relationship, several scholars have attempted to open the black box in the CSR-CFP relation by examining if the effect of CSR on firm performance is transfer through a channel customer satisfaction (Galbreath and Shum, 2012) or competitive advantage (Saeidi et al., 2015). However, agency problem has received little attention in previous research on CSR-CFP relation. This study advances corporate governance literature by demonstrating that agency problem is a mechanism that mediates the effect of CSR reporting on firm performance. Our study results supports Flammer and Luo's (2017) suggestion that CSR is a governance tool for mitigating adverse behaviour at the workplace. Our paper confirms that CSR reporting might affect firm performance indirectly (Zattoni and Van Ees, 2012).

Our finding suggests that CSR reporting can be employed to minimise agency problem in a firm. It can be seen from many reviews of literature (Yoshikawa and Rasheed, 2009; Bebchuk and Weisbach, 2010; Brown et al., 2011; Colli and Colpan, 2016; Cuomo et al., 2016) that CSR reporting is yet evidenced in the existing literature as an effective corporate governance regime. We extend the literature with an empirical evidence of impact of CSR reporting in interest congruence of the principal and the agent. More significantly, our study is the first highlight that the agency problem is a missing link between CSR reporting and firm performance. As the mediator, agency problem will affect how CSR reporting affects firm performance, i.e., mediating effect of agency problem on the relationship between CSR reporting and firm performance in our research finding.

Although it is not our primary goal to examine the effect of agency problem on firm performance, we find a strong adverse effect of agency problem in the link between CSR reporting and firm performance regardless industry average financial performance is or is not accounted for in the estimation models. This finding supports the agency theory. While 'examples of agency problem are universal' as proponents of agency theorists such as Ross (1973) argued, empirical research providing evidence for the consequence of agency problem on corporate performance is scant. To our knowledge, this finding is among very few studies providing empirical evidence for the agency problem – firm performance relationship.

Our paper provides some useful implications for practice. We suggest all large firms regardless of where they are located, should engage in and report more CSR information. Firms may not see the direct benefit of CSR reporting on financial performance. Still, we advise that CSR reporting is beneficial to corporate governance by mitigating agency problem and eventually improving firm performance evidenced by our study results. Unlike the current literature that only emphasises the role of a corporate board to mitigate agency problem, our study emphasises the role of CSR reporting as an alternative mechanism to monitor agency problem. Thus, our finding confirms that CSR reporting is more probably to be fruitful to shareholders.

Our study contains some limitations. We did not control some variables that might affect firm performance such as risk, firm age, R&D and advertising expenditure. The other variables traditionally used in the corporate governance literature such as ownership structure, board interlock, and institutional shareholders were not controlled in our study because data for these was not available. Further studies should seek to collect the data for these control variables.

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