The Value of Academic Directors to Stakeholders: Evidence on Corporate Social Responsibility Reporting

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ABSTRACT: This study explores the regulatory setting in Taiwan and examines the association between academic directors and corporate social responsibility (CSR) reporting. We find that firms with academic directors on their boards are more likely to issue standalone CSR reports and to obtain third-party assurance on such reports. We also demonstrate that an academic director's university prestige as well as industry expertise both have incremental positive effects on CSR reporting. Additional analysis further suggests that a firm's CSR reporting is better valued by the capital market when the firm has academic directors, consistent with academic directors strengthening investors' perceptions regarding the credibility of voluntarily disclosed CSR information. Our finding that the presence of academic directors can promote better CSR reporting indicates that academic directors contribute not only to shareholder value, but also to wider stakeholder interests.

Keywords: academic directors; corporate social responsibility; CSR reporting; assurance; nonfinancial disclosure.

I. INTRODUCTION

Due to growing awareness regarding the importance of corporate social responsibility (CSR) practices, an increasing number of firms are using voluntary CSR reporting to communicate their engagement in CSR to relevant stakeholders. A global survey by KPMG (2017) reveals that CSR reporting has become standard practice for large and mid-cap companies around the world, with around three-quarters of the 4,900 surveyed companies issuing CSR reports. The growing prevalence of CSR reporting suggests that firms are not only investing in costly CSR initiatives, but they are also disclosing related information to signal their commitment to CSR (Clarkson, Li, Richardson, and Tsang 2019). Communication of CSR commitment to a firm's stakeholders is important, as it enhances the link between CSR performance and firm value (Tsang, Zeng, and Zhou 2019). More specifically, CSR disclosures help mitigate agency issues, which in turn enhance the

market reaction to a firm's CSR performance (Richardson, Welker, and Hutchinson 1999). Reporting on CSR may also signal a firm's financial strength and future prospects (Arayssi, Dah, and Jizi 2016; Dah and Jizi 2018).

Given the trend that a growing number of investors are considering CSR in their investment decisions (Servaes and Tamayo 2013), CSR-related issues have become critical items on the agendas of many firms' boards.[1] Boards of directors are key decision makers with regard to CSR achievements (Elkington 2006; Kakabadse 2007; Mackenzie 2007). As a result, board structures and director attributes play important roles in shaping each firm's CSR investment and reporting decisions (Rao and Tilt 2016; Liao, Luo, and Tang 2015; Post, Rahman, and Rubow 2011). However, to date there are few studies that have examined the effect of director expertise on CSR reporting. In this study, we explore the regulatory setting in Taiwan and examine whether the appointment of academics as independent directors influences a firm's propensity to signal its CSR commitment through voluntary CSR reporting.

Recent trends in U.S. corporate board composition suggest an increase in the appointment of directors from academia. According to Francis, Hasan, and Wu (2015), from 1998 to 2011, approximately 40 percent of the Standard & Poor's list of 1,500 firms had at least one professor in their boardroom, and roughly 14.3 percent of these firms' outside directors were drawn from academia. The proportion of academics on the boards has increased, especially following the passage of the Sarbanes-Oxley Act (SOX) of 2002, due to its more stringent requirements regarding board independence and expertise (Linck, Netter, and Yang 2009).

Concurrent with the passage of SOX in the U.S., there was also a significant regulatory change in Taiwan. Starting in 2002, the Taiwan Stock Exchange began to advocate for the appointment of independent directors on corporate boards; such encouragement was put into law in 2006 when the government passed the Securities Exchange Act (hereafter, the *Act*) mandating that major listed companies appoint at least one independent director to the board.[2] The *Act* further specifies "academic position" as one qualification that could grant a person's independent directorship.[3] Since then, there has been a significant increase in the presence of academic directors on corporate boards. For example, in our sample the percentage of firms with academic directors has more than doubled, from 17.6 percent in 2006 to 38.3 percent in 2017. The growing prevalence of academic directors suggests that academia has become a popular source for firms seeking independent directors, probably due to their realization of the potential benefits of appointing academic directors.[4]

Prior studies demonstrate that the presence of academic directors on a company's board is positively related to firm performance. For example, White, Woidtke, Black, and Schweitzer (2014) find that the market reacts favorably to appointments of professors with specialized expertise. Similarly, Francis et al. (2015) reveal that companies with directors from academia are associated with higher financial performance and better corporate governance. Chen, Garel, and Tourani-Rad (2019) and Pang et al. (2018) document a negative market reaction to academic director resignations, thereby supporting the belief that academic directors positively contribute to firm value. In spite of the positive impact noted above, little is known about the role of academic directors in encouraging nonfinancial disclosures. We extend this stream of literature by focusing on the influence of academic directors on firms' CSR reporting.[5]

The relevant literature suggests that CSR reporting has a positive impact on stakeholders' perceptions of firm performance and value (Cormier, Ledoux, and Magnan 2011; Dah and Jizi 2018; Matsumura, Prakash, and Vera-Muñoz 2014; Plumlee, Brown, Hayes, and Marshall 2015). Moreover, CSR reporting can serve as an accountability mechanism that helps to reduce the information asymmetry between managers and investors, thereby improving analyst forecast accuracy and reducing firms' costs of equity capital (Dhaliwal, Li, Tsang, and Yang 2011; Dhaliwal, Radhakrishnan, Tsang, and Yang 2012). Dai, Lu, and Qi (2019) also show that higher levels of CSR information disclosure reduce the risk of stock price crashes.

Dubbink, Graafland, and Van Liedekerke (2008) argue that transparency is a crucial condition for implementing CSR policies, and effective boards of directors tend to encourage greater disclosure (Jamali, Safieddine, and Rabbath 2008). We believe that firms with academic faculty members on their boards are more likely to disclose CSR-related issues and to seek external assurance to enhance the credibility of their disclosures. This is a result of two main factors. First, professors tend to be established scholars with strong reputations, and thus they have higher incentives to protect their professional credentials by closely monitoring a firm's information transparency (Fama and Jensen 1983; Yermack 2004). Second, academics are generally perceived as possessing higher standards of ethics and social responsibility (Baumgarten 1982; Charnov 1987;

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[1] See "2019 Global & Regional Trends in Corporate Governance," available at https://corpgov.law.harvard.edu/2018/12/30/2019-global-regional-trends-in-corporate-governance/.

[2] The mandatory requirement took place in three phases. See the "Institutional Background in Taiwan" section for the detailed regulatory background.

[3] While academic directors are definitely independent directors, a firm's independent directors may not come from academia. See the "Institutional Background in Taiwan" section for two additional types of professional experience that qualify a person to be an independent director.

[4] As a comparison, Pang, Zhang, and Zhou (2018) show that the largest category of independent directors in China are university professors or academic researchers, with academics accounting for 35 percent of all independent directors.

[5] In this study, CSR reporting involves both voluntary disclosures of CSR information through the issuance of a standalone CSR report and the acquisition of external assurance on the issued CSR report.

O'Connell 1998). As a result, academic directors have incentives to serve the public interest by promoting a firm's engagement in socially responsible behavior and disclosing CSR-related information.

Our study employs hand-collected data regarding director biographies, and the empirical results generally support our predictions. We find that firms with academic directors are more likely to commit to CSR reporting by issuing standalone CSR reports and by providing third-party assurance on the reports. The magnitude of this positive effect is both statistically and economically significant. In comparing firms with and without academic directors, we find that the odds of providing CSR reports (acquiring CSR assurance) are 1.26 (1.72) times higher for firms that have academic directors on their boards. Our results are robust to the consideration of the endogeneity of choice in appointing academic directors.

In the additional analysis, we explore whether the impact of academic directors varies with their characteristics. More specifically, we examine the effect of academic directors' university backgrounds and industry expertise. The results show that the propensity of providing CSR reports and CSR assurance is higher when the firm has an academic director affiliated with a top-tier university and when the firm has an academic director who is also an industry expert. These findings suggest that university prestige and industry-specific knowledge facilitate academic directors' influence on CSR reporting.

Finally, we examine whether the inclusion of academic directors on the board enhances investors' perceptions of CSR reporting. Based on three-day cumulative abnormal returns (CARs) around the release of CSR reports, we find a positive market reaction to CSR reports only when the firm has academic directors on the board. Similarly, using the Ohlson (1995) valuation model, we observe that the value relevance of CSR disclosures and assurance is stronger when a firm has academic directors and when those directors are affiliated with more prestigious universities. These results are consistent with the notion that investors perceive the higher credibility of CSR information that is provided by firms with more reputable academic directors.

Our study makes the following contributions. First, we contribute to a growing body of literature that examines the determinants of CSR reporting. In response to the call by Cohen and Simnett (2015) and Fernández-Gago, Cabeza-García, and Nieto (2018) for more research on CSR disclosures and assurance, we exploit Taiwan's unique regulations regarding academic directors and show that having directors from academia increases a firm's propensity to commit to voluntary CSR reporting. Our findings provide additional evidence regarding the effect of board heterogeneity on CSR reporting. Moreover, we complement prior research that emphasizes the importance of going beyond board independence and exploring specific types of independent directors (Anderson, Reeb, Upadhyay, and Zhao 2011; Fich 2005).

Second, our study sheds light on the role of academic directors in influencing firms' nonfinancial disclosures. While prior research provides evidence on the effectiveness of academic directors in monitoring a firm's financial performance and earnings quality (e.g., Francis et al. 2015), we show that academic directors can exercise their oversight functions to promote voluntary nonfinancial disclosures. Our focus on the role of academic directors in CSR reporting also addresses direct calls for more involvement from the academic accounting profession in CSR-related issues in the post-Enron Corporation era. More specifically, Owen (2005) calls for contributions from accounting researchers to promote heightened levels of corporate accountability and transparency. Our results indicate that directors from academia exert a positive influence on firms' CSR disclosures and assurance.

Third, we document how the inclusion of academic directors, especially those from top-tier universities, on corporate boards strengthens investors' valuation of CSR reporting. Our study complements the research by Dah and Jizi (2018), who find that a higher proportion of independent directors enhances the efficacy of CSR reporting by amplifying (diminishing) the relationship between CSR disclosures and firm performance (firm risk). We show that independent directors are not homogenous and that academic directors have an incremental effect on improving the value relevance of CSR disclosures and assurance.

The remainder of the study is organized as follows. Section II discusses the related literature and develops the research hypothesis. Section III describes the research methodology. The data and sample statistics are summarized in Section IV. Section V presents the empirical results of the main analysis and the robustness tests. We perform additional analyses in Section VI. Section VII offers concluding remarks.

II. LITERATURE AND HYPOTHESIS

Institutional Background in Taiwan

The conventional firm governance scheme in Taiwan consists of a board of directors and a board of supervisors. The board of directors is legally responsible for managerial decision making, and a board of supervisors is set up separately to counterbalance its power. The supervisors' responsibilities are to monitor the affairs of the board of directors and to ensure the quality of financial statements. After SOX was passed in the U.S., the Taiwanese government began to encourage listed companies to adopt an independent director scheme, similar to the U.S. governance system. In 2006, the government passed the

Act, which mandates the appointment of at least one independent director on the board of all listed financial firms. The mandatory requirement took place in three phases for nonfinancial firms: In 2006, the mandate applied to those with a paid-in capital of NTD $50 billion or above; in 2011, the mandate increased the coverage to those with a paid-in capital of NTD $10 billion or above; and in 2013, all listed firms were required to have independent directors.

The regulation further specifies that independent directors must have at least five years of relevant professional experience and possess at least one of the following qualifications: (1) work as a faculty member (lecturer or higher position) at a university, (2) possess a professional license, such as lawyers, judges, or certified public accountants, and (3) have work experience related to business, law, finance, accounting, or other fields related to the company's operations. According to the rule, independent directors do not need to come from academia, but academics certainly are qualified as independent directors. Relative to two other types of independent directors whose expertise mainly derives from industry-related experience, academics are experts who specialize in research, which facilitates the absorption of external knowledge spillover (Audretsch and Lehmann 2006). Therefore, academic directors can bring unique expertise into the boardroom.

The Benefits of CSR Reporting

Researchers document that significant capital market benefits are associated with CSR reporting. These benefits include improved analyst forecast accuracy (Dhaliwal et al. 2012), reduced cost of capital (Dhaliwal et al. 2011; Plumlee et al. 2015), and higher firm value (Elliott, Jackson, Peecher, and White 2014; Matsumura et al. 2014). In addition, credible CSR information is important to managers for making better internal decisions in areas such as strategic planning and enterprise risk management (Cohen and Simnett 2015). Lys, Naughton, and Wang (2015) also show that CSR reporting can be used to signal a firm's future financial performance.

Additional studies suggest that the assurance of CSR reports can provide external stakeholders with increased confidence regarding the credibility of voluntary CSR disclosures (Hodge, Subramaniam, and Stewart 2009; Pflugrath, Roebuck, and Simnett 2011). Supporting this argument, Casey and Grenier (2015) find that CSR assurance is associated with lower costs of equity capital and higher analyst forecast accuracy. International evidence also indicates an increase over time in the number of firms providing external assurance for their CSR disclosures (Clarkson et al. 2019; KPMG 2017).[6]

Board Heterogeneity and CSR Performance and Reporting

As boards are increasingly seen as responsible for CSR-related matters, researchers have documented that board composition plays an important role in a firm's CSR decisions. For example, several studies document a positive association between board independence and CSR reporting, which suggests that outside directors tend to pay more attention to ensuring socially responsible behavior (Dah and Jizi 2018; Gibson and O'Donovan 2007; Liao et al. 2015; Post et al. 2011). This body of evidence also indicates that independent directors promote greater transparency, not only in terms of financial information, but also in nonfinancial disclosures. Fernández-Gago et al. (2018) maintain that independent directors with diverse educational backgrounds are positively correlated with CSR reporting. Moreover, gender diversity also affects CSR reporting, as firms with more female directors tend to have a higher commitment to CSR disclosures (Dyck, Lins, Roth, and Wagner 2019; Fernandez-Feijoo, Romero, and Ruiz 2012; Rao, Tilt, and Lester 2012).

A limited number of studies examine the effect of directors' occupational backgrounds on CSR performance. For example, Siciliano (1996) observes that greater occupational diversity at the board level is positively related to social performance. Ibrahim, Howard, and Angelidis (2003) argue that government officials and physicians have different values and perspectives regarding social performance. Hillman, Keim, and Luce (2001) document that certain types of stakeholder directors (e.g., suppliers, employees, and community representatives) affect diversity and environment performance. Cho, Jung, Kwak, Lee, and Yoo (2017), whose study is closely related to ours, find that firms with professor-directors exhibit higher CSR performance ratings. Our study, however, examines CSR reporting, which is a major tool for communicating firms' CSR activities to wider stakeholder audiences (Fernandez-Feijoo, Romero, and Ruiz 2014).

Characteristics of Academics and CSR Reporting

Anderson et al. (2011) suggest that board members with diverse backgrounds can bring valuable experience, knowledge, and perspectives to the boardroom, which in turn can improve the efficacy of monitoring and advising the firm's managers. One stream of literature investigates the role of professors on corporate boards. For instance, White et al. (2014) show that small firms are more likely to appoint academic directors, and that the market reacts favorably to appointments of academics with

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[6] According to KPMG (2017), the percentage of G250 companies (the world's largest 250 companies) that seek independent assurance of their CSR reports has more than doubled, from 30 percent in 2005 to 67 percent in 2017.

specialized backgrounds. Francis et al. (2015) find that the presence of academic directors is associated with better operating performance, greater innovation, higher stock price informativeness, lower earnings management, and better corporate governance. Two recent studies (Chen et al. 2019; Pang et al. 2018) explore the regulatory setting in China and observe that the stock market reacts negatively to academic directors' resignations. This body of evidence indicates that academic directors are valuable advisors and effective monitors who positively affect a firm's financial performance. Nevertheless, we still know little about whether academic directors influence a firm's decision making in terms of CSR reporting.

We predict that directors from academia are more likely to encourage voluntary CSR reporting for a number of reasons. First, academics are established scholars who care about their scholarly reputations. Compared with other kinds of independent directors, academics have fewer direct connections to insiders and thus fewer conflicts of interest with managers (Francis et al. 2015).[7] Therefore, academic directors tend to be less influenced by others, and they have greater incentives to protect their reputations by exercising independent judgment (Jiang and Murphy 2007). Agency theory suggests that voluntary disclosures help reduce agency conflicts by bridging the information asymmetry gap between corporate insiders and outside shareholders (Healy and Palepu 2001; Jensen and Meckling 1976). We expect that academic directors, through more independent monitoring, are more likely to demand transparent disclosures to better inform investors (Fama 1980).

Several studies indicate that university professors are deemed to be socially obligated to serve the public interest (Baumgarten 1982; Charnov 1987; O'Connell 1998). For instance, Owen (2005) advocates that the academic accounting profession should exercise greater responsibility in promoting CSR awareness and social reporting in the business community. The transparency of CSR reports is critical to promoting socially responsible behavior (Dubbink et al. 2008), and firms cannot enjoy the benefits of CSR investments unless they can effectively signal their CSR commitment through independently assured CSR reports (Clarkson et al. 2019). If academic directors possess higher ethical standards and have more positive attitudes toward socially responsible behavior, then they are more likely to promote CSR activities and to require a higher level of accountability in the disclosure of CSR-related issues. We therefore formulate our hypothesis as follows:

H1: Academic directors on the board are positively associated with the provision of CSR reports and assurance.

Despite the above arguments, various alternative views might contradict our predictions. First, opponents of CSR argue that it is a manifestation of agency problems, as managers often invest in CSR activities for personal benefit, and such activities have the potential to reduce shareholder value (e.g., Bénabou and Tirole 2010; Cheng, Hong, and Shue 2016; Friedman 1970; Krüger 2015). Recent studies provide empirical evidence that CSR investments or CSR disclosures can generate positive externalities at shareholders' expense (Chen, Hung, and Wang 2018; Manchiraju and Rajgopal 2017). According to this negative view of CSR, academic directors might not have a positive influence on CSR reporting, especially if they believe the agency cost argument. Second, academics specialize in scholarly research, and such expertise may not translate well to a business environment. As CSR information tends to be industry specific, the narrow industry exposure of many professors may limit their ability to improve disclosure decisions.

III. RESEARCH DESIGN

We test our hypothesis using the following logistic regression model:

$$
\begin{aligned}
CSR_{i,t}/ASSURE_{i,t} = {} & \beta_0 + \beta_1 ACAD_{i,t} + \beta_2 CSRPERF_{i,t} + \beta_3 BDIND_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 ROA_{i,t} + \beta_6 LEV_{i,t} + \beta_7 FOREIGN_{i,t} \\
& + \beta_8 TBQ_{i,t} + \beta_9 Liquidity_{i,t} + \beta_{10} COE_{i,t} + \beta_{11} Litigation_{i,t} + \beta_{12} Competition_{i,t} + \beta_{13} ADV_{i,t} \\
& + \sum INDUSTRY + \sum YEAR + \varepsilon
\end{aligned}
$$

$$(1)$$

Following previous studies (Casey and Grenier 2015; Lys et al. 2015; Simnett, Vanstraelen, and Chua 2009), we consider two aspects of CSR reporting. The first measure is *CSR*, which is an indicator that equals 1 if the firm issues a standalone CSR report, and 0 otherwise. We focus on standalone CSR disclosures because, compared with CSR information disclosed through other channels (e.g., annual reports, press releases, or corporate websites), standalone CSR disclosures tend to cover topics that are broader in scope, and thus they are more likely to be affected by a firm's reporting incentives. For example, Dhaliwal et al. (2011, footnote 8) find that on average, standalone CSR reports are significantly longer (28 pages versus under two pages) and cover more CSR issues (6.4 issues versus 1.5 issues) than the CSR information disclosed in a firm's annual reports. In addition,

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[7] Some may argue that many academics hold administrative positions that can afford them some connection with the firm, making them less independent from managers (White et al. 2014). However, this issue is not a concern in Taiwan, since the regulation prohibits professors who hold administrative positions from sitting on corporate boards. In other words, all academic directors concerned here do not have administrative jobs.

using standalone CSR reports facilitates comparability of this disclosure practice across firms. The second measure is *ASSURE,* which is an indicator that equals 1 if the firm obtains third-party assurance on its CSR report, and 0 otherwise. As managers might exercise considerable discretion in their CSR disclosures, acquiring external assurance on CSR reports has been viewed as one important way to strengthen the perceived reliability and credibility of CSR information (Casey and Grenier 2015; Cohen and Simnett 2015; Simnett et al. 2009).

In Equation (1), our main variable of interest is *ACAD,* which is measured by three alternative variables: (1) *ACAD_DUM,* an indicator coded 1 if the firm has at least one independent director who is a full-time university faculty member (referred to as an academic director), and 0 otherwise; (2) *ACAD_NUM,* the number of academic directors on the board of directors; and (3) *ACAD_PCT,* the proportion of academic directors, defined as the number of academic directors divided by the number of independent directors on the board.

We include various firm-level control variables that could potentially influence firms' CSR reporting. First, we control for CSR performance due to its effect on a firm's incentive to disclose CSR information (Cho and Patten 2007; Dhaliwal et al. 2011). Unlike most prior studies, however, we do not have data capturing direct or continuous measures of CSR performance. The only available proxy of CSR performance in Taiwan are data on awards, which are provided by *CommonWealth Magazine* (hereafter, *CWM*), Taiwan's most influential professional business magazine. Each year *CWM* evaluates companies' CSR performance in four dimensions: corporate governance, corporate commitment, social engagement, and environmental sustainability. According to the evaluation results, *CWM* issues awards for excellence in CSR to 50 companies (30 among the large enterprises, ten among mid-sized companies, and ten among foreign businesses).[8] Accordingly, our measure of CSR performance is proxied by an indicator, *CSRPERF,* which equals 1 if a firm receives a CSR award, and 0 otherwise. Next, we control for the participation of independent directors, as Dah and Jizi (2018) show that higher board independence increases CSR disclosures. Specifically, we include an indicator, *BDIND,* which equals 1 if a firm's percentage of independent directors is greater than the overall mean independence level, and 0 otherwise.[9]

In addition to controlling for CSR performance and board independence, we follow Casey and Grenier (2015) and include the following control variables: *SIZE* is measured as the natural logarithm of total assets; *ROA* is income before extraordinary items, divided by average assets; *LEV* is total debt divided by total assets; *FOREIGN* is an indicator variable that equals 1 if a firm reports foreign income, and 0 otherwise; *TBQ* is Tobin's Q, calculated as total assets minus the book value of equity, plus the market value of equity, and divided by the book value of total assets; *Liquidity* is the ratio of shares traded during the year to the total shares outstanding at year-end; *COE* refers to the cost of equity, calculated based on the capital asset pricing model developed by Sharpe (1964); *Litigation* is an indicator variable that equals 1 for high litigation risk industries (biotechnology, computers, electronics, and retailing), and 0 otherwise; *Competition* represents industry competition, measured by the Herfindahl-Hirschman index, and multiplied by −1; and *ADV* is advertising expenses divided by net sales. Finally, we control for year and industry fixed effects to account for potential differences across time and industry. To mitigate the influence of potential outliers, we winsorize all continuous variables at the top and bottom 0.5 percentiles. Appendix A provides a summary of all the variable definitions.

IV. DATA AND SAMPLE SUMMARY STATISTICS

Data and Sample Selection

Our sample selection process begins with all of the listed nonfinancial companies covered in the *Taiwan Economic Journal* (*TEJ*) database for fiscal years 2006–2017. Consistent with prior research (e.g., Chen et al. 2018), we do not include financial firms, as they are subject to different regulations. The sample period starts from 2006 because this is the year when the mandatory requirement of independent directors was introduced in Taiwan. We obtain CSR information and financial data from the *TEJ*. CSR performance data are obtained from the award reports provided by *CWM*. For the data on directors' academic affiliation, we manually confirm each independent director's background from the relevant company and university websites.

Table 1 summarizes the sample selection process. The initial sample consists of 19,258 firm-years. We first remove 2,776 observations that lack information on the backgrounds of the independent directors. In 2014, the Taiwanese government initiated a regulation requiring large firms and firms in certain industries to issue CSR reports that follow the sustainability

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[8] Since 2015, *CWM* has expanded its scope and now gives awards to 100 companies, including 50 among the largest enterprises, 15 among mid-sized enterprises, 15 among foreign enterprises, and 20 among small enterprises.

[9] We do not distinguish between firms that are required to have independent directors and firms that appoint independent directors on a voluntary basis, because in either case the firm needs to decide whether to appoint directors from academia. Controlling for board independence also allows us to examine whether academic directors exert an effect incremental to independent directors in general.

TABLE 1

Sample Selection Process

Initial sample: all listed nonfinancial firms from 2006 to 2017	19,258
Less: firms without information on the backgrounds of independent directors	2,776
Less: firms issuing CSR reports as a mandatory requirement	997
Less: firms with missing data on empirical variables	1,867
Final sample for tests on issuance of CSR reports	13,618
Less: firms that do not issue CSR reports	12,623
Final sample for tests on CSR assurance	995

reporting guidelines developed by the Global Reporting Initiative (GRI). Therefore, we exclude 997 observations that are subject to mandatory CSR reporting.[10] Finally, we remove 1,867 observations with missing data for any of the empirical variables. The final sample consists of 13,618 observations from 1,419 companies for the test on CSR disclosures. When the dependent variable is *CSR* assurance, we reduce the sample to firms that have issued CSR reports, which results in 995 observations from 297 companies.

In Table 2, we present the sample distribution by year and by industry. Column (1) of Panel A shows that the number of firms is generally distributed quite evenly across the sample years. Column (2) indicates that the percentage of firms with at least one academic director has increased from 17.6 percent in 2006 to 38.3 percent in 2017. Columns (3) and (4) suggest a growing trend in the number of firms issuing CSR reports and providing external CSR assurance. More specifically, the percentage of firms providing standalone CSR reports shows a significant increase, from 0.5 percent in 2006 to 12.5 percent in 2017. Among the sample of CSR report issuers, the proportion of firms obtaining external assurance increases sharply from 2006 to 2009, and it remains stable at around 30 percent–40 percent afterward.[11] These results are consistent with international evidence on the growing trend of CSR reporting and assurance (KPMG 2017).

Panel B of Table 2 shows that our sample encompasses a broad cross-section of industries. The most heavily represented industry is electronic components (14.63 percent), followed by the semiconductor industry (8.61 percent). A great variation is found in the proportion of observations of firms with academic directors across industry sectors. The semiconductor industry has the highest proportion (41.30 percent) of firm-years with academic directors, and the rubber products industry has the lowest proportion (3.36 percent). Column (3) shows that the cement industry has the highest percentage of observations (18.84 percent) issuing voluntary CSR reports, followed by the automobile industry (16.84 percent). Among the sample of CSR report providers, the food, machinery, appliance, and semiconductor industries have more than half of the sample of firms acquiring external assurance on their CSR reports.

Descriptive Statistics and Univariate Analysis

Table 3 reports the descriptive statistics of the empirical variables used in the regression analysis. The full sample summary in Table 3 shows that 7.3 percent of the sample voluntarily issue standalone CSR reports, and 2.5 percent of the sample obtain third-party assurance on their CSR reports. The mean value of *CSRPERF* suggests that 1.6 percent of the sample receives an award for excellent performance in CSR. *BDIND* has a mean of 58.6 percent, indicating that a majority of our sample has an independent board. Moreover, 25.1 percent of the sample have academic directors on the board, and the average percentage of academic directors is 2.5 percent.[12] Table 3 also reports a univariate analysis that compares the sample with and without academic directors. The results indicate that the average incidence of issuing CSR reports in the sample with academic directors is 10.8 percent, compared to 6.1 percent in the sample without academic directors. The difference is significant at the 1 percent level. The sample with academic directors also has a significantly higher proportion of firms obtaining CSR report assurance (mean of 4.5 percent versus 1.8 percent). These results provide preliminary evidence that the presence of academic directors is positively associated with the provision of CSR reports and assurance.

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[10] Effective from fiscal year 2014, the regulations in Taiwan mandate the issuance of CSR reports by listed companies in the food, chemical, and financial industries, and by all firms with a paid-in capital of NTD $10 billion or above. Furthermore, starting from fiscal year 2016, this requirement is extended to include companies with a paid-in capital of NTD $5 billion or above.

[11] Casey and Grenier (2015) study a sample of U.S. firms from 1993 to 2010 and document that the average percentage of voluntary CSR reports (assurance) is 2.6 percent (8.7 percent).

[12] These statistics are based on the full sample. Within the sample of firms that have independent directors, 40.2 percent have academics on their boards, and the average percentage of academic directors is 4.1 percent.

TABLE 2

Sample Distributions

Panel A: Distribution of Sample Firms by Year

Year	No. (Percent) of Firms		No. (Percent) of Firms with Academic Directors ($ACAD\_DUM = 1$)		No. (Percent) of Firms Issuing CSR Reports ($CSR = 1$)		No. (Percent) of Firms with Assurance for CSR Reports[a] ($ASSURE = 1$)	
2006	1,004	(7.37%)	177	(17.63%)	5	(0.50%)	0	(0.00%)
2007	1,016	(7.46%)	204	(20.08%)	9	(0.89%)	1	(11.11%)
2008	1,053	(7.73%)	223	(21.18%)	21	(1.99%)	6	(28.57%)
2009	1,105	(8.11%)	223	(20.18%)	26	(2.35%)	9	(34.62%)
2010	1,133	(8.32%)	228	(20.12%)	46	(4.06%)	15	(32.61%)
2011	1,167	(8.57%)	257	(22.02%)	64	(5.48%)	26	(40.63%)
2012	1,205	(8.85%)	282	(23.40%)	93	(7.72%)	39	(41.49%)
2013	1,253	(9.20%)	307	(24.50%)	172	(13.73%)	59	(34.30%)
2014	1,162	(8.53%)	298	(25.65%)	132	(11.36%)	44	(33.33%)
2015	1,201	(8.82%)	365	(30.39%)	147	(12.24%)	50	(34.01%)
2016	1,145	(8.41%)	401	(35.02%)	133	(11.62%)	44	(33.08%)
2017	1,174	(8.62%)	450	(38.33%)	147	(12.52%)	46	(31.29%)
Total	13,618	(100.00%)	3,415	(25.08%)	995	(7.31%)	339	(34.07%)

(continued on next page)

Table 4 reports the correlations among all of the variables. All three measures of *ACAD* are positively correlated with both *CSR* and *ASSURE*, and these correlations are significant at the 1 percent level. The Spearman correlations between *CSR* (*ASSURE*) and *ACAD_DUM*, *ACAD_NUM*, and *ACAD_PCT* are 0.051 (0.063), 0.077 (0.077), and 0.049 (0.061), respectively. These results are consistent with the univariate tests in Table 3, Panel B, thereby providing univariate evidence in support of our research hypothesis.

V. MULTIVARIATE RESULTS

Main Analyses

Table 5 presents the logistic regression results of Equation (1). Columns (1)–(3) report the results when the dependent variable is *CSR*. When the dependent variable is *ASSURE,* we limit the sample to firms that have issued CSR reports (i.e., *CSR* = 1) and present the results in columns (4)–(6). Columns (1) and (4) illustrate the results when our main variable of interest, *ACAD,* is measured by an indicator variable. We find that *ACAD_DUM* is significantly and positively associated with both *CSR* and *ASSURE*. In terms of economic significance, the coefficient of 0.230 on *ACAD_DUM* in column (1) suggests that the odds of issuing a standalone CSR report in firms with academic directors is 1.26 times higher than in firms without academic directors. Moreover, among firms that provide CSR reports, the coefficient of 0.544 on *ACAD_DUM* in column (4) suggests that for firms with academic directors, the odds of seeking third-party assurance are 1.72 times higher than they are for firms without academic directors. The significantly positive association between academic directors and CSR reporting is consistently observed when using either count or ratio measures. The coefficients of 0.117 on *ACAD_NUM* in column (2) and 0.395 in column (5) suggest that when a firm adds one academic director to its board, the odds of issuing a CSR report increase by 12 percent, and the odds of obtaining assurance on an issued CSR report increase by 48 percent.[13] These economically significant findings across different measures on academic directors provide consistent support to our hypothesis that firms with more academic directors on their boards are more likely to voluntarily disclose CSR information and provide assurance to enhance the credibility of their CSR reports.

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[13] We also conduct a regression based on changes in the variables and find some evidence that a change in the proportion of academic directors is associated with a change in CSR reporting.

TABLE 2 (continued)

Panel B: Distribution of Sample Firms by Industry

Industries	No. (Percent) of Firm-Years		No. (Percent) of Firms with Academic Directors (*ACAD_DUM* = 1)		No. (Percent) of Firms Issuing CSR Reports (*CSR* = 1)		No. (Percent) of Firms with Assurance for CSR Reports[a] (*ASSURE* = 1)	
Cement	69	(0.51%)	5	(7.25%)	13	(18.84%)	1	(7.69%)
Food	192	(1.41%)	9	(4.69%)	3	(1.56%)	2	(66.67%)
Plastics	244	(1.79%)	41	(16.80%)	21	(8.61%)	6	(28.57%)
Textile products	592	(4.35%)	38	(6.42%)	13	(2.20%)	1	(7.69%)
Machinery	683	(5.02%)	187	(27.38%)	39	(5.71%)	20	(51.28%)
Appliances	159	(1.17%)	13	(8.18%)	3	(1.89%)	3	(100.00%)
Glass and glass products	49	(0.36%)	3	(6.12%)	1	(2.04%)	0	(0.00%)
Paper products	58	(0.43%)	5	(8.62%)	4	(6.90%)	1	(25.00%)
Iron and steel	454	(3.33%)	49	(10.79%)	39	(8.59%)	13	(33.33%)
Rubber products	119	(0.87%)	4	(3.36%)	4	(3.36%)	2	(50.00%)
Automobiles	190	(1.40%)	19	(10.00%)	32	(16.84%)	11	(34.38%)
Construction	732	(5.38%)	71	(9.70%)	16	(2.19%)	4	(25.00%)
Shipping	212	(1.56%)	27	(12.74%)	24	(11.32%)	8	(33.33%)
Tourism	219	(1.61%)	26	(11.87%)	16	(7.31%)	5	(31.25%)
Retailing	249	(1.83%)	50	(20.08%)	13	(5.22%)	5	(38.46%)
Chemical products	263	(1.93%)	35	(13.31%)	15	(5.70%)	0	(0.00%)
Biotechnology	660	(4.85%)	232	(35.15%)	71	(10.76%)	11	(15.49%)
Utilities	129	(0.95%)	8	(6.20%)	9	(6.98%)	1	(11.11%)
Semiconductors	1,172	(8.61%)	484	(41.30%)	90	(7.68%)	46	(51.11%)
Computers and peripherals	982	(7.21%)	293	(29.84%)	127	(12.93%)	42	(33.07%)
Optoelectronics	1,004	(7.37%)	359	(35.76%)	74	(7.37%)	31	(41.89%)
Communications equipment	715	(5.25%)	276	(38.60%)	67	(9.37%)	27	(40.30%)
Electronic components	1,992	(14.63%)	521	(26.15%)	134	(6.73%)	41	(30.60%)
Electronics distributors	392	(2.88%)	99	(25.26%)	2	(0.51%)	0	(0.00%)
Information services	323	(2.37%)	110	(34.06%)	22	(6.81%)	3	(13.64%)
Other electronics	752	(5.52%)	201	(26.73%)	52	(6.91%)	11	(21.15%)
Others	1,013	(7.44%)	250	(24.68%)	91	(8.98%)	44	(48.35%)
Total	13,618	(100.00%)	3,415	(25.08%)	995	(7.31%)	339	(34.07%)

[a] The percentage is based on the sample that issues CSR reports (i.e., *CSR* = 1).

Endogeneity

As firm-specific characteristics may influence the decision to choose directors from academia, the presence of academic directors can be endogenous. To address this potential endogeneity problem, we adopt two econometric methodologies: using a sample based on propensity score matching (PSM) and using two-stage least squares with instrumental variables (2SLS with IVs). These two approaches address the endogeneity concerns from different perspectives. The PSM approach controls for self-selection bias caused by observable factors; the 2SLS with IVs approach considers unobservable time-varying variables.

In the PSM approach, we first predict the propensity to appoint academic directors by using a logistic regression in which the dependent variable is *ACAD_DUM,* and the explanatory variables are the control variables in Equation (1), as well as a set of variables identified by Francis et al. (2015) as determinants of the choice of academic directors. We then match each treatment firm (with *ACAD_DUM* = 1) with a control firm (with *ACAD_DUM* = 0) based on the propensity scores. We do so by using the nearest-neighbor matching technique without replacement. Appendix B describes the procedure used to develop our PSM sample. Panel A of Table 11 reports the estimation results of the logistic regression used to derive propensity scores, and Panel B presents the effectiveness of the matches. The reported covariate balance results suggest that the PSM is successful in eliminating the differences between treatment and control firms.

The regression results of Model (1) based on the PSM sample are presented in Table 6. Columns (1) and (4) of Table 6 show that the coefficients of *ACAD_DUM* are positive and significant, consistent with the full sample results. Similarly, we find significantly positive coefficients on *ACAD_NUM* (column (5)) and *ACAD_PCT* (column (6)) when the dependent variable is *ASSURE*. Although the results are a bit weaker than those in Table 5, the findings based on the PSM sample still support the

TABLE 3
Summary Statistics

	Full Sample (13,618 Observations)		ACAD_DUM = 1 (3,415 Observations)		ACAD_DUM = 0 (10,203 Observations)		Difference	
	Mean	Median	Mean	Median	Mean	Median	t-test	Wilcoxon Z-test
CSR	0.073	0.000	0.108	0.000	0.061	0.000	−9.027***	−9.000***
ASSURE	0.025	0.000	0.045	0.000	0.018	0.000	−8.778***	−8.754***
ACAD_DUM	0.251	0.000	NA	NA	NA	NA	NA	NA
ACAD_NUM	0.325	0.000	NA	NA	NA	NA	NA	NA
ACAD_PCT	0.025	0.000	NA	NA	NA	NA	NA	NA
CSRPERF	0.016	0.000	0.037	0.000	0.008	0.000	−11.851***	−11.791***
BDIND	0.586	1.000	0.948	1.000	0.465	0.000	−54.893***	−49.673***
SIZE	15.240	15.079	15.119	14.964	15.280	15.119	6.554***	6.572***
ROA	0.037	0.042	0.041	0.047	0.036	0.041	−3.180***	−4.394***
LEV	0.407	0.408	0.390	0.386	0.413	0.415	6.804***	6.698***
FOREIGN	0.863	1.000	0.928	1.000	0.841	1.000	−12.859***	−12.782***
TBQ	1.353	1.154	1.499	1.279	1.303	1.120	−15.953***	−14.953***
Liquidity	6.056	2.452	6.644	2.613	5.859	2.398	−4.802***	−4.164***
COE	0.121	0.028	0.107	0.017	0.126	0.032	2.138**	3.331***
Litigation	0.609	1.000	0.770	1.000	0.555	1.000	−22.726***	−22.308***
Competition	−0.123	−0.106	−0.106	−0.087	−0.128	−0.110	−11.639***	−11.410***
ADV	0.039	0.028	0.041	0.030	0.038	0.028	−4.043***	−5.130***

, * Indicate statistical significance at the 5 percent and 1 percent levels, respectively.

Variable Definitions:
CSR = an indicator that equals 1 if the firm issues a standalone CSR report, and 0 otherwise;
ASSURE = an indicator that equals 1 if the firm obtains third-party assurance on its CSR report, and 0 otherwise;
ACAD_DUM = an indicator that equals 1 if the firm has at least one independent director who is a full-time university faculty member (referred to as an academic director), and 0 otherwise;
ACAD_NUM = the number of academic directors on the board of directors;
ACAD_PCT = the proportion of academic directors, defined as the number of academic directors divided by the number of independent directors on the board;
CSRPERF = an indicator that equals 1 if a firm receives a CSR award, and 0 otherwise;
BDIND = an indicator that equals 1 if a firm's percentage of independent directors is greater than the overall mean independence level, and 0 otherwise;
SIZE = the natural logarithm of total assets;
ROA = income before extraordinary items divided by average assets;
LEV = total debt divided by total assets;
FOREIGN = an indicator variable that equals 1 if a firm reports foreign income, and 0 otherwise;
TBQ = Tobin's Q, calculated as total assets minus the book value of equity, plus the market value of equity, and divided by the book value of total assets;
Liquidity = the ratio of shares traded during the year to the total shares outstanding at year-end;
COE = cost of equity, calculated based on the capital asset pricing model developed by Sharpe (1964);
Litigation = an indicator variable that equals 1 for high litigation risk industries (biotechnology, computers, electronics, and retailing), and 0 otherwise;
Competition = industry competition, measured by the Herfindahl-Hirschman index and multiplied by −1; and
ADV = advertising expenses divided by net sales.

main argument that firms with academic directors are more likely to provide CSR reports and seek assurance to enhance the credibility of voluntary CSR disclosures.

In the 2SLS with IVs approach, the main challenge is to identify valid instruments. A good instrument is not correlated with the error term in Equation (1), but is correlated with the endogenous variable of interest, *ACAD*. Following Cho et al. (2017), we use as our instrumental variable the percentage of nonacademic directors who sit on other boards on which there are academic directors (*CONNACAD*). The two-stage estimation results are presented in Table 7.

Column (1) of Table 7 shows the results of the first-stage regression, where we regress *ACAD_DUM* on *CONNACAD* and all of the control variables in Equation (1). As expected, the instrument in the first stage shows a positive and significant coefficient (0.086, significant at $p < 0.01$), and the partial F-statistic rejects the weak instrument problem. We take the instrumented value of *ACAD_DUM* from the first stage and use it as an explanatory variable in the second-stage regression. Columns (2) and (3) show that the coefficients on the instrumented *ACAD_DUM* variable are both positive and significant at

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TABLE 4

Variable Correlation Matrix

Panel A: *CSR–SIZE*

	CSR	*ASSURE*	*ACAD_DUM*	*ACAD_NUM*	*ACAD_PCT*	*CSRPERF*	*BDIND*	*SIZE*
CSR	1	**0.569**	**0.051**	**0.077**	**0.049**	**0.318**	**0.069**	**0.23**
ASSURE	**0.569**	1	**0.063**	**0.077**	**0.061**	**0.292**	**0.045**	**0.19**
ACAD_DUM	**0.051**	**0.063**	1	**0.354**	**0.997**	**0.041**	**0.175**	−0.018
ACAD_NUM	**0.074**	**0.085**	**0.358**	1	**0.353**	**0.102**	**0.422**	−0.054
ACAD_PCT	**0.033**	**0.039**	**0.936**	**0.341**	1	**0.04**	**0.176**	−0.019
CSRPERF	**0.318**	**0.292**	**0.041**	**0.097**	**0.027**	1	**0.079**	**0.129**
BDIND	**0.069**	**0.045**	**0.175**	**0.38**	**0.154**	**0.079**	1	−0.204
SIZE	**0.265**	**0.234**	−0.017	−0.04	−0.025	**0.166**	**−0.204**	1
ROA	**0.079**	**0.053**	0.018	0.015	0.016	**0.084**	0.038	**0.196**
LEV	**0.041**	**0.058**	−0.013	−0.047	−0.014	−0.001	−0.088	**0.328**
FOREIGN	**0.022**	0.017	**0.028**	**0.094**	**0.028**	0.004	**0.156**	−0.055
TBQ	**0.068**	**0.05**	**0.065**	**0.116**	**0.054**	**0.072**	**0.167**	−0.112
Liquidity	−0.061	−0.038	0.015	0.029	0.023	−0.043	0.024	0.019
COE	−0.003	−0.01	−0.015	−0.02	−0.014	−0.004	−0.031	0.028
Litigation	**0.026**	0.01	**0.055**	**0.163**	**0.052**	**0.031**	**0.34**	−0.136
Competition	**0.042**	**0.039**	**0.038**	**0.095**	**0.029**	0.014	**0.223**	−0.111
ADV	**−0.06**	**−0.049**	0.021	**0.025**	**0.024**	0.004	**0.081**	**−0.311**

Panel B: *ROA–ADV*

	ROA	*LEV*	*FOREIGN*	*TBQ*	*Liquidity*	*COE*	*Litigation*	*Competition*	*ADV*
CSR	**0.081**	**0.043**	**0.022**	**0.06**	−0.034	0.019	**0.026**	**0.046**	**−0.067**
ASSURE	**0.056**	**0.06**	0.017	**0.052**	−0.018	0.005	0.01	**0.035**	**−0.063**
ACAD_DUM	**0.022**	−0.012	**0.028**	**0.068**	0.009	−0.005	**0.055**	**0.035**	**0.025**
ACAD_NUM	**0.034**	**−0.056**	**0.108**	**0.125**	**0.033**	−0.029	**0.188**	**0.098**	**0.043**
ACAD_PCT	0.022	−0.013	**0.028**	**0.068**	0.009	−0.005	**0.055**	**0.034**	**0.025**
CSRPERF	**0.089**	−0.001	0.004	**0.066**	−0.031	0.01	**0.031**	−0.001	−0.007
BDIND	**0.054**	**−0.084**	**0.156**	**0.168**	0.009	−0.033	**0.34**	**0.251**	**0.085**
SIZE	**0.183**	**0.334**	−0.053	**−0.132**	**0.14**	0.032	**−0.14**	**−0.1**	**−0.344**
ROA	1	**−0.209**	−0.017	**0.485**	**0.17**	**0.278**	0.034	0.012	**−0.04**
LEV	**−0.207**	1	**−0.066**	**−0.157**	−0.029	−0.02	**−0.156**	−0.032	**−0.208**
FOREIGN	−0.031	−0.066	1	−0.011	**0.138**	−0.02	**0.3**	0.034	−0.021
TBQ	**0.403**	**−0.207**	0.002	1	**0.251**	**0.364**	**0.117**	**0.049**	**0.148**
Liquidity	**0.097**	−0.039	**0.09**	**0.225**	1	**0.371**	**0.192**	−0.028	−0.033
COE	**0.232**	−0.018	0.005	**0.344**	**0.458**	1	−0.048	0.014	−0.003
Litigation	0.007	**−0.154**	**0.3**	**0.119**	**0.163**	−0.004	1	**0.28**	**0.029**
Competition	−0.02	−0.018	**0.032**	**0.032**	0.006	−0.002	**0.229**	1	0.001
ADV	**−0.077**	**−0.194**	**−0.099**	**0.149**	**−0.032**	**−0.023**	**0.029**	−0.031	1

The coefficients below (above) the diagonal are the Pearson (Spearman) correlation coefficients. The coefficients in bold are significant at the 1 percent level based on two-tailed tests. The coefficients in italic are significant at the 10 percent level based on two-tailed tests.

See Appendix A for the variable definitions.

the 1 percent level. These results support the main findings, showing that after considering the endogenous choice of academic directors, the presence of academic directors is positively associated with the issuance and assurance of CSR reports.

Reverse Causality

Our main results may suffer from reverse causality in that professors have strong incentives to join CSR-friendly firms to gain better reputations. To rule out this alternative explanation, we follow Cho et al. (2017) and test how the temporal change in

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TABLE 5
Academic Directors and CSR Reporting

Dependent Variables	(1) CSR	(2) CSR	(3) CSR	(4) ASSURE	(5) ASSURE	(6) ASSURE
ACAD_DUM	0.230**			0.544***		
	(0.092)			(0.167)		
ACAD_NUM		0.117**			0.395***	
		(0.057)			(0.097)	
ACAD_PCT			0.966**			2.139***
			(0.431)			(0.795)
CSRPERF	2.929***	2.938***	2.961***	0.520**	0.514**	0.572***
	(0.216)	(0.216)	(0.217)	(0.212)	(0.212)	(0.212)
BDIND	0.100	0.132	0.164*	−0.137	−0.102	0.013
	(0.103)	(0.101)	(0.097)	(0.206)	(0.204)	(0.197)
SIZE	0.941***	0.941***	0.942***	0.878***	0.870***	0.872***
	(0.037)	(0.037)	(0.037)	(0.087)	(0.088)	(0.087)
ROA	−0.166	−0.152	−0.205	2.402	2.905*	2.309
	(0.672)	(0.671)	(0.669)	(1.624)	(1.665)	(1.585)
LEV	−0.766***	−0.763***	−0.793***	0.450	0.591	0.378
	(0.238)	(0.238)	(0.238)	(0.564)	(0.570)	(0.557)
FOREIGN	0.265**	0.270**	0.273**	0.464	0.459	0.466*
	(0.134)	(0.133)	(0.133)	(0.284)	(0.281)	(0.280)
TBQ	0.490***	0.494***	0.501***	0.433***	0.409***	0.449***
	(0.068)	(0.068)	(0.068)	(0.139)	(0.141)	(0.139)
Liquidity	−0.012**	−0.012**	−0.012**	0.012	0.014	0.011
	(0.005)	(0.005)	(0.005)	(0.013)	(0.013)	(0.012)
COE	−0.060	−0.065	−0.064	−0.831***	−0.850***	−0.834***
	(0.103)	(0.103)	(0.103)	(0.280)	(0.280)	(0.277)
Litigation	0.235***	0.236***	0.239***	−0.391**	−0.364*	−0.369*
	(0.091)	(0.091)	(0.091)	(0.190)	(0.191)	(0.191)
Competition	0.267	0.264	0.279	4.357***	4.287***	4.178***
	(0.486)	(0.486)	(0.486)	(1.139)	(1.141)	(1.118)
ADV	−0.367	−0.357	−0.372	0.931	1.127	0.868
	(0.284)	(0.282)	(0.289)	(3.067)	(3.059)	(2.950)
Constant	−21.147***	−21.144***	−21.165***	−15.790***	−15.764***	−15.707***
	(0.738)	(0.737)	(0.735)	(1.441)	(1.454)	(1.448)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,618	13,618	13,618	995	995	995
Pseudo R²	0.295	0.295	0.295	0.184	0.188	0.182

*, **, *** Indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests.
Robust standard errors are reported in parentheses.
See Appendix A for the variable definitions.

the number of academic directors affects CSR reporting. More specifically, we measure the change in the number of academic directors over three consecutive years ($\Delta ACAD\_NUM_t$) and include two lags of the change ($\Delta ACAD\_NUM_{t-1}$ and $\Delta ACAD\_NUM_{t-2}$) together in the regression model. The untabulated results indicate that a three-year change in the number of academic directors is positively associated with a firm's propensity to issue a CSR report and acquire CSR assurance.

VI. ADDITIONAL ANALYSES

The Effect of Prestigious Schools

As an additional analysis, we explore whether the impact of academic directors varies with their characteristics. In this section, we examine whether the influence of academic directors is greater when they are affiliated with more prestigious

TABLE 6

Tests Based on Propensity Score Matched Sample

Dependent Variables	(1) CSR	(2) CSR	(3) CSR	(4) ASSURE	(5) ASSURE	(6) ASSURE
ACAD_DUM	0.278*			0.616**		
	(0.165)			(0.277)		
ACAD_NUM		0.090			0.307**	
		(0.104)			(0.146)	
ACAD_PCT			0.790			1.819**
			(0.498)			(0.848)
Constant	−19.290***	−19.273***	−18.700***	−10.484***	−10.339***	−10.499***
	(0.974)	(0.976)	(0.935)	(1.669)	(1.651)	(1.667)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,794	6,794	6,794	536	536	536
Pseudo R^2	0.304	0.304	0.311	0.162	0.161	0.162

*, **, *** Indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests.
Robust standard errors are reported in parentheses.
See Appendix A for the variable definitions.

universities. Prior studies find that the value of academic directors depends on the prestige of their universities (White et al. 2014). Accordingly, we define each academic director's affiliation as a "top-tier university" if it ranks in the top 100 according to the QS Asia university rankings. We create three variables to measure the prestige of the academic directors' affiliated universities as follows: *Top100_DUM* is an indicator that equals 1 if the firm has at least one academic director from a top-tier university, and 0 otherwise; *Top100_NUM* is the number of academic directors from top-tier universities; and *Top100_PCT* is the proportion of academic directors from top-tier universities. Panel A of Table 8 presents the regression results of this analysis.

Columns (1)–(3) of Panel A in Table 8 report the results when the dependent variable is *CSR*. We find that after controlling for the presence of academic directors on the boards, the coefficients of *Top100_DUM* and *Top100_NUM* are positive and significant. These results suggest that firms with academic directors from prestigious universities are more likely to issue CSR reports, consistent with the argument that these academic directors have higher reputational concerns. The coefficient of 0.195 for *Top100_DUM* suggests that the odds of providing CSR reports is 1.22 times higher at firms with academic directors from top-tier universities than at other firms. We find similar results in columns (4)–(6), where the dependent variable is *ASSURE*. All three measures of university prestige are positive and significant, which suggests that the likelihood of acquiring CSR report assurance is positively related to the reputation of the academic directors' universities. This positive association is also economically significant, as the coefficient of 0.537 for *Top100_DUM* indicates that the odds of seeking third-party assurance are 1.63 times higher for firms with academic directors from top-tier universities. Overall, these findings are consistent with the notion that academic directors from prestigious universities are more likely to encourage their firms to commit to voluntary CSR reporting.

Industry Expertise of Academic Directors

We next examine how academic directors' industry expertise affects CSR reporting. The literature suggests that industry characteristics play an important role in CSR disclosures. Due to their greater exposure to social and environmental risks, firms in high-pollution industries (such as mining and utilities) are more likely to issue CSR reports and to acquire CSR assurance (Casey and Grenier 2015; Simnett et al. 2009). A. Trotman and K. Trotman (2015) point out that industry expertise is one of the most highly valued attributes among board members. Kor and Misangyi (2008) document how outside directors' industry experience helps to mitigate the competitive disadvantage that confronts a firm when it is new to a field. Other studies also suggest that there are industry-specific practices that require specialized knowledge for effective communication, and thus independent directors with industry expertise contribute to more effective monitoring (Cohen, Hoitash, Krishnamoorthy, and Wright 2014; Drobetz, Von Meyerinck, Oesch, and Schmid 2018; Faleye, R. Hoitash, and U. Hoitash 2018; Wang, Xie, and Zhu 2015). Accordingly, we expect that academic directors with industry expertise would be better situated to understand an

TABLE 7
Two-Stage Least Squares (2SLS) Analysis

Dependent Variable	(1) First Stage *CONNACAD*	(2) Second Stage *CSR*	(3) Second Stage *ASSURE*
CONNACAD	0.086**		
	(0.012)		
ACAD_DUM (instrumented)		0.685***	3.617***
		(0.231)	(1.157)
CSRPERF	0.041**	0.549***	0.118***
	(0.016)	(0.017)	(0.042)
BDIND	0.069***	0.016***	−0.022
	(0.005)	(0.005)	(0.037)
SIZE	0.003	0.055***	0.158***
	(0.002)	(0.002)	(0.015)
ROA	−0.014	−0.053	0.082
	(0.032)	(0.034)	(0.281)
LEV	0.001	−0.014	0.138
	(0.013)	(0.014)	(0.112)
FOREIGN	0.002	0.012	0.126**
	(0.007)	(0.008)	(0.056)
TBQ	0.013***	0.029***	0.078***
	(0.004)	(0.004)	(0.028)
Liquidity	0.000	−0.001***	0.001
	(0.000)	(0.000)	(0.002)
COE	−0.014**	−0.000	−0.122***
	(0.006)	(0.007)	(0.047)
Litigation	−0.017	−0.019	0.087
	(0.032)	(0.034)	(0.150)
Competition	−0.023	−0.395***	0.585**
	(0.038)	(0.141)	(0.251)
ADV	−0.004	−0.037	0.325
	(0.064)	(0.067)	(0.487)
Constant	−0.028	−1.096***	−3.219***
	(0.044)	(0.105)	(0.355)
Industry Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	13,618	13,618	995
Adjusted R^2	0.044	0.212	0.228
Partial F-statistic	481.76***		

, * Indicate statistical significance at the 5 percent and 1 percent levels, respectively, based on two-tailed tests.
Robust standard errors are reported in parentheses.
CONNACAD is the percentage of non-academic directors who sit on other boards on which there are academic directors.
See Appendix A for all other variable definitions.

industry's complexities and risks, and this greater understanding would promote better CSR reporting. Given that the regulations allow at most three board memberships for independent directors, we define an academic director as having industry expertise if, prior to joining a firm's board, they have served on the board of another firm in the same industry that also issues a CSR report.[14] Similar to the main analysis, we use indicator (*INDEXP_DUM*), count (*INDEXP_NUM*), and ratio (*INDEXP_PCT*) variables in the regression. The results are reported in Panel B of Table 8.

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[14] As a robustness test, we also follow prior studies (Cohen et al. 2014; Wang et al. 2015) and define industry expertise as serving on the boards of two firms in the same industry. Our inferences do not change upon using this alternative definition.

TABLE 8

The Effect of Academic Directors' University Prestige and Industry Expertise

Panel A: The Effect of Prestigious Schools

Dependent Variables	(1) CSR	(2) CSR	(3) CSR	(4) ASSURE	(5) ASSURE	(6) ASSURE
Top100_DUM	0.195*			0.537***		
	(0.106)			(0.188)		
Top100_NUM		0.161*			0.468***	
		(0.083)			(0.127)	
Top100_PCT			0.244			0.753**
			(0.189)			(0.355)
ACAD_DUM	0.335**	0.329**	0.361**	0.565**	0.520*	0.639**
	(0.149)	(0.149)	(0.147)	(0.272)	(0.271)	(0.265)
Constant	−20.174***	−20.167***	−20.217***	−14.681***	−14.742***	−14.736***
	(0.740)	(0.740)	(0.739)	(1.397)	(1.412)	(1.399)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,618	13,618	13,618	995	995	995
Pseudo R^2	0.290	0.290	0.289	0.181	0.185	0.179

Panel B: Academic Directors' Industry Expertise

Dependent Variables	(1) CSR	(2) CSR	(3) CSR	(4) ASSURE	(5) ASSURE	(6) ASSURE
INDEXP_DUM	4.993***			1.175***		
	(0.778)			(0.292)		
INDEXP_NUM		4.492***			0.696***	
		(0.776)			(0.218)	
INDEXP_PCT			0.354***			0.045***
			(0.068)			(0.018)
ACAD_DUM	0.181*	0.177*	0.176*	0.479***	0.471***	0.478***
	(0.095)	(0.095)	(0.095)	(0.169)	(0.169)	(0.169)
Constant	−20.798***	−20.806***	−20.800***	−15.703***	−15.708***	−15.728***
	(0.754)	(0.754)	(0.754)	(1.446)	(1.444)	(1.442)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,618	13,618	13,618	995	995	995
Pseudo R^2	0.314	0.314	0.314	0.194	0.192	0.190

*, **, *** Indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests.
Robust standard errors are reported in parentheses.
See Appendix A for the variable definitions.

To test the incremental effect of industry expertise, we again control for the presence of academic directors (*ACAD_DUM*). In columns (1)–(3) of Panel B, Table 8, the coefficients on all three measures of industry expertise are positive and significant. These results suggest that the industry expertise of academic directors has an incremental effect on CSR reporting. This effect is also economically significant. The coefficient of 4.993 on *INDEXP_DUM* in column (1) indicates that the marginal probability of providing CSR reports is 86 percent higher for firms whose academic directors possess industry expertise than it is for firms that lack such expert academic directors. Columns (4)–(6) present the results for the assurance of CSR reports. All three measures of industry expertise have significantly positive coefficients, which supports the argument that having more industry expert academic directors increases a firm's propensity to acquire assurance on CSR reports. The coefficient of 1.175 on

INDEXP_DUM in column (4) suggests that the marginal probability of acquiring CSR assurance is 28 percent higher at firms whose academic directors possess industry expertise.

Capital Market Valuation

Studies show that investors consider CSR disclosures to be value relevant (Clarkson, Fang, Li, and Richardson 2013; Plumlee et al. 2015). As our main findings suggest the positive impact of academic directors on CSR reporting, we further examine whether investors' assessment of CSR disclosures is conditional on the presence of academic directors. We adopt two approaches for this analysis: an event study approach testing market reactions to CSR reports, and a long-window approach based on Ohlson's (1995) valuation model.

In the event study approach, we collect information on the filing date of firms that voluntarily provide CSR reports.[15] Then we compute the cumulative abnormal returns (CARs) over a three-day event window, from the day before the filing date through the day after.[16] Table 9, Panel A reports the three-day CARs around the filing date of the 626 CSR reports in our primary sample. Column (1) reports positive but insignificant CARs of 0.166, indicating that the market does not react significantly to the release of CSR reports in general. This finding could be attributable to investors' concerns about managers having considerable discretion to disclose CSR information strategically (e.g., Cho and Patten 2007). When partitioning the sample based on the presence of academic directors in columns (2) and (3), we find CARs of 0.312 (significant at $p < 0.10$) in the subsample of firms with academic directors and CARs of 0.068 (insignificant) in the subsample of firms without academic directors. These results suggest that investors react favorably to the release of CSR reports only when the firm has academic directors. Panel B of Table 9 reports a cross-sectional regression of CARs on academic directors. The regression results also present a positive and significant coefficient on *ACAD_NUM*. Collectively, the findings are consistent with the conjecture that the market perceives the greater reliability and credibility of CSR information disclosed by firms with academic directors on their boards.

Next, we apply the Ohlson (1995) model to test whether the value relevance of CSR reporting varies with academic directors. Specifically, we estimate the following model:

$$MV = \alpha_0 + \alpha_1 ACAD\_DUM_{i,t} + \alpha_2 CSR_{i,t}/ASSURE_{i,t} + \alpha_3 CSR_{i,t}/ASSURE_{i,t} \times ACAD\_DUM_{i,t} + \alpha_4 BDIND_{i,t}$$
$$+ \alpha_5 CSR_{i,t}/ASSURE_{i,t} \times BDIND_{i,t} + \alpha_6 CSRPERF_{i,t} + \alpha_7 BV_{i,t} + \alpha_8 EARN_{i,t} + \sum INDUSTRY + \sum YEAR + \varepsilon \tag{2}$$

where *MV* is the total market value of equity (measured at fiscal year-end), *BV* is the book value of common equity at fiscal year-end, *EARN* is the net income for the fiscal year, and all of the remaining variables are as previously defined. To disentangle the independence effect from the academic effect, we also control for board independence in the valuation model (Dah and Jizi 2018). The regression results are reported in Table 10.

Column (1) shows that the coefficient on the interaction term $CSR \times ACAD\_DUM$ is positive and significant, suggesting that investors consider CSR reports to be value relevant when the firm has academic directors on its board. In column (2), where the sample is limited to CSR report issuers, we find positive coefficients on both *ASSURE* and the interaction term $ASSURE \times ACAD\_DUM$. These results are consistent with the expectation that the market considers CSR assurance to be value relevant and that the presence of academic directors strengthens investors' valuation of CSR assurance. Overall, the valuation results suggest that academic directors have a positive influence on the capital market's perceptions of CSR reports. In columns (3) and (4), we add the indicator *Top100_DUM* and its interactions with *CSR* and *ASSURE*. The results are consistent with those in the first two columns. The larger magnitudes of coefficients on $CSR \times Top100\_DUM$ and $ASSURE \times Top100\_DUM$ suggest that the value of academic directors is more pronounced when the academic directors are from top-tier universities.

In columns (5)–(8) of Table 10, we add common dividends (*DIV*) and replace *EARN* with residual income (*RI*, calculated as net income minus an investment charge on book value of equity) in Equation (2).[17] The results are consistent with those reported in the first four columns in that investors' positive assessments of CSR disclosures and assurance are conditional on firms having academic directors on their boards.

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[15] In our sample of 955 firms issuing CSR reports, 653 file their reports to the online system of the Taiwan Stock Exchange.

[16] Due to missing market returns, the final sample used for tests of CARs contains 626 observations.

[17] We acknowledge the limitations of the Ohlson (1995) model (Lo and Lys 2000) and attempt to apply alternative valuation models such as the specification proposed by Gao, J. Myers, L. Myers, and Wu (2019). Nevertheless, data on analyst forecast as well as management forecast are very limited in Taiwan, preventing us from obtaining relevant variables such as dividend forecast, earnings forecast, and long-term earnings growth. As a result, we still rely on the variant of the Ohlson (1995) framework.

TABLE 9

Market Reactions to the Release of CSR Reports

Panel A: Three-Day Cumulative Abnormal Returns (CARs) Surrounding the Filing of CSR Reports

	Primary Sample	Sample with Academic Directors	Sample without Academic Directors
Three-Day CAR	0.166	0.312*	0.068
p-value	0.134	0.082	0.632
No. of Obs.	626	252	374

* Indicates significance at the 10 percent level based on two-tailed tests.

Panel B: Cross-Sectional Regressions of Three-Day CARs on Academic Directors

	CAR	CAR
ACAD_DUM	0.414**	0.420**
	(0.194)	(0.195)
LOSS		0.051
		(0.334)
SIZE		−0.132
		(0.115)
LEV		0.246
		(0.731)
MTB		−0.014
		(0.113)
BETA		0.527
		(0.375)
STDEARN		0.164
		(0.135)
INST		−0.237
		(0.208)
Constant		1.754
		(2.591)
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	484	484
Adjusted R^2	0.026	0.030

** Indicates significance at the 5 percent level based on two-tailed tests.
Robust standard errors are reported in parentheses.

Variable Definitions:
CAR = the three-day cumulative abnormal returns around the filing date (day 0) of CSR reports;
LOSS = an indicator equal to 1 if the firm reports negative earnings, and 0 otherwise;
MTB = market-to-book ratio of equity;
BETA = capital asset pricing model beta measured based on daily returns over the past year;
STDEARN = the natural logarithm of the standard deviation of earnings over the past five years; and
INST = the percentage of institutional ownership.
See Appendix A for all other variable definitions.

VII. CONCLUSION

Both the academic literature and widespread corporate practice suggest that CSR reporting plays an important role in signaling a firm's commitment to CSR. Using the regulatory setting in Taiwan, this study empirically investigates whether the inclusion of academic directors on a firm's board affects the propensity to voluntarily provide CSR information and to acquire external assurance on CSR disclosures. Exploring the determinants of CSR reporting enhances our understanding regarding firms' decisions to signal their CSR commitment.

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TABLE 10

Capital Market Valuation Results Based on the Ohlson (1995) Model

Dependent Variables	Using Book Value and Earnings				Using Book Value, Residual Income, and Dividends			
	(1) MV	(2) MV	(3) MV	(4) MV	(5) MV	(6) MV	(7) MV	(8) MV
ACAD_DUM	0.323	0.693	0.545	−0.957	−0.263	4.138	1.597	18.082**
	(0.544)	(3.922)	(0.677)	(4.437)	(0.910)	(6.508)	(1.142)	(7.409)
CSR	−1.113		−1.093		−8.781***		−8.603***	
	(1.365)		(1.362)		(2.052)		(2.050)	
CSR × ACAD_DUM	7.311***				11.678***			
	(1.617)				(2.722)			
ASSURE		9.328*		9.411*		4.402		4.344
		(5.625)		(5.575)		(8.803)		(8.701)
ASSURE × ACAD_DUM		11.897*				18.565*		
		(6.482)				(11.178)		
Top100_DUM			−0.225	1.761			−2.654*	−22.621**
			(0.837)	(5.612)			(1.409)	(9.280)
CSR × Top100_DUM			9.770***				12.189***	
			(1.761)				(2.943)	
ASSURE × Top100_DUM				18.932***				31.086***
				(6.613)				(11.613)
BDIND	−0.101	0.425	−0.132	0.864	−0.547	−3.137	−0.705	−3.250
	(0.547)	(4.462)	(0.545)	(4.400)	(0.855)	(6.922)	(0.852)	(6.818)
CSR × BDIND	−4.133**		−3.712**		−8.830***		−7.330***	
	(1.707)		(1.650)		(2.717)		(2.615)	
ASSURE × BDIND		−11.234		−12.250*		−8.220		−8.993
		(6.983)		(6.711)		(11.313)		(10.758)
CSRPERF	8.469***	11.022***	8.134***	10.747***	23.412***	21.282***	23.623***	21.391***
	(1.744)	(4.161)	(1.745)	(4.146)	(2.789)	(6.862)	(2.789)	(6.847)
BV	0.948***	0.695***	0.945***	0.683***	2.606***	6.713***	2.610***	6.503***
	(0.014)	(0.040)	(0.014)	(0.040)	(0.081)	(0.751)	(0.081)	(0.753)
EARN	8.599***	10.395***	8.610***	10.428***				
	(0.086)	(0.218)	(0.086)	(0.218)				
RI					0.000***	0.000***	0.000***	0.000***
					(0.000)	(0.000)	(0.000)	(0.000)
DIV					2.567***	9.188***	2.575***	9.317***
					(0.236)	(1.466)	(0.236)	(1.460)
Constant	−20.280***	−18.716	−19.914***	−17.691	−39.022***	−2.937	−38.837***	−8.495
	(3.111)	(14.315)	(3.110)	(14.290)	(4.693)	(26.731)	(4.694)	(26.752)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,657	962	10,657	962	10,657	962	10,657	962
Adjusted R²	0.900	0.948	0.901	0.949	0.813	0.447	0.813	0.451

*, **, *** Indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests.
Robust standard errors are reported in parentheses.
See Appendix A for the variable definitions.

    Based on the argument that academics tend to care more about their professional reputations and generally possess higher standards of social responsibility, we predict that academic directors are more likely to exercise independent monitoring by requiring firms to provide CSR disclosures and enhance the credibility of those disclosures through external assurance. Consistent with our expectations, we find that firms with academic directors on their boards have a higher propensity for issuing standalone CSR reports, and for seeking third-party assurance on those CSR reports. The results are robust to a variety of tests addressing reverse causality and endogeneity concerns.

In additional analyses, we examine how different characteristics of academic directors influence CSR reporting. The results show that academics from top-tier universities and those with industry expertise have a positive impact on firms' propensity to issue CSR reports and to acquire CSR assurance. We further investigate whether the capital market valuation of CSR reporting is higher for firms with academic directors. The event study approach shows that the market reacts favorably to the issuance of CSR reports only when the firm has academic directors on the board. The long-window valuation model approach also provides consistent evidence that CSR disclosures and assurance are more value relevant for firms with academic directors. Collectively, findings in the valuation tests suggest the value-enhancing role of academic directors in strengthening investors' perceived credibility of CSR reporting.

Our study represents an important step toward better understanding the value of academic directors in CSR reporting. Although prior literature documents the effect of academic directors on firms' financial performance, we shed new light on the role of academic directors in the disclosure of nonfinancial information. Our findings suggest that directors from academia add value not only for shareholders, but also for the wider community of stakeholders. Given the increasing awareness of CSR in our society, these findings have important implications for corporations as well as policymakers.

REFERENCES

Anderson, R. C., D. M. Reeb, A. Upadhyay, and W. Zhao. 2011. The economics of director heterogeneity. *Financial Management* 40 (1): 5–38. https://doi.org/10.1111/j.1755-053X.2010.01133.x

Arayssi, M., M. Dah, and M. Jizi. 2016. Women on boards, sustainability reporting and firm performance. *Sustainability Accounting Management and Policy Journal* 7 (3): 379–401.

Audretsch, D., and E. Lehmann. 2006. Entrepreneurial access and absorption of knowledge spillovers: Strategic board and managerial composition for competitive advantage. *Journal of Small Business Management* 44 (2): 155–166. https://doi.org/10.1111/j.1540-627X.2006.00161.x

Baumgarten, E. 1982. Ethics in the academic profession: A Socratic view. *The Journal of Higher Education* 53 (3): 282–295. https://doi.org/10.1080/00221546.1982.11780454

Bénabou, R., and J. Tirole. 2010. Individual and corporate social responsibility. *Economica* 77 (305): 1–19. https://doi.org/10.1111/j.1468-0335.2009.00843.x

Casey, R., and J. Grenier. 2015. Understanding and contributing to the enigma of corporate social responsibility (CSR) assurance in the United States. *Auditing: A Journal of Practice & Theory* 34 (1): 97–130. https://doi.org/10.2308/ajpt-50736

Charnov, B. H. 1987. The academician as good citizen. In *Ethical Dilemmas for Academic Professionals*, edited by S. L. Payne and B. H. Charnov, 3–20. Springfield, IL: Charles C. Thomas.

Chen, J., A. Garel, and A. Tourani-Rad. 2019. The value of academics: Evidence from academic independent director resignations in China. *Journal of Corporate Finance* 58: 393–414. https://doi.org/10.1016/j.jcorpfin.2019.06.003

Chen, Y., M. Hung, and Y. Wang. 2018. The effect of mandatory CSR disclosure on firm profitability and social externalities: Evidence from China. *Journal of Accounting and Economics* 65 (1): 169–190. https://doi.org/10.1016/j.jacceco.2017.11.009

Cheng, I. H., H. Hong, and K. Shue. 2016. *Do managers do good with other peoples' money?* Working paper, Dartmouth College.

Cho, C. H., and D. M. Patten. 2007. The role of environmental disclosures as tools of legitimacy: A research note. *Accounting, Organizations and Society* 32 (7/8): 639–647. https://doi.org/10.1016/j.aos.2006.09.009

Cho, C., J. Jung, B. Kwak, J. Lee, and C. Yoo. 2017. Professors on the board: Do they contribute to society outside the classroom? *Journal of Business Ethics* 141 (2): 393–409. https://doi.org/10.1007/s10551-015-2718-x

Clarkson, P., X. Fang, Y. Li, and G. Richardson. 2013. The relevance of environmental disclosures: Are such disclosures incrementally informative? *Journal of Accounting and Public Policy* 32 (5): 410–431. https://doi.org/10.1016/j.jaccpubpol.2013.06.008

Clarkson, P., Y. Li, G. Richardson, and A. Tsang. 2019. Causes and consequences of voluntary assurance of CSR reports. *Accounting, Auditing & Accountability Journal* 32 (8): 2451–2474. https://doi.org/10.1108/AAAJ-03-2018-3424

Cohen, J., and R. Simnett. 2015. CSR and assurance services: A research agenda. *Auditing: A Journal of Practice & Theory* 34 (1): 59–74. https://doi.org/10.2308/ajpt-50876

Cohen, J. R., U. Hoitash, G. Krishnamoorthy, and A. M. Wright. 2014. The effect of audit committee industry expertise on monitoring the financial reporting process. *The Accounting Review* 89 (1): 243–273. https://doi.org/10.2308/accr-50585

Cormier, D., M. Ledoux, and M. Magnan. 2011. The informational contribution of social and environmental disclosures for investors. *Management Decision* 49 (8): 1276–1304. https://doi.org/10.1108/00251741111163124

Dah, M. A., and M. I. Jizi. 2018. Board independence and the efficacy of social reporting. *Journal of International Accounting Research* 17 (1): 25–45. https://doi.org/10.2308/jiar-51952

Dai, J., C. Lu, and J. Qi. 2019. Corporate social responsibility disclosure and stock price crash risk: Evidence from China. *Sustainability* 11 (2): 448–467. https://doi.org/10.3390/su11020448

Dhaliwal, D. S., O. Z. Li, A. Tsang, and Y. G. Yang. 2011. Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review* 86 (1): 59–100. https://doi.org/10.2308/accr.00000005

American Accounting Association

Dhaliwal, D. S., S. Radhakrishnan, A. Tsang, and Y. G. Yang. 2012. Nonfinancial disclosures and analyst forecast accuracy: International evidence on corporate social responsibility (CSR) disclosure. *The Accounting Review* 87 (3): 723–759. https://doi.org/10.2308/accr-10218

Drobetz, W., F. Von Meyerinck, D. Oesch, and M. Schmid. 2018. Industry expert directors. *Journal of Banking & Finance* 92: 195–215. https://doi.org/10.1016/j.jbankfin.2018.04.019

Dubbink, W., J. Graafland, and L. Van Liedekerke. 2008. CSR, transparency and the role of intermediate organizations. *Journal of Business Ethics* 82 (2): 391–406. https://doi.org/10.1007/s10551-008-9893-y

Dyck, A., K. V. Lins, L. Roth, and H. F. Wagner. 2019. Do institutional investors drive corporate social responsibility? International evidence. *Journal of Financial Economics* 131 (3): 693–714. https://doi.org/10.1016/j.jfineco.2018.08.013

Elkington, J. 2006. Governance for sustainability. *Corporate Governance* 14 (6): 522–529. https://doi.org/10.1111/j.1467-8683.2006.00527.x

Elliott, W. B., K. E. Jackson, M. E. Peecher, and B. J. White. 2014. The unintended effect of corporate social responsibility performance on investors' estimates of fundamental value. *The Accounting Review* 89 (1): 275–302. https://doi.org/10.2308/accr-50577

Faleye, O., R. Hoitash, and U. Hoitash. 2018. Industry expertise on corporate boards. *Review of Quantitative Financial Analysis* 50 (2): 441–479. https://doi.org/10.1007/s11156-017-0635-z

Fama, E. F. 1980. Agency problems and the theory of the firm. *Journal of Political Economy* 88 (2): 288–307. https://doi.org/10.1086/260866

Fama, E. F., and M. C. Jensen. 1983. Separation of ownership and control. *The Journal of Law & Economics* 26 (2): 301–325. https://doi.org/10.1086/467037

Fernandez-Feijoo, B., S. Romero, and S. Ruiz. 2012. Does board gender composition affect corporate social responsibility reporting? *International Journal of Business and Social Science* 3: 31–38.

Fernandez-Feijoo, B., S. Romero, and S. Ruiz. 2014. Effect of stakeholders' pressure on transparency of sustainability reports within the GRI framework. *Journal of Business Ethics* 122 (1): 53–63. https://doi.org/10.1007/s10551-013-1748-5

Fernández-Gago, R., L. Cabeza-García, and M. Nieto. 2018. Independent directors' background and CSR disclosure. *Corporate Social Responsibility and Environmental Management* 25 (5): 991–1001. https://doi.org/10.1002/csr.1515

Fich, E. M. 2005. Are some outside directors better than others? Evidence from director appointments by Fortune 1000 firms. *The Journal of Business* 78 (5): 1943–1972. https://doi.org/10.1086/431448

Francis, B., I. Hasan, and Q. Wu. 2015. Professors in the boardroom and their impact on corporate governance and firm performance. *Financial Management* 44 (3): 547–581. https://doi.org/10.1111/fima.12069

Friedman, M. 1970. The social responsibility of business is to increase its profits. *New York Times Magazine* 3 (13): 32–33.

Gao, Z., J. Myers, L. Myers, and W. Wu. 2019. Can a hybrid method improve equity valuation? An empirical evaluation of the Ohlson and Johannesson (2016) model. *The Accounting Review* 94 (6): 227–252. https://doi.org/10.2308/accr-52415

Gibson, K., and G. O'Donovan. 2007. Corporate governance and environmental reporting: An Australian study. *Corporate Governance* 15 (5): 944–956. https://doi.org/10.1111/j.1467-8683.2007.00615.x

Healy, P., and K. Palepu. 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics* 31 (1-3): 405–440. https://doi.org/10.1016/S0165-4101(01)00018-0

Hillman, A. J., G. D. Keim, and R. A. Luce. 2001. Board composition and stakeholder performance: Do stakeholder directors make a difference? *Business & Society* 40 (3): 295–314. https://doi.org/10.1177/000765030104000304

Hodge, K., N. Subramaniam, and J. Stewart. 2009. Assurance of sustainability reports: Impact on report users' confidence and perceptions of information credibility. *Australian Accounting Review* 19 (3): 178–194. https://doi.org/10.1111/j.1835-2561.2009.00056.x

Ibrahim, N. A., D. P. Howard, and J. P. Angelidis. 2003. Board members in the service industry: An empirical examination of the relationship between corporate social responsibility orientation and directorial type. *Journal of Business Ethics* 47 (4): 393–401. https://doi.org/10.1023/A:1027334524775

Jamali, D., A. M. Safieddine, and M. Rabbath. 2008. Corporate governance and corporate social responsibility synergies and interrelationships. *Corporate Governance* 16 (5): 443–459. https://doi.org/10.1111/j.1467-8683.2008.00702.x

Jensen, M. C., and M. H. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4): 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Jiang, B., and P. J. Murphy. 2007. Do business school professors make good executive managers? *The Academy of Management Perspectives* 21 (3): 29–50. https://doi.org/10.5465/amp.2007.26421237

Kakabadse, A. P. 2007. Being responsible: Boards are reexamining the bottom line. *Leadership in Action* 27 (1): 3–6. https://doi.org/10.1002/lia.1191

Kor, Y. Y., and V. F. Misangyi. 2008. Outside directors' industry-specific experience and firms' liability of newness. *Strategic Management Journal* 29 (12): 1345–1355. https://doi.org/10.1002/smj.709

KPMG. 2017. *The Road Ahead—The KPMG Survey of Corporate Responsibility Reporting 2017*. Available at: https://home.kpmg/uk/en/home/insights/2017/11/kpmg-international-survey-of-corporate-responsibility-reporting-2017.html

Krüger, P. 2015. Corporate goodness and shareholder wealth. *Journal of Financial Economics* 115 (2): 304–329. https://doi.org/10.1016/j.jfineco.2014.09.008

Liao, L., L. Luo, and Q. Tang. 2015. Gender diversity, board independence, environmental committee and greenhouse gas disclosure. *The British Accounting Review* 47 (4): 409–424. https://doi.org/10.1016/j.bar.2014.01.002

Linck, J., J. Netter, and T. Yang. 2009. The effects and unintended consequences of the Sarbanes-Oxley Act on the supply and demand for directors. *Review of Financial Studies* 22 (8): 3287–3328. https://doi.org/10.1093/rfs/hhn084

Lo, K., and T. Lys. 2000. The Ohlson model: Contribution to valuation theory, limitations, and empirical applications. *Journal of Accounting, Auditing & Finance* 15 (3): 337–367. https://doi.org/10.1177/0148558X0001500311

Lys, T., J. Naughton, and C. Wang. 2015. Signaling through corporate accountability reporting. *Journal of Accounting and Economics* 60 (1): 56–72. https://doi.org/10.1016/j.jacceco.2015.03.001

Mackenzie, C. 2007. Boards, incentives and corporate social responsibility: The case for a change of emphasis. *Corporate Governance* 15 (5): 935–943. https://doi.org/10.1111/j.1467-8683.2007.00623.x

Manchiraju, H., and S. Rajgopal. 2017. Does corporate social responsibility (CSR) create shareholder value? Evidence from the Indian Companies Act 2013. *Journal of Accounting Research* 55 (5): 1257–1300. https://doi.org/10.1111/1475-679X.12174

Matsumura, E. M., R. Prakash, and S. C. Vera-Muñoz. 2014. Firm-value effects of carbon emissions and carbon disclosures. *The Accounting Review* 89 (2): 695–724. https://doi.org/10.2308/accr-50629

O'Connell, D. M. 1998. From the universities to the marketplace: The business ethics journey. *Journal of Business Ethics* 17 (15): 1617–1622. https://doi.org/10.1023/A:1006019519031

Ohlson, J. 1995. Earnings, book values and dividends in equity valuation. *Contemporary Accounting Research* 11 (2): 661–687. https://doi.org/10.1111/j.1911-3846.1995.tb00461.x

Owen, D. 2005. CSR after Enron: A role for the academic accounting profession? *European Accounting Review* 14 (2): 395–404. https://doi.org/10.1080/09638180500126892

Pang, J., X. Zhang, and X. Zhou. 2018. *From classroom to boardroom: The value of academic independent directors*. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3232670

Pflugrath, G., P. J. Roebuck, and R. Simnett. 2011. Impact of assurance and assurer's professional affiliation on financial analysts' assessment of credibility of corporate social responsibility information. *Auditing: A Journal of Practice & Theory* 30 (3): 239–254. https://doi.org/10.2308/ajpt-10047

Plumlee, M., D. Brown, R. Hayes, and S. Marshall. 2015. Voluntary environmental disclosure quality and firm value: Further evidence. *Journal of Accounting and Public Policy* 34 (4): 336–361. https://doi.org/10.1016/j.jaccpubpol.2015.04.004

Post, C., N. Rahman, and E. Rubow. 2011. Green governance: Boards of directors' composition and environmental corporate social responsibility. *Business & Society* 50 (1): 189–223. https://doi.org/10.1177/0007650310394642

Rao, K., and C. Tilt. 2016. Board composition and corporate social responsibility: The role of diversity, gender, strategy and decision making. *Journal of Business Ethics* 138 (2): 327–347. https://doi.org/10.1007/s10551-015-2613-5

Rao, K., C. Tilt, and L. Lester. 2012. Corporate governance and environmental reporting: An Australian study. *Corporate Governance* 12 (2): 143–163. https://doi.org/10.1108/14720701211214052

Richardson, A., M. Welker, and I. Hutchinson. 1999. Managing capital market reactions to corporate social responsibility. *International Journal of Management Reviews* 1 (1): 17–43. https://doi.org/10.1111/1468-2370.00003

Servaes, H., and A. Tamayo. 2013. The impact of corporate social responsibility on firm value: The role of customer awareness. *Management Science* 59 (5): 1045–1061. https://doi.org/10.1287/mnsc.1120.1630

Sharpe, W. F. 1964. Capital assets prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance* 19 (3): 425–442.

Siciliano, J. I. 1996. The relationship of board member diversity to organizational performance. *Journal of Business Ethics* 15 (12): 1313–1320. https://doi.org/10.1007/BF00411816

Simnett, R., A. Vanstraelen, and W. F. Chua. 2009. Assurance on sustainability reports: An international comparison. *The Accounting Review* 84 (3): 937–967. https://doi.org/10.2308/accr.2009.84.3.937

Trotman, A. J., and K. T. Trotman. 2015. Internal audit's role in GHG emissions and energy reporting: Evidence from audit committees, senior accountants, and internal auditors. *Auditing: A Journal of Practice & Theory* 34 (1): 199–230. https://doi.org/10.2308/ajpt-50675

Tsang, A., S. Zeng, and G. Zhou. 2019. *Corporate social responsibility and firm value: International evidence on the role of integrated reporting*. Working paper, York University.

Wang, C., F. Xie, and M. Zhu. 2015. Industry expertise of independent directors and board monitoring. *Journal of Financial and Quantitative Analysis* 50 (5): 929–962. https://doi.org/10.1017/S0022109015000459

White, J., T. Woidtke, H. Black, and R. Schweitzer. 2014. Appointments of academic directors. *Journal of Corporate Finance* 28: 135–151. https://doi.org/10.1016/j.jcorpfin.2013.12.007

Yermack, D. 2004. Remuneration, retention, and reputation incentives for outside directors. *The Journal of Finance* 59 (5): 2281–2308. https://doi.org/10.1111/j.1540-6261.2004.00699.x

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APPENDIX A

Summary of Variable Definitions

Variables	Definitions
Dependent Variables	
CSR	An indicator that equals 1 if the firm issues a standalone CSR report, and 0 otherwise.
ASSURE	An indicator that equals 1 if the firm obtains third-party assurance on its CSR report, and 0 otherwise.
Test Variables	
ACAD_DUM	An indicator that equals 1 if the firm has at least one independent director who is a full-time university faculty member (referred to as an academic director), and 0 otherwise.
ACAD_NUM	The number of academic directors on the board of directors.
ACAD_PCT	The proportion of academic directors, defined as the number of academic directors divided by the number of independent directors on the board.
Control Variables	
CSRPERF	An indicator that equals 1 if the firm receives an award for CSR performance, and 0 otherwise.
BDIND	An indicator that equals 1 if a firm's percentage of independent directors is greater than the overall mean independence level, and 0 otherwise.
SIZE	The natural logarithm of total assets.
ROA	Income before extraordinary items divided by average assets.
LEV	Total debt divided by total assets.
FOREIGN	An indicator variable that equals 1 if a firm reports foreign income, and 0 otherwise.
TBQ	Tobin's Q, calculated as total assets minus the book value of equity, plus the market value of equity, and divided by the book value of total assets.
Liquidity	The ratio of shares traded during the year to the total shares outstanding at year-end.
COE	Cost of equity, calculated based on the capital asset pricing model developed by Sharpe (1964).
Litigation	An indicator variable that equals 1 for high litigation risk industries (biotechnology, computers, electronics, and retailing), and 0 otherwise.
Competition	The Herfindahl-Hirschman index multiplied by -1.
ADV	Advertising expenses divided by net sales.
Variables in Additional Analyses	
Top100_DUM	An indicator that equals 1 if the firm has at least one academic director from a top-tier university (ranked in the top 100 based on the QS Asia university rankings), and 0 otherwise.
Top100_NUM	The number of academic directors from top-tier universities.
Top100_PCT	The proportion of academic directors from top-tier universities.
INDEXP_DUM	An indicator that equals 1 if the firm has at least one academic director with industry expertise, and 0 otherwise.
INDEXP_NUM	The number of academic directors with industry expertise.
INDEXP_PCT	The proportion of academic directors with industry expertise.
CAR	Three-day cumulative abnormal returns around the filing date (day 0) of CSR reports.
LOSS	An indicator equal to 1 if the firm reports negative earnings, and 0 otherwise.
MTB	Market-to-book ratio of equity.
BETA	Capital asset pricing model beta measured based on daily returns over the past year.
STDEARN	The natural logarithm of the standard deviation of earnings over the past five years.
INST	The percentage of institutional ownership.
MV	Market value of common equity at year-end.
BV	Book value of common equity at year-end.
EARN	Net income.
RI	Residual income, calculated as net income minus an equity charge, where equity charge is the cost of equity multiplied by beginning book value.
DIV	Common dividends.

APPENDIX B

Procedure to Develop Propensity Score Matched Sample

The propensity score matching (PSM) approach involves pairing firms with academic directors (treatment firms) and firms without academic directors (control firms) based on the characteristics identified by Francis et al. (2015) as well as the control variables in Equation (1). We implement this procedure by first estimating a logistic regression to model the probability of being a sample treatment firm. Next, we estimate the propensity score for each firm using the predicted probabilities from the logistic regression. We then match each treatment firm to the control firms by using the nearest-neighbor matching technique without replacement. Panel A of Table 11 reports the estimation results of the logistic regression used to derive propensity scores, and Panel B presents the effectiveness of the matches.

TABLE 11

Propensity Score Matching Results

Panel A: Logistic Regression Used to Derive Propensity Scores

	ACAD_DUM
CSRPERF	0.676***
	(0.151)
BDIND	4.788***
	(0.194)
SIZE	0.121***
	(0.027)
ROA	−0.146
	(0.328)
LEV	−0.163
	(0.155)
FOREIGN	0.246**
	(0.102)
Liquidity	0.004**
	(0.002)
COE	−0.035
	(0.035)
Competition	−0.318
	(0.365)
ADV	0.235
	(0.146)
Duality	0.049
	(0.049)
FEMALE_PCT	−0.003
	(0.148)
DIROWN	0.002
	(0.002)
INSIDEROWN	0.030**
	(0.012)
Constant	−7.139***
	(0.765)
Industry Fixed Effects	Yes
Year Fixed Effects	Yes
Observations	13,618
Pseudo R^2	0.261

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TABLE 11 (continued)

Panel B: Test of the Effectiveness of the Propensity Score Matches

Variable	Mean Value, Treatment Firms	Mean Value, Control Firms	Differences
CSRPERF (pre-match)	0.037	0.008	−11.851***
CSRPERF (post-match)	0.033	0.000	−0.810
BDIND (pre-match)	0.948	0.465	−54.893***
BDIND (post-match)	0.992	0.000	−47.800***
SIZE (pre-match)	15.119	15.28	6.554***
SIZE (post-match)	15.110	15.342	0.760
ROA (pre-match)	0.041	0.036	−3.180***
ROA (post-match)	0.036	0.019	−0.670
LEV (pre-match)	0.390	0.413	6.804***
LEV (post-match)	0.389	0.430	0.990
FOREIGN (pre-match)	0.928	0.841	−12.859***
FOREIGN (post-match)	0.928	0.895	−0.560
Liquidity (pre-match)	6.644	5.859	−4.802***
Liquidity (post-match)	7.784	6.294	−0.510
COE (pre-match)	0.107	0.126	−2.138**
COE (post-match)	0.146	0.029	−0.800
Competition (pre-match)	−0.106	−0.128	−11.639***
Competition (post-match)	−0.120	−0.105	−0.500
ADV (pre-match)	0.041	0.038	−4.043***
ADV (post-match)	0.050	0.035	−0.560
Duality (pre-match)	0.339	0.328	−1.239
Duality (post-match)	0.340	0.316	−0.220
FEMALE_PCT (pre-match)	0.151	0.174	7.294***
FEMALE_PCT (post-match)	0.156	0.178	0.570
DIROWN (pre-match)	22.387	22.852	1.809*
DIROWN (post-match)	22.452	27.287	1.490
INSIDEROWN (pre-match)	1.656	1.300	−9.833***
INSIDEROWN (post-match)	1.819	0.955	−1.470

*, **, *** Indicate statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Variable Definitions:
ACAD_DUM = an indicator that equals 1 if the firm has at least one independent director who is a full-time university faculty member (referred to as an academic director), and 0 otherwise;
CSRPERF = an indicator that equals 1 if a firm receives a CSR award, and 0 otherwise;
BDIND = an indicator that equals 1 if a firm's percentage of independent directors is greater than the overall mean independence level, and 0 otherwise;
SIZE = the natural logarithm of total assets;
ROA = income before extraordinary items divided by average assets;
LEV = total debt divided by total assets;
FOREIGN = an indicator variable that equals 1 if a firm reports foreign income, and 0 otherwise;
Liquidity = the ratio of shares traded in the year to the total shares outstanding at year-end;
COE = cost of equity, calculated based on the capital asset pricing model developed by Sharpe (1964);
Competition = industry competition, measured by the Herfindahl-Hirschman index and multiplied by −1;
ADV = advertising expenses divided by net sales;
Duality = an indicator equal to 1 if the CEO is also the chairman of the board, and 0 otherwise;
FEMALE_PCT = the percentage of female directors on the board;
DIROWN = the percentage of outstanding shares that all of the directors own; and
INSIDEROWN = the top management team's percentage of ownership of all of the shares outstanding.