



Corporate Social Responsibility and Analyst's Recommendation

Yuan Chang^a, Ting-Hsuan Chen^b, Hsiu-Hsia Chou^c, Yu-Fong Shen^d

a. Department of Finance, National Changhua University of Education

b. Department of Finance, Providence University

c. Department of Finance, Chihlee Institute of Technology

d. Department of Accounting, National Taiwan University

Abstract

Investment analysts act as important capital market participants that transmit information about the merits of doing CSR on firm's financial perspective to investors. If an analyst perceives that CSR engagement is value-enhancing, then he/she tends to rate a "buy" for the firm with superior CSR performance, and vice versa. This paper examines the linkage between a firm's CSR engagement and its frequency of analysts' recommendation and how favorable recommendations are. Quarterly data of listed companies on the Taiwan Stock Exchange (TWSE) from 2005Q1 to 2012Q2 is employed. We construct dichotomous CSR measures based on the *Common Wealth's* "Best-Corporate-Citizens" and the *Global Views Monthly's* "CSR-Award." We collect firm data about analyst recommendations from the DataStream I/B/E/S database. Regression results generally show: (1) firms with superior CSR performance have a higher percentage of hold recommendations and a smaller percentage of buy/sell recommendations; (2) CSR-firms do not have a superior recommendation score than non-CSR-firms and receive a lower frequency of recommendation; (3) while CSR-firms in a high-growth industry receive a higher percentage of hold recommendations and lower frequency of buy recommendations, CSR-firm in a non-high-growth industry receive a lower percentage of hold recommendations and a higher frequency of buy recommendations; and (4) after controlling for self-selection of firms engaging in CSR, firms with superior performance on CSR tend to have a greater percentage of hold recommendations, a higher recommendation score and a higher frequency of recommendation. The evidence generally supports the view that firms engaging in CSR receive financial market benefit in terms of more favorable analyst recommendation, potentially enhancing their market value.

Keywords: CSR, Analyst Recommendations; **JEL:** M14, G34, G11

1. Introduction

It is intriguing that management theory and practice and academic research in recent decades focus on corporations taking on seemingly unprofitable social responsibility actions as a multi-dimensional corporate strategy to support a firm's sustainable operations. This includes a company integrating its internal control system, product development and security, employee welfare improvement, community environment protection, charitable donation, corporate governance etc., into a corporate activity scheme to take care in consideration the interests of all stakeholders surrounding the corporation.¹

While prolific studies ranging from theoretical arguments to empirical examinations on the relationship between a company's CSR engagement and its financial performance exist,² little research has been done to examine what channel (mechanism) for CSR exerts its effects on corporate performance. In this paper, we examine whether investment analysts, as financial market participants, act as an intermediary between firms and investors in assessing the effect of a firm's performance on social responsibility on its financial outcome. From a theoretical perspective, if an investment analyst is an important information collector and communicator in financial markets, then if a firm's engaging in CSR is perceived by an analyst as value-enhancing (value-destroying) activity, other things being equal, he/she tends to issue more (less) favorable recommendation for the company with better CSR performance. Favorable (adverse) analyst recommendations promote (squeezes) the demand for a company's stock and, thus, increases (decreases) its market value. Based on data for Taiwan's listed companies, this paper isolates the effects of a firm's engaging in CSR on its analyst recommendation ratings (favorable or adverse) to see how an investment analyst, as an important financial market participant, values a firm's actions on social responsibility.

Existing studies have mentioned that stock analysts play an intermediary role in financial markets by providing information to investors (Healy and Palepu, 2001; Bradshaw, 2004). Generally, a stock analyst is employed by a

¹Frooman (1997), Carroll (1999) and McWilliams and Siegel (2001) provided definition for CSR.

²Griffin and Mahon (1997), Margolis, Elfenbein and Walsh (2007), Shen and Chang (2009), Wu and Shen (2013).

security dealer or investment bank to perform evaluation and analysis of the performance of a targeted company. Zuckerman and Rao (2004) indicate that most stock analysts are specialized in a handful of industries, and they regularly publish analysis reports covering company earnings forecasts, target prices, as well as a long-term growth forecast.³ More important, result of analyst forecasts for a firm's financial outcome/perspective is sometimes summarized as ratings, namely, a recommendation score, which is usually divided into a five-point scale, namely, strong buy, buy, hold, sell and strong sell (Bradshaw, 2004). The formation of the recommendation score is based on the analyst's own evaluation model by considering a company's dividend stream, future profitability, and cash flow (Zuckerman and Rao, 2004; Benner, 2009), as well as relative performance to other firms lying on the upstream and downstream of an industry with a similar competitive environment. Because the stock analyst has advantages on information collection, analysts function in reducing information asymmetry between a company and investors (Frankel, Kothari and Weber, 2006; Ramnath, Rock and Shane, 2008; Horton and Serafeim, 2010).

Published analyst reports have significant effects on the investment behavior of the general public, and several existing studies find supportive evidence that a stock analyst's recommendation score has effects on a stock's price and trading volume (Sticklel, 1995; Womack, 1996; Francis and Soffer, 1997; Moreton and Zenger, 2005). Specifically, Womack (1996) found that a company's stock price tends to rise around 4 percent after a stock analyst recommends buying the stock, and conversely, if the recommendation is rated as sell, the stock price drops around 3 percent. Given that an analyst's recommendation has effects on the behavior of financial market participants, we test how sell-side analysts perceive the influence of a firm's engaging in CSR.⁴

³ Healy and Palepu (2001) showed that adopting analyst's earnings forecast to predict a company's profitability is more accurate than a time series model.

⁴ Based on Groysberg, Healy, Chapman, Shanthikumar and Gui (2007), a sell-side analyst works for a brokerage firm and evaluates company future earnings growth and other investment perspectives. They sometimes place recommendations on stocks or other securities, typically phrased as "buy", "sell", or "hold". They are incentivized by offering their recommendation to institutional investor clients as well as individual investors. As opposed to the sell-side analyst, a buy-side analyst typically works in a mutual fund, pension fund or other non-brokerage firm, and provides research and recommendation exclusively for the benefit of the company's own fund managers. Unlike a sell-side recommendation, which is meant for the public, a buy-side recommendation is not available to anyone outside the firm. In this paper, analyst recommendation refers to sell-side analyst recommendations.

More specifically, if the comprehension is positive (negative), a firm with higher CSR tends to obtain a favorable (adverse) recommendation.

Theoretically, arguments toward the linkage between CSR and an analyst's recommendation are stated as follows. First, a growing number of institutional investors such as mutual fund managers tend to invest in firms with good performance on CSR on account of a firm's long-term sustainability, lower operating risk, and performance volatility.⁵ Investors also pay attention to a firm's strategy and actions on social responsibility. Investment analysts, with professional background act as intermediaries between the firm and investor, starting to extend investment screening coverage toward CSR achievement, exploiting information about corporate engagement in CSR as well as other relevant records and signs, and form a recommendation rating based on their own valuation model. Therefore, analysts' perceptions on a firm's CSR activity as value-enhancing or value-destroying will be reflected in their investment recommendation ratings. Hence, a firm's engagement in CSR will be correlated with an analyst's recommendation.

Second, existing studies have proposed a positive linkage between CSR and firm performance. Freeman (1984), Berman, Wicks, Kotha and Jones (1999) and Hillman and Keim (2001) argue that a firm's identifying and managing ties with key stakeholders mitigates the likelihood of a negative regulatory, legislative or fiscal action. Existing research has also indicated that a positive CSR-performance linkage is driven by obtaining better resources (Cochran and Wood, 1984; Waddock and Graves, 1997), enhancing corporate reputation and trust (Fombrun and Shanley, 1990; Fombrun, 2005; Freeman, Harrison and Wicks, 2007; Bowman and Haire, 1975; Alexander and Bucholtz, 1978), enjoying unforeseen opportunities (Fombrun, Gardberg and Barnett, 2000), employee productivity improvement (Turban and Greening, 1997; Greening and Turban, 2000), better marketing ability (Moskowitz, 1972; Fombrun, 1996), increasing demand and reducing price sensitivity (Dorfman and Steiner, 1954;

⁵ According to Scholtens (2005) and Schroder (2004), in the United States, mutual funds with ethical, environmental and social investment screening criterions have more than two trillion dollars, accounting for 12% of the overall market share in U.S. Socially responsible funds in Asia have already exceeded \$ 2.5 billion in total assets.

Navarro, 1988; Sen and Bhattacharya, 2001; Milgrom and Roberts, 1986), increasing brand image and product competitiveness (Porter and van der Linde, 1995; Fombrun, Gardberg and Barnett, 2000). However, Becchetti, Ciciretti and Hasan (2009) argue that most of CSR activities drive a shift of focus from the maximization of stockholder value to interests of a wider set of stakeholders, and thereby encumber a firm's performance. Prior studies also indicate that negative CSR-performance linkage is attributed to inefficient use of resources (Friedman, 1970), product development limitations (Bragdon and Marlin, 1972), rising operating costs (Vance, 1975; Aupperle, Carroll and Hatfield, 1985; Ullmann, 1985), lack of public responsiveness to philanthropic behavior as well as insignificant feedback (Walley and Whitehead, 1994; Henderson, 2002). Based on an agency theory perspective (Jensen and Meckling, 1976), Brammer and Millington (2008) also suggest that employing valuable firm resources results in significant managerial benefits rather than financial benefits to shareholders.⁶ Based on existing studies, in spite of firms engaging in CSR with positive and/or negative effects on performance, analysts tend to issue favorable ratings as long as they perceive the net effect of a firm's doing CSR is positive. Therefore, a firm's engagement in CSR should be correlated with an analyst's recommendation.

Third, existing studies indicate that a firm's engagement in CSR has influence on its risk and cost of finance. For example, El Ghoul, Guedhami, Kwok and Mishra (2011) proposed that firms with CSR tend to have weaker information asymmetric problems (Heinkel, Kraus and Zechner, 2001). Firms with superior CSR performance tend to have a larger investor base and thus greater diversification opportunities (less diversifiable risks). Frederick (1995), Robinson, Kleffner and Bertels (2008) and Starks (2009) indicate that investors tend to consider that a socially irresponsible company possesses higher risks. Waddock and Graves (1997) believe that the socially irresponsible company may face more uncertain future claims. Finally, a company with superior CSR performance tends to have lower idiosyncratic risk and systematic risk; therefore

⁶ Referred to Brammer and Millington (2008), Barnett and Salomon (2006), Zollo and Coda (2009), Ioannou and Serafeim (2010) and Shen and Chang (2009).

its risk premium and cost of capital would be lower (EI Ghoul et al., 2011).⁷ On the contrary, Goss and Roberts (2011) indicate that CSR enacts conflicts of interests between managers and shareholders, a potential agency problem. A company's excessive social responsible investment gives a chance for managers to exploit private benefits at the expense of minority shareholders. Barnea and Rubin (2010) indicate that the benefits and honors of firms engaging in socially responsible initiatives are mostly enjoyed by managers; yet the cost is borne by shareholders. Conflict of interests derives concerns about over-investment on CSR, and firms with CSR may have severe agency problems, information asymmetry, and an expensive cost of finance. Investment analysts tend to issue favorable ratings as long as they perceive the net effect of a firm's doing CSR on the cost of finance is beneficiary, and vice versa.

Fourth, while corporate governance is an important dimension of CSR (a stockholder is also a stakeholder), change in governance factors through engaging in CSR has an impact on operating outcomes, which in turn affects an analyst's recommendation ratings. Existing studies have proposed that corporate governance factors such as director/managerial shareholdings, institutional (foreign) shareholdings and director's shareholding pledge ratio, etc. have positive or negative effects on corporate performance.⁸ As long as firms indicator for corporate governance changes through doing CSR, investment analysts tend to issue favorable ratings as long as they perceive the net effect of corporate governance change on firm performance is positive, and vice versa. Firm's engagement in CSR is thus correlated with analyst recommendations.

To see whether a firm's engaging in CSR reflects on analyst recommendations, we investigate quarterly data of companies listed on TWSE from 2005Q1 to 2012Q2. Taiwan is an important emerging market country in

⁷ Based on an ex post view, Peloza (2006), Minor and Morgan (2010) and Chang, Shen and Chang (2014) proposed and examined that CSR acts as insurance such that the harmful result given if negative corporate events occurred would be smaller. CSR functions as a risk management tool of "doing well by reducing harm" and thus firms could enjoy a lower cost of finance.

⁸ Arguments about the positive linkage between corporate governance and firm performance include convergence of interest hypothesis (Jensen and Meckling, 1976), efficiency monitoring hypothesis (Pound, 1988), signaling hypothesis (Leland and Pyle, 1977). Negative arguments include entrenchment hypothesis (Jensen and Ruback, 1983; Stulz, 1988), conflict of interest hypothesis (Pound, 1988). Existing empirical studies show supportive evidence for all hypothesis, such as Fich and Shivdasani (2006), Claessens, Djankov and Lang (2000), Morck Shleifer and Vishny (1988), Brickley, Lease and Smith (1988), Kaplan and Reishus (1990) and Jiambalvo, Rajgopal and Venkatachalam (2002), and we omit detail descriptions of these studies here.

Asia. TWSE and the Over-The-Counter (OTC) market consist of about 1,500 companies and are ranked among the 5-largest by market capitalization and trading column in Asia. In addition to a dynamic financial system, most of listed-firms had considerable financial and direct foreign investment to establish OEM (original equipment manufacturer) factories or purchasing/material departments around the globe, especially in China, known to have uneven product quality and working environments with human-right concerns.⁹ Thus, whether firms engage in CSR or not is relevant for the long-term sustainability and performance volatility in such a market. Analysts, which collect and evaluate firms financial versus nonfinancial information and transform them to recommendation ratings, qualify as a most crucial information intermediary between a company and investors in Taiwan's financial market. Thus, the issue of whether a firm's CSR performance is perceived as favorable or unfavorable by investment analysts in Taiwan is worthy of individual research. In addition to the above, Russo and Fouts (1997) argue that industry growth positively moderates the benefit of social performance on economic performance. We divided our samples into high-growth firms versus non-high-growth ones to examine whether the magnitude and direction of CSR effects on analyst recommendations are divergent between the two samples. Third, while Bhagat and Black (2002) and Hermalin and Weisbach (2003) indicate that an endogeneity issue is epidemic in the explanation of empirical evidence in almost all extant finance studies, we employ Heckman's (1979) two-stage estimation to fix self-selection of samples to engage in CSR.¹⁰

⁹ In 2010, a series of shocking news are about part of Taiwan-funded companies in China's coastal are, where their employees have committed suicide. Many labor-intensive electronic companies employed a militarized management model to manage and supervise their employees, led many workers at work to be very alienated and alone, and ten hours a day of duplication of effort make workers physically and mentally fatigued. This may be one of the main factors for the succession of worker suicides. Another possible reason is about wages. The wages, conditions, and labor management in the Taiwanese electronics industry is so harsh in factories located in China, because they have to compete (in price) with other OEM factories to obtain orders from multinational brand companies such as Apple, HP, Dell and other European companies. Taiwanese companies thus further reduce the wages of workers in China and also poor working conditions. For example, the global sales price of Apple's iPad, is \$499 each, of which Apple earns about \$297, more than 50% of the total price. Apple paid to its OEM firm about 11 U.S. dollars each, accounting for 2.3% of the total price. Thus, improving the working and living environment and paying more is a CSR issue that all factories in Taiwan and China need to face.

¹⁰ If firm's engaging in CSR is an endogenously determined by other variables such as size, profitability, liquidity and corporate governance factors (Khaled, Mohamed and Marwa, 2011), estimating the effects of CSR on analyst's recommendation without controlling for those determinants might contaminate the expected casual effect of CSR on recommendation.

The organization of this paper is as followed. Section 2 describes variables, data and econometric model. Section 3 reports empirical results. The last section concludes the paper.

2. Variables and Econometric Model

2.1 Measure of Corporate Social Responsibility

The international development of CSR measurement lacks a broad coverage for all listed firms in Taiwan. Fortunately, domestically, annually and wide-range investigations on CSR performance of all TWSE-listed companies were made by two domestic leading business magazine, the *Global Views Monthly (GVM)* and the *Common Wealth*.¹¹ By referring to the Germany social responsibility research institution, OEKOM, the *GVM* evaluates TWSW-listed firms three social performance dimensions, community participation, environmental protection and financial transparency as a firm's CSR engagement. The *GVM* constructed a questionnaire about the engagement and effectuation of the above three dimensions, and computed total scores based on respondents' replies. They ranked companies according to a company's total score and conferred a "CSR-Award" to companies with scores that are relatively superior to others.

By referring to the UN Programme, OECD, the U.S. Dow Jones Sustainability Index and other international indicators and evaluation methods, the *Common Wealth's* "Corporate Citizen" survey was started in 2007 to evaluate four fields of TWSE-listed firms' performance on CSR, namely, corporate governance, corporate commitment, social agenda participation and environmental protection. After hundreds of institutional analysts, accountants and academia screening and selection, "Best Corporate Citizens" is conferred to companies with relatively superior scores.¹²

¹¹ The websites are <http://www.gvm.com.tw/2014CSR/> and <http://issue.cw.com.tw/issue/csr/intro2.jsp>, respectively.

¹² Please refer to Wu and Shen (2013), Chang, Hsieh, Wang and Hsieh (2014) and Tsoutsourz (2004) for a brief summary of the development of CSR measures in the existing literature.

Because the *GVM* and *Common Wealth* keep the data of continuous rating scores private, the second best way of measuring CSR is through binary classification. Those who were conferred either by the *GVM*'s "CSR-Award" or the *Common Wealth*'s "Best Corporate Citizens" have superior performance on CSR and thus are defined as CSR-firms. The rest of the listed companies are then defined as non-CSR-firms. In econometric terminology, we measure a firm's performance on CSR by a dummy variable (*CSR_D*). *CSR_D* is equal to 1 if a given sample is classified as a CSR-firm, otherwise, *CSR_D* is equal to 0.

2.2 Analyst's Recommendation

Stock analyst's recommendation is the main predicted variable, and the data is collected from the Datastream I/B/E/S database, which contains the buy percent (*BUY*), hold percent (*HOLD*), sell percent (*SELL*), mean recommendation (*MEAN*), median recommendation (*MEDIAN*), and the number of recommendations (*NUMBER*).

Buy percent (*BUY*) is the percentage of analysts who recommend buying a given company's stock. More precisely, because there are several (at least one) recommendation rating for a company in a given period, some of them are buy recommendations, part of them are hold recommendations, and the rest are sell recommendations. Buy percent (*BUY*) is the ratio of the number of analyst recommendations that recommend buying a company to the total number of analyst recommendations (including recommend as buy, hold and sell) of that company at given period. Similarly, sell percent (*SELL*) is the ratio of the number of analyst recommendations that recommend selling a company to the total number of analyst recommendations of that company for a given period. Hold percent (*HOLD*) is the ratio of the number of recommendations that recommend holding a company to the total number of analyst recommendations of that company for a given period. Intuitively, the sum of *BUY*, *SELL* and *HOLD* is equal to one for a given company in a given period.¹³

¹³ Buy percent (*BUY*) is calculated as $[\#BUY / (\#BUY + \#HOLD + \#SELL)]$, where the sign "#" means the "the number of...". Similarly, sell percent (*SELL*) is calculated as $[\#SELL / (\#BUY + \#HOLD + \#SELL)]$ and hold percent (*HOLD*) is calculated as $[\#HOLD / (\#BUY + \#HOLD + \#SELL)]$. Thus, the sum of *BUY*, *HOLD* and *SELL* is equal to unit.

Mean recommendation (*MEAN*) is the arithmetic mean of all stock analyst recommendation scores for a specific company with a five-level scale ranging from 1~5; meaning that an investor should strongly buy, buy, hold, sell and strongly sell the stock for that company, respectively. Median recommendation (*MEDIAN*) is the median of all stock analyst recommendation scores. The number of recommendations (*NUMBER*) refers to the frequency of analyst recommendations for a given company and given period. One thing worth noting is that the original relationship between recommendation score (1, 2, 3, 4 and 5) and degree of recommendation favorableness (strongly buy, buy, hold, sell and strongly sell) is negatively correlated. To remove possible confusion, we switch the recommendation score by multiplying the original recommendation score by (-1) and then plus 6. Therefore, the score of a strong buy is equal to 5, and the score of buy is equal to 4, and etc. Recommendation score and degree of recommendation favorableness are positively correlated after this transformation.

2.3 Sample Selection

Our sample covers all listed companies on the TWSE (excluding financial firms prudentially regulated by the Taiwan government such as banks, insurance companies, security houses, and other financial institutions). With analyst recommendation omissions checked and de-listed firm adjustments, the final total number of companies in the sample is 546.

Financial and stock market performance data is collected from the Taiwan Economic Journal (TEJ) database, covering the period of 2005Q1 to 2012Q2. As mentioned before, data of a firm's performance on CSR are from two domestic leading business magazines, the *GVM* and the *Common Wealth*. Data for analyst recommendations is collected from the DataStream I/B/E/S (Institutional Brokers' Estimate System).

2.4 Econometric Model

Multiple regression analysis with least-square estimation is employed to examine the linkage between a firm's performance on CSR and analyst recommendations. The regression explanatory variable is analyst

recommendation, for which we employ six measures, namely, buy percent (*BUY*), sell percent (*SELL*), hold percent (*HOLD*), mean recommendation (*MEAN*), median recommendation (*MEDIAN*) and number of recommendation (*NUMBER*) as proxy variables.

The main explanatory variable is *CSR_D*, which is equal to 1 if a given sample belongs to CSR-firms; otherwise, it is equal to 0. In addition to *CSR_D*, existing studies have mentioned that several variables exert influences on the explained variable and thus should be incorporated as control variables in the regression estimation. Based on Ioannou and Serafeim (2010), we describe the justification of including several controls as following.

First, the price earnings ratio (*PE*), defined as the quarterly average of daily stock price divided by earnings per share at that quarter is included. Because a higher price earnings ratio implies that the company has a higher market expectation of higher future profitability growth, so analysts tend to issue more optimistic recommendations to that firm. Second, market to book ratio (*MTB*), defined as market value of common equity divided by book value of common equity is included. This ratio is also a market valuation of the future growth opportunity of firm. Analysts tend to issue favorable recommendations to firms with higher book to market ratios. Third, scale, proxied by the market value of firm (*MV*), computed as the natural logarithm of market capitalization, namely, average stock price multiplied by the number of shares outstanding is included. Because trading volume of a large company generates greater transaction fees, and this is one of the sources of income for a typical security house or investment bank, a larger company also has a higher and larger potential future investment banking business and that is also attractive for investment banks. Moshirian, Ng and Wu (2009) indicate that a larger company has a better investment environment, while a small company has relatively high operating costs, so investors may dislike investing in the stock of small company. A typical analyst tends to issue better recommendations to the firm with a large size. Fourth, quarterly excess stock returns, *ABR*, defined as quarterly stock return minus the quarterly stock return on the TWSE value-weighted index is included. If a company has excess returns, this means that the

performance is higher than expected, so the stock analyst tends to give better evaluations. Fifth, intangible assets, *INTANG*, controls for accounting-based growth opportunities. Sixth, return on assets, *ROA*, controls for an analyst's tendency of issuing more favorable recommendation to firms with good accounting performance.

Yu (2011) indicated that a firm's corporate governance and an analyst's recommendation are correlated. Yermack (1996) indicated that firms with a greater number on the board of directors tend to make decisions inefficiently; thus the relation between a company's board size and the value of the company is negative. A larger board size deteriorates firm performance, implying that the firm with a large board size tends to obtain adverse analyst recommendation ratings. Board size (*BOARD*), is defined as the number of board of directors. Second, existing research suggests that managerial shareholding (*MANHOLD*) has an impact on corporate performance, including the positive impacts by the convergence of interest hypothesis (Jensen and Meckling, 1976), the signaling hypothesis (Leland and Pyle, 1977), and negative impacts under the entrenchment hypothesis (Jensen and Ruback, 1983; Stulz, 1988). Managerial shareholding has an impact on an analyst's recommendation vis-a-vis its impacts on corporate performance. Managerial shareholding is defined as the number of shares held by managers (including the CEO) divided by the total number of shares outstanding.

Third, similarly, based on existing research, a company's director shareholding pledge ratio (*PLEDGE*) is correlated with corporate performance. A director's shareholding pledge ratio is defined as the number of shares pledged by a director divided by the total number of shares held by that director. For a company, the director's shareholding pledge ratio is the average pledge ratio among all directors. Based on existing literature, under the view of the convergence of interest hypothesis (Jensen and Meckling, 1976), because the value of pledged stock is higher when a firm's corporate performance rises, directors have greater incentive to monitor the management of the company and thus foster a company's operating performance. However, under the view of the entrenchment hypothesis (Jensen and Ruback, 1983; Stulz, 1988), a director also

has incentives to inappropriately exploit the firm's resources at the expense of minority shareholders to maintain the company's share price and worsen the long-term stability of financial health. Thus, director's shareholding pledge ratio has an impact on analyst recommendation vis-a-vis its impacts on corporate performance. Fourth, a firm's institutional shareholding (*INSTHOLD*) is defined as the number of shares held by institutions (including domestic financial institutions, foreign financial institutions, domestic trust funds and offshore trust funds) divided by total number of shares outstanding. Under the view of the efficient monitoring hypothesis, because institutional investors have more of a stake than minority stockholders, better professional capability and richer information enable institutional investors to have a more efficient way of supervising management. Conversely, the conflict of interest hypothesis expects that institutional investors may have their own interests, which might be in conflict with the interests of other shareholders, thus hampering the overall value of the company. The strategic alliance hypothesis expects that institutional investors might maintain an alliance with the incumbent management, and neglect playing an effective monitoring of the management, thus the performance is deteriorates. Therefore, institutional investor shareholding has an impact on analyst recommendations vis-a-vis its impact on corporate performance.

Cagwin and Bouwman (2002) and Ittner, Lanen and Larcker (2002) indicate that different industries have different competitive environments and profitability, and this industry differences influence analysts recommendations. Therefore, in this paper we set up 17 industry dummies (samples are ranged from 18 industries) to control industry effects on analyst's recommendation. Similarly, the overall macroeconomic condition may be different from year to year, so the company's operating performance and risk will also be affected by different macro conditions (Jones and Kato, 1995), so we set 29 quarterly dummies (sample period covering 2005Q1~2012Q2, 30 quarters) to control for macroeconomic effects on analyst's recommendation. Mnemonics and definition of all variables interested are summarized and reported in Table 2.

When running the regression, three types of model specifications are employed. Specification (1), CSR dummy (CSR_D) and 6 firm's characteristic variables, PE , MV , MTB , ABR , $INTAGE$ and ROA are included in the model. Specification (2), in addition to 7 variables in previous specification, 4 corporate governance variables, $MANHOLD$, $PLEDGE$, $BOARD$ and $INSTHOLD$ are incorporated into the model. Specification (3), in addition to 11 variables in specification (2), 29 quarter dummies ($QUARTER_D$) and 17 industry dummies ($INDUSTRY_D$) are further added. The hierarchical pooled estimation of multiple regression equations is as followed:¹⁴

$$\begin{aligned} \text{Analyst Recommendation}_{i,t} = & \beta_0 + \beta_1 CSR_D_{i,t} + \beta_2 PE_{i,t} + \beta_3 MV_{i,t} + \beta_4 MTB_{i,t} \\ & + \beta_5 ABR_{i,t} + \beta_6 INTANG_{i,t} + \beta_7 ROA_{i,t} + \varepsilon_{i,t} \end{aligned}$$

$$\begin{aligned} \text{Analyst Recommendation}_{i,t} = & \beta_0 + \beta_1 CSR_D_{i,t} + \beta_2 PE_{i,t} + \beta_3 MV_{i,t} + \beta_4 MTB_{i,t} \\ & + \beta_5 ABR_{i,t} + \beta_6 INTANG_{i,t} + \beta_7 ROA_{i,t} \\ & + \beta_8 MANHOLD_{i,t} + \beta_9 PLEDGE_{i,t} + \beta_{10} BOARD_{i,t} + \beta_{11} INSTHOLD_{i,t} + \varepsilon_{i,t} \end{aligned}$$

$$\begin{aligned} \text{Analyst Recommendation}_{i,t} = & \beta_0 + \beta_1 CSR_D_{i,t} + \beta_2 PE_{i,t} + \beta_3 MV_{i,t} + \beta_4 MTB_{i,t} \\ & + \beta_5 ABR_{i,t} + \beta_6 INTANG_{i,t} + \beta_7 ROA_{i,t} \\ & + \beta_8 MANHOLD_{i,t} + \beta_9 PLEDGE_{i,t} + \beta_{10} BOARD_{i,t} + \beta_{11} INSTHOLD_{i,t} \\ & + \gamma INDUSTRY_D_{i,t} + \delta QUARTER_D_{i,t} + \varepsilon_{i,t} \end{aligned}$$

One thing worth noting is that there is a recent challenge for empirical researchers called the self-selection (of being a CSR-firm) problem. Specifically, a company's devoting resources to CSR might be an endogenously self-selection process. In fact, based on existing studies, there are relevant factors determining a firm's devotion to CSR, such as firm size, profitability, liquidity and corporate governance factors (Khaled, Mohamed and Marwa, 2011). Estimating the effects of CSR on an analyst's recommendation without controlling for self-selection factors might contaminate the expected casual effect of CSR on analysts recommendations. Therefore, we employ a two-stage procedure proposed by Heckman (1979) to address this issue. The first stage is a probability model determining if a sample belongs to CSR-firm or nonCSR-firm, where explanatory variables are last-period natural log of total assets (L_ASSET), last-

¹⁴ Fixed effect or random effect estimation is not considered here.

period debt ratio (L_DEBT) and last-period natural log of after-tax profits (L_PROFIT). The second stage then adds an inverse Mill's ratio to performance evaluation regression equation.¹⁵

3. Empirical Results

3.1 Descriptive Statistics

Based on full samples, samples with CSR-firm versus nonCSR-firms, Table 3 reports descriptive statistics of variables. First, we observe that the percentages of analyst recommendations as *BUY*, *HOLD* and *SELL* between CSR-firms versus nonCSR-firms are not substantially different from each other. Mean buy percentage, hold percentage and sell percentage for CSR-firm are 50.778%, 36.351% and 12.869%, respectively whereas mean buy percentage, hold percentage and sell percentage for nonCSR-firm are 50.899%, 38.846% and 10.251%. Second, the average mean and median recommendation scores are similar between CSR-firms and nonCSR-firms; however, the average mean and median score of CSR-firms (3.5715 and 3.5552) are lower than the average mean and median score (3.6496 and 3.6587) of non-CSR-firms, meaning that analysts tend to issue less favorable recommendation to CSR-firms. Third, the lowest mean and median recommendation score for CSR-firms is 1.5, and the lowest mean and median recommendation score for nonCSR-firms is 1, meaning that analysts have never given a strong sell to CSR-firms during the sample period. Fourth, the mean frequency of analyst recommendations for CSR-firms and nonCSR-firms are 11.489 and 5.2005, respectively, implying that CSR-firms received more analyst recommendation attention.

Table 4 reports pair-wise correlation coefficients among the interested variables. We observe that first, the correlation coefficient between CSR_D and *BUY* is -0.0009 but insignificant. The correlation coefficient between CSR_D and *HOLD* (*SELL*) is -0.0207 (0.0358) and significant, meaning that the CSR-firm tends to have a smaller percentage of analysts who recommended investors to hold the stocks of CSR-firms and a greater percentage of analysts who

¹⁵ Çolak and Whited (2007) and Shen and Chang (2009) provide guides of other methods of mitigating self-selection bias.

recommended investors to sell the stock of CSR-firms. Second, correlation coefficients between *CSR_D*, *MEAN*, *MEDIAN* and *NUMBER* are -0.0278, -0.0344 and 0.2808 and all of these are significant, meaning that CSR-firm has a lower mean and median recommendation score but receives greater attention by analysts.

3.2 Regression Analysis

3.2.1 Full Sample Analysis

Table 5 reports pooled estimation results of the regression equation, which relates a firm's analyst recommendation to the CSR dummy and several control variables. Some interesting findings of Panel A are: first, when the regression explained variable is analyst buy percentage (*BUY*), under three model specifications, the estimated coefficients of CSR dummy (0.058, -0.3483 and -1.1296) are all insignificantly different from zero, meaning that firms engaging in CSR are not associated with the percentage of recommendation as buying the stock. Second, when the explained variable is hold percentage (*HOLD*), the estimated coefficients of the CSR dummy are all positive (1.3239, 1.7577 and 3.4477) and two of three are statistically significant, indicating that a relatively greater percentage of analysts recommend investors to hold a CSR-firm's stock. Third, when the explained variable is sell percentage (*SELL*), all of the estimated coefficients of the CSR dummy are negative (-1.3793, -1.4048 and -2.3132) and are significant, meaning that a relatively lower percentage of analysts recommend investors to sell a CSR-firm's stock. Analysts tend to recommend investors to hold the stock of CSR-firms, and a lower percentage of analysts encourage investors to buy and sell the stock of CSR-firms.

When we observe Panel B, first, when the regression explained variable is the mean recommendation score (*MEAN*) and median recommendation score (*MEDIAN*), six estimated coefficients of CSR dummy are all insignificantly different from zero, meaning that on average, analysts did not issue favorable recommendation scores to CSR-firms. Second, when the explained variable is the number of recommendations (*NUMBER*), all estimated coefficients of CSR

dummy are negative, and one of three is significant (-0.3458), meaning that on average, firms engaging in CSR are associated with a lower frequency of analyst recommendations, yet the evidence is relatively weak.

To sum up the above regression analysis, a relatively greater percentage of analysts recommend investors to hold the stocks of CSR-firms, and a relatively lower percentage of analysts recommend investors to sell (and buy) the stocks of CSR-firms. CSR-firms tend to be more cherished by analysts. However, a CSR-firm indeed has no superior recommendation score than nonCSR-firms. Why do analysts recommend that investors hold and not sell the stocks of CSR-firms and still issue a similar recommendation score compared to nonCSR-firms? One possible reason is that, while the benefit and cost of engaging in CSR is not fully reflected as being as relevant and concrete feedback as accounting records and corporate performance, analysts have to give similar scores to both types of firms. However, because analysts comprehend that a firm in most cases has redundant resources to engage in CSR, analysts perceive a firm's benevolent actions as a proxy for financial abundance, just like a firm's cash dividends signal management's confidence in the future. Therefore, analysts tend to interpret a firm's engaging in CSR as a positive signal. That's also why a higher percentage of recommendations are for investors to hold the stock of CSR-firms, instead of buying and selling.

3.2.2 Sample Splitting High-growth versus Non-High-Growth Firms

Russo and Fouts (1997) indicated that industrial growth positively moderates the influence of social performance on a firm's economic performance. First, industrial growth accelerates the maturation of a technology, which rapidly reduces the levels of risk inherent in investing in a long-lived technology at its emergent point. A firm adopting a pollution prevention policy, although it incurs some risk, has a potential higher prospective return in a high-growth industry. Rapid turnover of technology in high-growth industries may also promote the learning-based organizational spillovers. Second, for high-growth industries, one would expect more organic structures to be in place, a situation that would facilitate pollution prevention efforts. An organic structure

may also allow a firm that has more unabsorbed slack (Singh, 1986) to invest in environmental improvement. Third, as Fombrun and Shanley (1990) described, the cumulative investment that firms consistently make in different domains over a long period of time are more likely to influence the cognitive interpretation of stakeholders. An initial reputation is partly a matter of firm choice (for instance, trying to be known for being green versus being known for customer service), and that once initial reputation is established, it is difficult to change. Therefore, when a company is in a growing industry, investment in the environmental improvement is going to get larger returns. Therefore, we divide full samples into high-growth firms versus non-high-growth ones and examine whether the magnitude and direction of CSR effects on analyst's recommendation are identical between sub-samples.¹⁶

Based on the high-growth samples, Table 6 reports estimation results of regressions relating to a firm's analyst recommendation to the CSR dummy and control variables. In Panel A, we observe that, first, when the explained variable is buy percentage (*BUY*), regardless of which model specification is used, estimated coefficients of the CSR dummy are all significantly negative (-3.689, -3.7224 and -2.5553), meaning that there is a small proportion of analysts that recommend investors to buy stocks of CSR-firms. Second, when the explained variable is hold percentage (*HOLD*), the estimated coefficients of the CSR dummy are all significantly positive (8.302, 8.3792 and 8.1634), representing that relatively more analysts recommend to investors to hold CSR-firm's stock. Third, when the explained variable is sell percentage (*SELL*), estimated coefficients of the CSR dummy are all significantly negative (-4.6123, -4.6568 and -5.6082), meaning that there is a small proportion of analysts that recommend investors to sell stocks of CSR-firms. Similarly as before, because analysts cannot identify the benefit and cost of engaging in CSR as a concrete contribution to financial performance of the firm, but know that those firms that have sufficient financial resources are more likely to be socially responsible, this

¹⁶ The past five year annual sales growth rate of firm within high-tech industries in Taiwan is 86.49%, and annual sales growth rate of firms within non-high-tech industries is only 12.58%. We divided our full sample into a high-growth firm sample versus non-high-growth firm samples based on whether a given firm belongs to a high-tech industry. By running the same regression equation for two groups of samples, we observe whether estimated coefficients of key variable (*CSR_D*) are different between the two samples. We can also set a cross product term of *CSR_D* and sales growth to examine the moderating effects of sales growth on the linkage between CSR on analyst recommendations. Estimation results are similar for both methods.

forms a positive signal for a company's soundness. Thus, analysts tend to recommend to investors to hold the stocks instead of to buy and sell them. Analysts interpret high-growth firms engaged in CSR on financial performance as a positive signal rather than concrete positive (and negative) effects on firm performance.

In Panel B of Table 6, we also observe that when the explained variable is the mean recommendation score (*MEAN*), no matter which model specification is used, the estimated coefficients of the CSR dummy are all insignificant, meaning that CSR-firms have similar mean recommendation scores to nonCSR-firms. When the explained variable is the median recommendation score (*MEDIAN*), a similar result is obtained. Yet, when the explained variable is the number of recommendations (*NUMBER*), three estimated coefficients of the CSR dummy are all significantly negative (-1.1869, -1.1648 and -1.2782), meaning that the analyst tends to pay less attention to CSR-firms in the high-growth industries. As before mentioned, analysts tend to recommend investors to hold CSR-firms, meaning that although the feedback of firms engaging in CSR is not very evident, yet it still deserves to await its realization. Because CSR-firms in high-growth industries enjoy a higher growth potential, analysts wish investors to hold the stock, and therefore pay less attention to these and do not issue recommendations to high-growth-companies frequently.

Based on non-high-growth samples, Table 7 shows the estimation results of the regression relating to a firm's analyst recommendation to CSR dummy and control factors. We observe Panel A and find that, first, because coefficients of the CSR dummy are all insignificant when *BUY* and *SELL* are employed as explained variables, this means that analysts did not have any tendency of recommending investors to buy and sell the stocks of CSR-firms. Second, when the explained variable is *HOLD*, the coefficients of the CSR dummy are all significantly negative (-4.6368, -4.2213 and -2.1446), meaning that a relatively lower percentage of analysts recommend investors to hold the stock of CSR-firms in non-high-growth industries. In Panel B, while firms engaging in CSR is not associated with higher mean and median recommendation scores (all of the coefficients on the CSR dummy are insignificant), firms engaging in CSR is

indeed positively correlated with frequency of analyst recommendations, meaning that analysts tend to pay more attention to CSR-firms in non-high-growth industries, yet issue indifferent scores versus non-CSR-firms.

The above result is very interesting when we compare the evidence of Table 7 with Table 6. First, we find that there is no higher percentage of analyst recommendation for buy or sell the stocks of CSR-firms in both industries. However, a higher percentage of analyst recommendations wish investors to hold CSR-firms in high-growth industries and less analysts wish investors to hold CSR-firms in non-high-growth industries. A possible reason behind the divergence is that, while the feedback of firms engaging in CSR is not very evident, yet analysts have a higher tendency of waiting its realization if that CSR-firm is in the high-growth industry and have a lower tendency of waiting for CSR-firms in the non-high-growth industry, probably because analysts believe that the feedback of CSR is larger in high-growth, but not in the non-high-growth industry, consistent with the view proposed by Russo and Fouts (1997). Thus, our evidence supports the view that industrial growth is a positive moderator between CSR and its feedback on a firm's economic outcomes.

Second, a CSR-firm obtains no superior performance in analyst mean and median recommendation scores in both industries; however, CSR-firms in non-high-growth industries tend to receive more attention by analysts and CSR-firm in high-growth industries receive less. A possible explanation is that analysts tend to recommend investors to hold stocks of CSR-firms in high-growth industries rather than in non-high-growth industries; thus analysts issue less frequent recommendations to the former and wish the investor to "stand by a tree stump waiting for a hare." On the other hand, analysts issue more frequent recommendations to investors and wish them to track their buying, holding and selling decisions more frequently for stocks of CSR-firms in the non-high-growth industry.

3.2.3 Two-stage Estimation

Based on existing studies such as Khaled, Mohamed and Marwa (2011), there are several relevant factors which determine a firm's devotion to CSR, for example, firm size, profitability, liquidity and corporate governance factors. Estimating the effects of CSR on analyst recommendations without controlling these factors might contaminate the expected casual effect of CSR on analysts recommendations. We employ a two-stage procedure suggested by Heckman (1979) to alleviate this concern. Table 8 reports two-stage estimation results of effects of CSR on an analyst's recommendation. In Panel A, the results of the first stage show estimated coefficients of three explanatory variables to all be significant. Evidence shows that firms with larger last-period assets (0.4647), better last-period profitability (0.0194) and lower last-period debt ratio (-0.1735) tend to be CSR-firms. After controlling for self-selection factors, estimation results of the second stage show that, no matter which model specification is employed, when explained variables are *BUY* and *SELL*, all of the estimated coefficients of the CSR dummy are negative, and 4 of 6 coefficients are statistically significant. When the explained variable is *HOLD*, 3 estimated coefficients of the CSR dummy are all significantly positive (33.265, 35.871 and 27.742). This means that, after controlling for self-selection factors, a relatively greater percentage of analysts recommend investors to hold instead of buy and sell the stock of CSR-firms.

In Panel B of Table 8, we also observe that when explained variables are *MEAN* or *MEDIAN*, 6 estimated coefficients of the CSR dummy are positive and half of them are significantly different from zero, suggesting that analysts tend to issue more favorable recommendation scores to CSR-firms. When the explained variable is *NUMBER*, regardless of which model specification is employed, all coefficients of the CSR dummy are significantly positive, indicating that analysts issue recommendations to CSR-firms more frequently. After controlling for firm size, profitability and financial risk, analysts give more favorable scores to CSR-firms and also pay more recommendation attention to them.

To sum up,¹⁷ first, the full sample results show that a relatively lower percentage of analysts recommend investors to buy and sell CSR-firms, and more analysts suggest investors to hold. Analysts also issue less frequent recommendations and no superior recommendation score to CSR-firms. Second, while we split out samples into high-growth versus non-high-growth samples, evidence shows that a greater percentage of analysts recommend investors to hold CSR-firms in the high-growth industry yet less analysts recommend investors to hold CSR-firm in the non-high-growth industry. Combined with the previous point, while there is a tendency of favorableness for CSR-firms by analysts, this favorableness is conditional on whether a CSR-firm is in the high-growth industry or not. Analysts tend to favor CSR-firms in the high-growth but not in the non-high-growth industry. Third, while CSR-firms have no superior performance in the mean and median recommendation score in both industries, CSR-firms in the high-growth industry tend to receive lower analyst attention than CSR-firms in the non-high-growth industry. Combined with the evidence that more analysts wish investors to hold CSR-firms in the high-growth industry and less analysts wish investors to hold CSR-firms in the non-high-growth industry, analysts issue more recommendations and pay more attention to CSR-firms in the non-high-growth industry, because a relatively lower rate of growth might have a smaller performance feedback of CSR activities. Higher frequent recommendations to these firms remind investors to be cautious on their investment behavior. Fourth, after controlling self-selection factors, CSR-firms have superior performance in recommendation score and receive a higher frequency of recommendations. Analysts tend to issue favorable recommendation to CSR-firms and also pay more attention to them.

4. Conclusion

Most of the existing empirical studies discuss the relationship between CSR and ultimate economic outcomes (corporate performance or market value) of companies; yet seldom discuss the mechanism between them. The potential channel through CSR towards firm performance thus should be better clarified.

¹⁷ All of regression estimations have good model fitness, where their F-test statistics of goodness of fit are all significant.

In the view of finance, stock analysts act as intermediaries between firms' relevant information and investors, providing investors with investigation and validity through recommendations about whether a firm's CSR activities are value-enhancing or instead value-destroying. If CSR is perceived by an analyst as value-enhancing, then favorable recommendations tend to be issued and this favorableness also pushes demand for a firm's stock and thus increases its market value. Based on data of listed companies in Taiwan, this paper exploits and examines whether firms engaging in CSR are associated with favorable or adverse analyst recommendations, in terms of how an investment analyst, an important capital markets participant, values firms engaging in CSR.

Based on quarterly data of TWSE-listed firms ranging from 2005Q1~2012Q2, the general findings are first, although a firm devoted to CSR activities was not receiving a better recommendation score, CSR-firms tend to obtain a higher percentage of recommendations for holding the stock. Second, sales growth does matter for the relationship between CSR and analyst recommendations. While the full sample results show that CSR-firms tend to receive lower recommendation frequency, CSR-firms in the high-growth industry do receive a higher percentage of hold recommendations and lower frequency. CSR-firms in the non-high-growth industry do receive a lower percentage of hold recommendation and higher recommendation frequency. Third, after controlling for size, profitability and financial risks of firms to mitigate self-selection bias, CSR-firms have superior performance in recommendation score and receive more analyst recommendation attention. Generally, from the perspective of a stock analyst's recommendation, CSR-firms are more favorable than nonCSR-firms, and CSR-firms in high-growth industry are even better.

The principal outcome of this study encourages management to devote more resources to CSR activities for the sake of obtaining favorable analyst recommendations. Other things being equal, favorable recommendations increase the intensity of demand order for a company's stock and thus push up the market value of the firm. More and more financial analysts take into account a firm's sustainability strategies, and a firm's CSR engagement also gradually

has become a concerned focus for analysts instead of superficial accounting performance. Based on this study, management should comprehend that benevolent actions can both contribute to society and benefit a firm by helping it to obtain a more favorable analyst recommendation and thus potentially promote firm value. Firms with poor performance on CSR in the past could also put greater resources into CSR activities as doing so may improve analysts' favorableness on their recommendations, both of which are advantageous to a company's stockholders and stakeholders.

As a potential limitation and consideration for future research, first, our samples come from TWSE-listed companies with larger size, so the statistical inference is limited to large companies. Second, employing a CSR dummy is somewhat arbitrary, so a continuous and comprehensive measurement of CSR could be used in further analysis (Wu and Shen, 2013). Third, Çolak and Whited (2007) provide several methods to address the issue of endogeneity and self-selection for the main concerned variable, so two-stage estimation may be insufficient. Fourth, how analyst characteristics (such as analyst preference toward the CSR issue) affect analyst perceptions and evaluation of firms engaging in CSR and thus affect their recommendations, is an area that could be further discussed and checked. Finally, the subsequent stock market performance and operating consequences of firms with different degrees of analyst recommendations could be tracked and studied to address possible conflict of interest problems, such as Shen and Chih (2009) addressed.

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Table 1 Name-list of CSR-firms (2005~2012)

2005				
Lite-On Tech. Co.	TSMC	Delta Electronics	Accton	Taiwan Mobile Co.
President Chain Store Co.	China Motor Co.			
2006				
TSMC	AU Optronics Co.	Lite-On Tech. Co.	Delta Electronics	Advantech
WahLee Industrial Co.	President Chain Store Co.	Sinyi Real ty Inc	China Airlines	China Motor Co.
Yulon-Nissan Motor Co	Uni-President Enterprises			
2007				
TSMC	Taiwan Cement Co.	Uni-President Enterprises	China Steel Co.	Everlight Chemical
FENC	Tainan Enterprises Co	YULON Motor Co.	Yulon-Nissan Motor Co	Hotai Motor
Hiwin Technologies Co.	UMC	Lite-On Tech. Co.	China Motor Co.	CHIMEI
Advantech	Delta Electronics	synnex	Taiwan Mobile Co.	MediaTek
AU Optronics Co	Chunghwa Telecom	avermedia	Walton Adv. En. Inc.	EVAair
Evergreen	YangMing Transport Co.	CTCI Co.	China Airlines	
President Chain Store Co.	Sinyi Real ty Inc	ATEN International Co.		
2008				
TSMC	Uni-President Enterprises	Formosa Plastics Group	Taiwan Mobile Co.	FENC
Makalot Ind. Co.	TECO Elec. & Mach. Co.	Alpha Network	Everlight Chemical	China Steel Co.
Hiwin Technologies Co.	CHIMEI	YULON Motor Co.	China Motor Co.	Hotai Motor
ZyXEL Commu. Co.	Lite-On Tech. Co.	UMC	Delta Electronics	Far Eastone Tele Co.
Compal Electronics, Inc.	Siliconware Precision Co.	Inventec	Walton Adv. En. Inc.	Quanta Computer Inc.
Advantech	AU Optronics Co	Pou Chen Co.	Chunghwa Telecom	Avermedia
MediaTek	CTCI Co.	YangMing Transport Co.	President Chain Store Co.	Sinyi Real ty Inc
YangMing Transport Co.	President Chain Store Co.	Holy Stone		
2009				
TSMC	Taiwan Cement Co.	Uni-President Enterprises	MediaTek	Formosa Plastics Group
FENC	Makalot Ind. Co.	Taiwan Mobile Co.	TECO Elec. & Mach. Co.	Everlight Chemical
Cheng Loong Co.	Alpha Network	China Steel Co.	Hiwin Technologies Co.	Hotai Motor
ZyXEL Commu. Co.	YULON Motor Co.	Lite-On Tech. Co.	Delta Electronics	Far Eastone Tele Co.
Macronix Int.Co.	Inventec	ASUS	ATEN International Co.	Micro Star Int'l Co.
Quanta Computer Inc.	Advantech	Pou Chen Co.	AU Optronics Co	Chunghwa Telecom
Avermedia	CTCI Co.	YangMing Transport Co.	President Chain Store Co.	Sinyi Real ty Inc
2010				
TSMC	Uni-President Enterprises	Formosa Plastics Group	Taiwan Mobile Co.	FENC
Tainan Enterprises Co	Everlight Chemical	Wistron. Co.	Cheng Loong Co.	China Steel Co.
Hiwin Technologies Co.	Far Eastone Tele Co.	YULON Motor Co.	China Motor Co.	Hotai Motor
ATEN International Co.	Yulon-Nissan Motor Co	Lite-On Tech. Co.	Delta Electronics	Inventec Besta
Compal Electronics, Inc.	Macronix Int.Co.	Inventec	China Hi-Ment Co.	ASUS
Micro Star Int'l Co.	Quanta Computer Inc.	CTCI Co.	Advantech	Chunghwa Telecom
Avermedia	Sinyi Real ty Inc	MediaTek	President Chain Store Co.	TXC. Co.
2011				
TSMC	FENC	Makalot Ind. Co.	Taiwan Mobile Co.	Shihlin Electric
CMP Group. Inc.	Everlight Chemical	Far Eastone Tele Co.	Cheng Loong Co.	China Steel Co.
Hiwin Technologies Co.	Wistron. Co.	TSRC Co.	YULON Motor Co.	Hotai Motor
Inventec Besta	Lite-On Tech. Co.	UMC	Delta Electronics	Feng Tay Enterprises Co.
ASE Group	Compal Electronics, Inc.	Macronix Int.Co.	China Hi-Ment Co.	ASUS
Micro Star Int'l Co.	Chunghwa Telecom	CTCI Co.	Avermedia	MERRY Electronics. Co.
President Chain Store Co.	Sinyi Real ty Inc	TXC. Co.		
2012				
TSMC	Delta Electronics	Lite-On Tech. Co.	Taiwan Mobile Co.	Chunghwa Telecom
TECO Elec. & Mach. Co.	UMC	Macronix Int.Co.	Advantech	President Chain Store Co.
Compal Electronics, Inc.	ASUS	Wistron. Co.	Micro Star Int'l Co.	YULON Motor Co.
Hiwin Technologies Co.	Shihlin Electric	Far Eastone Tele Co.	China Motor Co.	Makalot Ind. Co.
Hotai Motor	Wowprime	Yungching	Sinyi Real ty Inc	

Note:

This table reports name list of firms which is either conferred "CSR-Award" by the *Global Views Monthly* or "Best Corporate Citizens" by the *Common Wealth*. Financial institutions are excluded.

Table 2 Mnemonics and Definition of Variables

Variable	Definition
BUY	The number of analysts who recommend buy (including strongly buy) to the total number of analysts which issue recommendation rating to a given company at a given period
HOLD	The number of analysts who recommend hold to the total number of analysts which issue recommendation rating to a given company at a given period
SELL	The number of analysts who recommend sell (including strongly sell) to the total number of analysts which issue recommendation rating to a given company at a given period
MEAN	The arithmetic mean of all analyst recommendation ratings for a given company at a given period. Ratings are ranging from 1-5, represent that analyst recommend investor to strongly buy, buy, hold, sell and strongly sell
MEDIAN	The median of all analyst recommendation ratings for a given company at a given period
NUMBER	The frequency of recommendations for a given company at a given period
CSR_D	A dichotomous variable which equal to 1 if firm is either a winner of "CSR Award" of the <i>Global Views Monthly</i> or "Best Corporate Citizens" of the <i>Common Wealth</i> , otherwise, it is equal to 0
PE	Price-earnings ratio, the average of daily stock price at given quarter divided by earnings per share at that quarter
MV	Natural logarithm of market value of common equity
MTB	Market value of equity divided by book value of common equity
ABR	Quarterly stock return for the company minus the quarterly stock return of the TWSE-value-weighted index
INTANG	Intangible assets, defined as the sum of good well, deferred pension cost, land use rights and other intangible assets.
ROA	Returns on assets, defined as after-tax income divided by total assets
MANHOLD	The number of shares hold by managers (including CEO) divided by total number of shares outstanding
PLEDGE	The average number of shares pledged by directors divided by average number of shares hold by all directors
BOARD	Total number of directors
INSTHOLD	The number of shares hold by institutions (including domestic financial institutions, foreign financial Institutions, domestic trust funds and offshore trust funds) divided by total number of shares outstanding
L_ASSET	Last-period natural log of total assets
L_DEBT	Last-period debt ratio, total debt divided by total equity
L_PROFIT	Last-period natural log of after-tax net profit

Note:

All definitions of variables are from the Taiwan Economic Journal (TEJ), Datastream I/B/E/S, the *Global Views Monthly* and the *Common Wealth*.

Table 3 Descriptive Statistics

Variable	Full Samples				Samples with CSR-firm				Samples with NonCSR-firm			
	Mean	Std.dev	Min	Max	Mean	Std.dev	Min	Max	Mean	Std.dev	Min	Max
<i>BUY</i>	50886	35426	00000	10000	50778	26619	00000	10000	50899	36103	00000	10000
<i>HOLD</i>	38644	32921	00000	10000	36351	22095	00000	10000	38846	33701	00000	10000
<i>SELL</i>	10463	19922	00000	10000	12869	16544	00000	10000	10251	20180	00000	10000
<i>MEAN</i>	36432	07693	10000	50000	35715	05826	15000	50000	36496	07833	10000	50000
<i>MEDIAN</i>	36503	08195	10000	50000	35552	06528	15000	50000	36587	08321	10000	50000
<i>NUMBER</i>	57093	61070	10000	36330	11489	75432	10000	33667	52005	56899	10000	36333
<i>CSR_D</i>	00492	02163	00000	10000	10000	00000	10000	10000	00000	00000	00000	00000
<i>PE</i>	29470	13887	18300	686020	21850	55603	25900	11901	29957	14254	18300	68602
<i>MV</i>	91053	13467	46800	14600	11056	14971	71877	14604	89925	12475	46821	14256
<i>MTB</i>	18859	15047	00500	30200	23080	16557	02800	19090	18616	14911	00500	30200
<i>ABR</i>	30764	21152	-70600	38794	27414	14983	-38324	95966	30958	21455	-70603	38793
<i>INTANG</i>	206551	1251755	00000	20512691	1537120	3750638	00000	20512691	130709	865248	00000	18576517
<i>ROA</i>	27085	28387	-36170	31500	35720	25352	-51300	13540	26993	28473	-36170	31500
<i>MANHOLD</i>	10175	20809	00000	23010	05142	07944	00000	60500	10456	20749	00000	23010
<i>PLEDGE</i>	10569	18156	00000	99800	105700	18416	00000	90100	10568	18142	00000	99800
<i>BOARD</i>	73053	24319	20000	21000	91240	32704	40000	21000	72085	23349	20000	21000
<i>INSTHOLD</i>	43050	23070	00000	10000	64312	22689	58500	97970	41843	22507	00000	10000

Note:

This table reports basic descriptive statistics (mean, standard deviation, minimum and maximum) for variables. See Table 2 for the definition of variables. Quarterly data, ranged from 2005Q1 to 2012Q2.

Table 4 Correlation Matrix

Variable	<i>BUY</i>	<i>HOLD</i>	<i>SELL</i>	<i>MEAN</i>	<i>MEDIAN</i>	<i>NUMBER</i>	<i>CSR_D</i>	<i>PE</i>	<i>MV</i>	<i>MTB</i>	<i>ABR</i>	<i>INTANG</i>	<i>ROA</i>	<i>MANHOLD</i>	<i>PLEDGE</i>	<i>BOARD</i>	<i>INSTHOLD</i>
<i>BUY</i>	1.0000																
<i>HOLD</i>	-0.8325*	1.0000															
<i>SELL</i>	-0.4026*	-0.1719*	1.0000														
<i>MEAN</i>	0.8838*	-0.5452*	-0.6708*	1.0000													
<i>MEDIAN</i>	0.8663*	-0.5554*	-0.6228*	0.9647*	1.0000												
<i>NUMBER</i>	-0.0371*	-0.0737*	0.1879*	-0.1199*	-0.1272*	1.0000											
<i>CSR_D</i>	-0.0009	-0.0207*	0.0358*	-0.0278*	-0.0344*	0.2808*	1.0000										
<i>PE</i>	0.0009	-0.0172	0.0282*	-0.0119	-0.0138	-0.0080	-0.0139	1.0000									
<i>MV</i>	0.0027	-0.0987*	0.1582*	-0.0797*	-0.0864*	0.7602*	0.3483*	-0.0090	1.0000								
<i>MTB</i>	0.1480*	-0.1319*	-0.0453*	0.1247*	0.1123*	0.1814*	0.0669*	0.0066	0.3162*	1.0000							
<i>ABR</i>	0.1041*	-0.0727*	-0.0650*	0.1100*	0.1074*	-0.0382*	-0.0038	0.0281*	0.0504*	0.2321*	1.0000						
<i>INTANG</i>	-0.0133	-0.0195	0.0557*	-0.0410*	-0.0470*	0.3419*	0.2538*	-0.0101	0.3208*	0.0238*	-0.0274*	1.0000					
<i>ROA</i>	0.2025*	-0.1142*	-0.1712*	0.2074*	0.2003*	0.1541*	0.0726*	-0.0664*	0.2495*	0.4761*	0.1681*	0.0569	1.0000				
<i>MANHOLD</i>	0.0228*	0.0238*	-0.0799*	0.0368*	0.0263*	-0.1469*	-0.0586*	-0.0106	-0.2087*	0.0213*	0.0176*	-0.0547	0.0345*	1.0000			
<i>PLEDGE</i>	0.0254*	0.0187*	-0.0286*	0.0315*	0.0359*	-0.0157	0.0000	0.0351*	0.0032	-0.1605*	-0.0207*	0.1162	-0.1176*	-0.0594*	1.0000		
<i>BOARD</i>	0.0169	-0.0555*	0.0616*	-0.0245*	-0.0245*	0.1866*	0.1769*	-0.0043	0.3250*	-0.0452*	-0.0165*	0.1169	-0.0084	-0.1433*	-0.0096	1.0000	
<i>INSTHOLD</i>	0.0355*	-0.0912*	0.0878*	-0.0129	-0.0161	0.4899	0.2183*	-0.0388*	0.5924*	0.2456*	0.0074	0.1941*	0.2354*	-0.1333*	-0.0320*	0.2668*	1.0000

Note:

This table reports pair-wise Pearson correlation coefficients among variables. See Table 2 for the definition of variables. Quarterly data, ranged from 2005Q1 to 2011Q2. Correlation coefficient followed by an asterisk means that it is at least 10% significantly different from zero.

Table 5 Regression Results of Effects of CSR on Analyst's Recommendation

Panel A. Explanatory Variables	Explained Variable								
	<i>BUY</i>			<i>HOLD</i>			<i>SELL</i>		
	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)
Constant	50.950*** (16.52)	48.732*** (14.88)	16.022** (2.12)	61.854*** (21.78)	60.591*** (20.27)	86.228*** (12.24)	-12.802*** (-7.45)	-9.3220*** (-5.27)	-2.1995 (-0.49)
<i>CSR_D</i>	0.0580 (0.05)	-0.3483 (-0.29)	-1.1296 (-0.93)	1.3239 (1.30)	1.7577* (1.71)	3.4477*** (3.11)	-1.3793* (-1.84)	-1.4048* (-1.92)	-2.3132*** (-3.31)
<i>PE</i>	0.0015 (0.48)	0.001 (0.5)	0.0008 (0.32)	-0.004** (-2.11)	-0.0045** (-2.15)	-0.0040** (-2.17)	0.0028 (1.56)	0.0029 (1.62)	0.0031** (1.98)
<i>MV</i>	-0.7970** (-2.52)	-1.4052*** (-3.7)	-1.0575*** (-2.64)	-1.9022*** (-6.70)	-0.9922*** (-2.89)	-1.5803*** (-4.27)	2.6986*** (14.80)	2.3992*** (11.09)	2.6378*** (12.25)
<i>MTB</i>	1.0424*** (4.15)	1.3824*** (5.35)	0.7686*** (2.91)	-1.1931 (-5.07)	-1.4270*** (-5.90)	-1.1290*** (-4.54)	0.1508 (1.06)	0.0440 (0.31)	0.3602** (2.56)
<i>ABR</i>	0.1454*** (3.23)	0.1420*** (3.16)	-0.1395 (-0.38)	-0.1107*** (-2.61)	-0.1054** (-2.49)	0.16446 (0.46)	-0.0344 (-1.36)	-0.0362 (-1.44)	-0.0253 (-0.15)
<i>INTANG</i>	0.0000 (-1.43)	0.0000** (-2.37)	0.0000 (-1.37)	0.0000* (1.82)	0.0000** (2.26)	0.0000 (1.31)	0.0000 (-0.13)	0.0000 (0.64)	0.0000 (0.42)
<i>ROA</i>	1.9105*** (10.98)	1.9752*** (11.30)	1.9751*** (10.69)	-0.7773*** (-4.58)	-0.796*** (-4.56)	-0.7650*** (-4.3)	-1.1326*** (-11.08)	-1.1783*** (-11.54)	-1.2094*** (-11.30)
<i>MANHOLD</i>		0.1354 (0.45)	0.0258 (0.09)		0.2561 (0.88)	0.2668 (0.92)		-0.3914*** (-3.34)	-0.2926*** (-2.66)
<i>PLEDGE</i>		0.1284*** (5.38)	0.1163*** (4.75)		-0.0580** (2.56)	-0.0411* (-1.77)		-0.0703*** (-5.51)	-0.0752*** (-5.72)
<i>BOARD</i>		0.6532*** (4.14)	0.6253*** (3.77)		-0.5871*** (-4.28)	-0.6028*** (-4.01)		-0.0686 (-0.79)	-0.0254 (-0.29)
<i>INSTHOLD</i>		0.0181 (0.85)	0.0289 (1.32)		-0.0446** (-2.23)	-0.2333 (-1.11)		0.0264** (2.37)	-0.0056 (-0.50)
<i>INDUSTRY_D + QUARTER_D</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>
Num. of Obs.	8,170	8,170	8,170	8,170	8,170	8,170	8,170	8,170	8,170
R-square	0.0363	0.0420	0.1073	0.0239	0.0274	0.0728	0.0492	0.0549	0.1343
Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note:

This table reports pooled estimation results of regression analysis relating firm's analyst's recommendation (*BUY*, *HOLD* and *SELL* as explained variables, respectively) to CSR dummy and other control factors. Quarterly data is ranged from 2005Q1 to 2012Q2. The *t*-statistics (computed by White's heteroskedasticity-consistent standard errors) are shown in the parentheses below estimated coefficients, and ***, ** and * denote 1%, 5% and 10% significantly different from zero.

Table 5 Regression Results of Effects of CSR on Analyst's Recommendation (Cont.)

Panel B. Explanatory Variables	Explained Variable								
	<i>MEAN</i>			<i>MEDIAN</i>			<i>NUMBER</i>		
	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)
Constant	4.1156*** (61.62)	4.0725*** (58.03)	3.5319*** (23.44)	4.1787*** (59.34)	4.1540*** (55.65)	3.4236*** (21.56)	-28.655*** (-73.20)	-27.365*** (-67.78)	-32.062*** (-46.04)
<i>CSR_D</i>	0.0119 (0.46)	0.0072 (0.28)	0.0136 (0.53)	-0.0086 (-0.29)	-0.0133 (-0.46)	-0.0104 (-0.37)	-0.3458* (-1.78)	-0.2603 (-1.35)	-0.0609 (-0.32)
<i>PE</i>	0.0000 (-0.58)	-0.0000 (-0.55)	0.0000 (-0.91)	0.0000 (-0.70)	-0.0000 (-0.66)	-0.0000 (-1.02)	0.0000 (0.02)	0.0000 (0.21)	0.0002 (1.08)
<i>MV</i>	-0.0656*** (-9.52)	-0.0760*** (-9.21)	-0.0723*** (-8.46)	-0.0715*** (-9.78)	-0.0856*** (-9.8)	-0.7936*** (-8.78)	3.545*** (79.12)	3.516*** (68.08)	3.5791 (70.33)
<i>MTB</i>	0.1427*** (2.60)	0.2168*** (3.89)	0.0083 (1.43)	0.0113* (1.90)	0.0196*** (3.21)	0.0059 (0.93)	0.0693* (1.81)	-0.0099 (-0.27)	-0.0838** (-2.23)
<i>ABR</i>	0.0024** (2.53)	0.0023** (2.48)	-0.00452 (-0.63)	0.0029*** (2.93)	0.0029*** (2.87)	-0.0044 (-0.59)	-0.0074 (-1.60)	-0.0080* (-1.74)	0.0225 (0.83)
<i>INTANG</i>	0.0000 (-1.35)	0.0000** (-2.52)	0.0000 (-1.03)	0.0000* (-1.69)	0.0000*** (-2.79)	0.0000 (-1.43)	0.0000*** (7.16)	0.0000*** (7.61)	0.0000*** (2.61)
<i>ROA</i>	0.0464*** (12.45)	0.048*** (12.99)	0.0482*** (12.23)	0.0491*** (12.48)	-0.0510*** (13.02)	0.0513*** (12.27)	0.0545*** (2.74)	0.0361* (1.82)	0.0361* (1.86)
<i>MANHOLD</i>		-0.0008 (-0.16)	-0.0022 (-0.41)		-0.0052 (-0.90)	-0.0053 (-0.94)		-0.0216 (-0.92)	-0.0534* (-1.90)
<i>PLEDGE</i>		0.0033*** (6.57)	0.0029*** (5.63)		0.0037*** (6.99)	0.0031*** (5.80)		-0.0169*** (-7.56)	-0.0092*** (-4.37)
<i>BOARD</i>		0.0101*** (2.99)	0.0057* (1.65)		0.0107*** (2.98)	0.0072* (1.95)		-0.1822*** (-10.38)	-0.1023*** (-5.67)
<i>INSTHOLD</i>		0.0002 (0.59)	0.0006 (1.47)		0.0004 (0.99)	0.0007 (1.59)		0.0154*** (6.80)	0.0238*** (10.06)
<i>INDUSTRY_D + QUARTER_D</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>
Num. of Obs.	8,170	8,170	8,170	8,170	8,170	8,170	8,170	8,170	8,170
R-square	0.0469	0.0535	0.1285	0.0458	0.0528	0.1247	0.6048	0.6136	0.6667
Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note:

This table reports pooled estimation results of regression analysis relating firm's analyst's recommendation (*MEAN*, *MEDIAN* and *NUMBER* as explained variables, respectively) to CSR dummy and other control factors. Quarterly data is ranged from 2005Q1 to 2012Q2. The *t*-statistics (computed by White's heteroskedasticity-consistent standard errors) are shown in the parentheses below estimated coefficients, and ***, ** and * denote 1%, 5% and 10% significantly different from zero.

Table 6 Regression Results of Effects of CSR on Analyst's Recommendation (High-Growth Samples)

Panel A. Explanatory Variables	Explained Variable								
	<i>BUY</i>			<i>HOLD</i>			<i>SELL</i>		
	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)
Constant	32.994*** (8.48)	34.540*** (7.40)	43.531*** (7.03)	70.625*** (19.26)	67.203*** (15.47)	67.306*** (11.58)	-3.6200* (-1.65)	-1.7439 (-0.71)	-10.838*** (-3.61)
<i>CSR_D</i>	-3.689** (-2.47)	-3.7224** (-2.49)	-2.5553* (-1.71)	8.302*** (6.24)	8.3792*** (6.26)	8.1634*** (5.85)	-4.6123*** (-5.66)	-4.6568*** (-5.74)	-5.6082*** (-6.84)
<i>PE</i>	-0.0018 (-0.60)	-0.0018 (-0.59)	-0.0025 (-0.94)	-0.0030* (-1.74)	-0.0030* (-1.65)	-0.0022 (-1.24)	0.0048** (2.42)	0.0048** (2.38)	0.0047*** (2.78)
<i>MV</i>	0.7037* (1.76)	-0.4129 (-0.82)	-1.5051*** (-2.96)	-2.694*** (-7.34)	-1.6545*** (-3.59)	-1.0591** (2.31)	1.9903*** (8.72)	2.0674*** (6.93)	2.5643*** (8.84)
<i>MTB</i>	0.7583** (2.36)	0.9691*** (2.94)	0.1391 (0.42)	-1.0739*** (-3.49)	-1.1786*** (-3.74)	-0.8746*** (-2.74)	0.3155* (1.86)	0.2094 (1.22)	0.7354*** (4.11)
<i>ABR</i>	0.1273** (2.12)	0.1179* (1.95)	-0.2555 (-0.63)	-0.1024* (-1.77)	-0.0954* (-1.64)	0.2622 (0.68)	-0.0248 (-0.73)	-0.0224 (-0.66)	-0.0067 (-0.03)
<i>INTANG</i>	0.0000 (-1.09)	0.0000** (-2.46)	0.0000** (-2.21)	0.0000 (-0.70)	0.0000 (0.42)	0.0000 (0.35)	0.0000** (2.54)	0.0000*** (3.34)	0.0000*** (3.10)
<i>ROA</i>	2.5261*** (9.71)	2.4517*** (9.43)	2.5727*** (9.08)	-0.8109*** (-3.32)	-0.7536*** (-3.07)	-0.8670*** (-3.31)	-1.7151*** (-12.08)	-1.698*** (-12.04)	-1.6602*** (-11.06)
<i>MANHOLD</i>		-0.2515 (-0.62)	-0.1833 (-0.46)		0.6281 (1.56)	0.5205 (1.33)		-0.3765** (-1.84)	-0.3372* (-1.76)
<i>PLEDGE</i>		0.0992*** (2.93)	0.0907*** (2.71)		-0.0434 (-1.36)	-0.0267 (-0.84)		-0.0557** (-2.52)	-0.0640*** (-2.99)
<i>BOARD</i>		0.6969*** (2.78)	0.6552*** (2.66)		-0.4980** (-2.17)	-0.4838** (-2.14)		-0.1988 (-1.26)	-0.1714 (-1.11)
<i>INSTHOLD</i>		0.0789*** (2.60)	0.1423*** (4.81)		-0.7295** (-2.56)	-0.1035*** (-3.68)		-0.0059 (-0.35)	-0.0388** (-2.30)
<i>INDUSTRY_D + QUARTER_D</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>
Num. of Obs.	4,538	4,538	4,538	4,538	4,538	4,538	4,538	4,538	4,538
R-square	0.0567	0.0614	0.1136	0.0358	0.0392	0.0748	0.0559	0.0589	0.1279
Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note:

Based on high-growth samples, this table reports pooled estimation results of regression analysis relating firm's analyst's recommendation (*BUY*, *HOLD* and *SELL* as explained variables, respectively) to CSR dummy and other control factors. Quarterly data is ranged from 2005Q1 to 2012Q2. The *t*-statistics (computed by White's heteroskedasticity-consistent standard errors) are shown in the parentheses below estimated coefficients, and ***, ** and * denote 1%, 5% and 10% significantly different from zero.

Table 6 Regression Results of Effects of CSR on Analyst's Recommendation (High-Growth Samples) (Cont.)

Panel B. Explanatory Variables	Explained Variable								
	<i>MEAN</i>			<i>MEDIAN</i>			<i>NUMBER</i>		
	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)
Constant	3.7237*** (43.68)	3.76045 (37.07)	4.0120 (31.47)	3.7956*** (42.97)	3.7794*** (35.43)	3.9840*** (29.56)	-33.715*** (-65.23)	-31.2664*** (-50.31)	-31.3503*** (-42.84)
<i>CSR_D</i>	-0.0012 (-0.04)	-0.0004 (-0.02)	0.0398 (1.36)	-0.0266 (-0.80)	-0.0290 (-0.87)	0.0100 (0.30)	-1.1869*** (-3.80)	-1.1648*** (-3.76)	-1.2782*** (-4.23)
<i>PE</i>	-0.0000 (-0.79)	-0.0000 (-0.75)	-0.0000 (-0.98)	0.0000 (-0.84)	0.0000 (-0.84)	-0.0000 (-1.07)	0.0000 (0.14)	0.0000 (0.20)	0.0001 (0.50)
<i>MV</i>	-0.0371*** (-4.22)	-0.0616*** (-5.43)	-0.8562*** (-7.60)	-0.0455*** (-4.97)	-0.0680*** (-5.73)	-0.0927*** (-7.86)	4.2173*** (70.15)	3.9306*** (53.40)	4.0264*** (55.21)
<i>MTB</i>	0.0112 (1.60)	0.0159** (2.23)	-0.0054 (-0.72)	0.0096 (1.23)	0.0157** (1.98)	-0.0061 (-0.75)	-0.1448*** (-3.11)	-0.1809*** (-3.94)	-0.0971** (-1.99)
<i>ABR</i>	0.0021* (1.68)	0.0019 (1.51)	-0.0060 (-0.72)	0.0027** (2.03)	0.0025* (1.87)	-0.0056 (-0.65)	0.0025 (0.40)	0.0011 (0.18)	0.0317 (1.12)
<i>INTANG</i>	0.0000 (-1.61)	0.0000*** (-2.99)	0.0000*** (-2.70)	0.0000 (-1.45)	0.0000*** (-2.78)	0.0000** (-2.54)	0.0000 (0.67)	0.0000 (0.71)	0.0000 (0.56)
<i>ROA</i>	0.0650*** (11.49)	0.0056*** (11.25)	0.0619*** (10.28)	0.0679*** (11.37)	0.0663*** (11.18)	0.0661*** (10.46)	0.0556* (1.91)	0.0421 (1.45)	0.0816*** (2.69)
<i>MANHOLD</i>		-0.0022 (-0.27)	-0.0019 (-0.23)		-0.0021 (-0.25)	-0.0012 (-0.15)		-0.2520*** (-8.34)	-0.2611*** (-8.74)
<i>PLEDGE</i>		0.0024*** (3.12)	0.0024*** (3.27)		0.0025*** (3.11)	0.0024*** (3.11)		-0.0096*** (-2.79)	-0.0080** (-2.36)
<i>BOARD</i>		0.0136** (2.45)	0.0126** (2.27)		0.0200*** (3.34)	0.0191*** (3.19)		-0.0513 (-1.43)	-0.0510 (-1.43)
<i>INSTHOLD</i>		0.0018*** (2.72)	-0.1134 (-0.95)		0.0014*** (2.09)	0.0029*** (4.30)		0.0244*** (6.34)	0.0181*** (4.72)
<i>INDUSTRY_D + QUARTER_D</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>
Num. of Obs.	4,538	4,538	4,538	4,538	4,538	4,538	4,538	4,538	4,538
R-square	0.0646	0.0696	0.1273	0.0621	0.0673	0.1207	0.6707	0.6771	0.6897
Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note:

Based on high-growth samples, this table reports pooled estimation results of regression analysis relating firm's analyst's recommendation (*MEAN*, *MEDIAN* and *NUMBER* as explained variable, respectively) to CSR dummy and other control factors. Quarterly data is ranged from 2005Q1 to 2012Q2. The *t*-statistics (computed by White's heteroskedasticity-consistent standard errors) are shown in the parentheses below estimated coefficients, and ***, ** and * denote 1%, 5% and 10% significantly different from zero.

Table 7 Regression Results of Effects of CSR on Analyst's Recommendation (Non-High-Growth Samples)

Panel A.	Explained Variable								
	<i>BUY</i>			<i>HOLD</i>			<i>SELL</i>		
	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)
Constant	72.736*** (14.11)	66.753*** (12.45)	30.162*** (2.45)	53.246** (11.37)	54.177** (11.06)	88.767*** (7.23)	-25.978*** (-9.50)	-20.941*** (-7.34)	-18.825*** (-3.64)
<i>CSR_D</i>	2.7736 (1.54)	2.4743 (1.38)	1.0404 (0.54)	-4.6368*** (-3.19)	-4.2213*** (-2.84)	-2.1446 (-1.22)	1.8691 (1.50)	1.7571 (1.46)	1.1142 (0.97)
<i>PE</i>	0.0058 (1.45)	.0048 (1.17)	0.0050 (1.44)	-0.0061 (-1.56)	-0.0059 (-1.49)	-0.0066* (-1.92)	0.0003 (0.20)	0.0011 (0.59)	0.0015 (0.82)
<i>MV</i>	-2.6988*** (-5.12)	-2.2628*** (-3.57)	-1.2040* (-1.65)	-1.0868** (-2.31)	-0.7704 (-1.32)	-2.2738*** (-3.23)	3.7845*** (12.70)	3.0378*** (9.00)	3.4770*** (10.53)
<i>MTB</i>	1.5140*** (3.52)	1.9553*** (4.48)	0.9722* (1.91)	-1.6450*** (-4.47)	-1.9141*** (-5.06)	-1.1813*** (-2.58)	0.1308 (0.46)	-0.0424 (-0.15)	0.2092 (0.78)
<i>ABR</i>	0.1342*** (2.06)	0.14647** (2.26)	-0.1903 (-0.21)	-0.1101* (-1.79)	-0.1146* (-1.87)	-0.0260 (-0.03)	-0.0235 (-0.65)	-0.0311 (-0.86)	0.2157 (0.99)
<i>INTANG</i>	0.0000*** (-4.37)	0.0000*** (-5.75)	0.0000*** (-3.17)	0.0000*** (3.56)	0.0000*** (4.43)	0.0000*** (3.40)	0.0000* (1.81)	0.0000*** (2.66)	0.0000 (0.39)
<i>ROA</i>	1.4309*** (5.89)	1.5680*** (6.44)	1.4183*** (5.50)	-0.8815*** (-3.66)	-0.9325*** (-3.84)	-0.7396*** (-2.91)	-0.5484*** (-4.23)	-0.6343*** (-4.82)	-0.6774*** (-4.97)
<i>MANHOLD</i>		0.3346073 (0.72)	-0.0268 (-0.06)		0.0034 (0.01)	0.1505 (0.35)		-0.3375** (-2.42)	-0.1237 (-0.97)
<i>PLEDGE</i>		0.0892** (2.57)	0.1018*** (2.80)		-0.0410 (-1.23)	-0.0402 (-1.16)		-0.0481*** (-3.13)	-0.0615*** (-3.76)
<i>BOARD</i>		0.8060*** (3.70)	0.7341*** (3.07)		-0.6095*** (-3.11)	-0.6267*** (-2.87)		-0.2006* (-1.95)	-0.1121 (-1.02)
<i>INSTHOLD</i>		-0.1336*** (-4.25)	-0.1123*** (-3.38)		0.0373 (1.25)	-0.0662** (2.04)		0.0961*** (6.56)	0.0459*** (3.16)
<i>INDUSTRY_D + QUARTER_D</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>
Num. of Obs.	3,632	3,632	3,632	3,632	3,632	3,632	3,632	3,632	3,632
R-square	0.0035	0.0462	0.1211	0.0220	0.0253	0.0812	0.0797	0.0942	0.1900
Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note:

Based on non-high-growth samples, this table reports pooled estimation results of regression analysis relating firm's analyst's recommendation (*BUY*, *HOLD* and *SELL* as explained variable, respectively) to CSR dummy and other control factors. Quarterly data is ranged from 2005Q1 to 2012Q2. The *t*-statistics (computed by White's heteroskedasticity-consistent standard errors) are shown in the parentheses below estimated coefficients, and ***, ** and * denote 1%, 5% and 10% significantly different from zero.

Table 7 Regression Results of Effects of CSR on Analyst's Recommendation (Non-High-Growth Samples) (Cont.)

Panel B. Explanatory Variables	Explained Variable								
	<i>MEAN</i>			<i>MEDIAN</i>			<i>NUMBER</i>		
	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)
Constant	4.6576*** (42.77)	4.5114*** (39.72)	3.9790*** (17.85)	4.6962*** (39.70)	4.5669*** (36.93)	3.7683*** (15.68)	-22.021*** (-39.22)	-21.511*** (-36.53)	-23.192*** (-21.55)
<i>CSR_D</i>	0.0089 (0.21)	0.0136 (0.33)	-0.0012 (-0.03)	-0.0116 (-0.24)	-0.0038 (-0.08)	-0.0230 (-0.48)	0.6810*** (3.14)	0.6377*** (2.92)	1.3692*** (6.15)
<i>PE</i>	0.0000 (-0.31)	0.0000 (-0.63)	0.0000 (-0.69)	0.0000 (-0.40)	0.0000 (-0.65)	-0.0000 (-0.70)	-0.0006 (-1.36)	-0.000 (-1.10)	-0.0000 (-0.20)
<i>MV</i>	-0.1098*** (-9.71)	-0.0894*** (-6.68)	-0.0744*** (-5.12)	-0.1121*** (-9.06)	-0.0927*** (-6.38)	-0.0690*** (-4.37)	2.7614*** (42.51)	2.6619*** (36.99)	2.7761*** (38.04)
<i>MTB</i>	0.0194** (1.97)	0.0294*** (2.93)	0.0120 (1.11)	0.0176* (1.69)	0.0276*** (2.62)	0.0065 (0.57)	0.1119** (2.14)	0.0473 (0.94)	-0.0528 (-0.91)
<i>ABR</i>	0.0017 (1.24)	0.0020 (1.50)	-0.0112 (-0.84)	0.0021 (1.46)	0.0025* (1.72)	-0.0133 (-0.94)	-0.0094 (-1.61)	-0.0112* (-1.92)	0.0064 (0.08)
<i>INTANG</i>	0.0000*** (-2.92)	0.0000*** (-4.07)	0.0000*** (-1.92)	0.0000*** (-3.51)	0.0000*** (-4.33)	0.0000*** (-2.90)	0.0000*** (3.69)	0.0000*** (5.20)	0.0000 (0.86)
<i>ROA</i>	0.0310*** (6.21)	0.0347*** (6.98)	0.0330 (6.29)	0.0344*** (6.54)	0.0384*** (7.29)	0.0358*** (6.35)	-0.0246 (-1.11)	-.0422* (-1.84)	-0.0286 (-1.20)
<i>MANHOLD</i>		-0.0010 (-0.13)	-0.0085*** (-1.11)		-0.0071 (-0.87)	-0.0129* (-1.66)		0.0767*** (2.89)	0.1008*** (3.60)
<i>PLEDGE</i>		0.0023*** (3.33)	0.0024 (3.29)		0.0027*** (3.69)	0.0027*** (3.60)		-0.0089*** (-3.40)	-0.0144*** (-5.99)
<i>BOARD</i>		0.0105** (2.34)	0.0038*** (0.83)		0.0070 (1.47)	0.0021 (0.42)		-0.0707*** (-3.45)	-0.0430** (-2.21)
<i>INSTHOLD</i>		-0.0036*** (-5.53)	-0.0027*** (-4.04)		-0.0032*** (-4.62)	-0.0022*** (-3.09)		0.0232*** (8.72)	0.0234*** (9.07)
<i>INDUSTRY_D + QUARTER_D</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>
Num. of Obs.	3,632	3,632	3,632	3,632	3,632	3,632	3,632	3,632	3,632
R-square	0.0534	0.0662	0.1537	0.0517	0.0618	0.1442	0.5327	0.5442	0.6326
Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note:

Based on non-high-growth samples, this table reports pooled estimation results of regression analysis relating firm's analyst's recommendation (*MEAN*, *MEDIAN* and *NUMBER* as explained variable, respectively) to CSR dummy and other control factors. Quarterly data is ranged from 2005Q1 to 2012Q2. The *t*-statistics (computed by White's heteroskedasticity-consistent standard errors) are shown in the parentheses below estimated coefficients, and ***, ** and * denote 1%, 5% and 10% significantly different from zero.

Table 8 Two-stage Estimation Results of Effects of CSR on Analyst's Recommendation

Panel A.											
<i>First-stage</i>		<i>Second-stage</i>									
Explanatory Variables	Explained Variable	Explanatory Variables	Explained Variable								
	<i>CSR_D</i>		<i>BUY</i>			<i>HOLD</i>			<i>SELL</i>		
			Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)
Constant	-9.3536*** (-32.67)	Constant	45.338*** (9.23)	39.718*** (7.55)	15.556* (1.87)	81.142*** (17.71)	82.241*** (16.78)	100.57*** (12.80)	-26.470*** (-10.18)	-21.945*** (-7.87)	-16.067*** (-3.73)
<i>L_ASSET</i>	0.4647** (27.40)	<i>CSR_D</i>	-9.2362 (-1.44)	-14.552*** (-2.24)	-1.9177 (-0.30)	33.265*** (5.63)	35.871*** (6.02)	27.742*** (4.61)	-24.013*** (-7.22)	-21.296*** (-6.29)	-25.799*** (-7.93)
<i>L_DEBT</i>	-0.1735*** (-3.74)	<i>PE</i>	0.0014 (0.55)	0.0015 (0.56)	0.0008 (0.34)	-0.0042* (-1.66)	-0.0043* (-1.69)	-0.0038 (-1.56)	0.0027* (1.89)	0.0028* (1.94)	0.0030** (2.14)
<i>L_PROFIT</i>	0.0194*** (4.94)	<i>MV</i>	-0.0930 (-0.16)	-0.2905 (-0.45)	-0.9953 (-1.53)	-4.3219*** (-7.97)	-3.6692*** (-6.12)	-3.4980 (-5.70)	4.4132*** (14.35)	3.9601*** (11.62)	4.4918*** (13.29)
		<i>MTB</i>	0.8708*** (2.84)	1.1355*** (3.67)	0.7546*** (2.39)	-0.6035** (-2.09)	-0.8341*** (-2.87)	-0.6989 (-2.33)	-0.2669 (-1.62)	-0.3016* (-1.82)	-0.0556 (-0.33)
		<i>ABR</i>	0.1490*** (3.51)	0.1477*** (3.49)	-0.1395 (-0.45)	-0.1229*** (-3.10)	-0.1192*** (-3.01)	0.1640 (0.55)	-0.0257 (-1.14)	-0.0282 (-1.25)	-0.0249 (-0.15)
		<i>INTANG</i>	0.0000 (-0.60)	0.0000 (-1.03)	0.0000 (-0.89)	0.0000 (-0.14)	0.0000 (0.13)	0.0000 (-0.04)	0.0000 (1.49)	0.0000* (1.84)	0.0000* (1.95)
		<i>ROA</i>	1.9055*** (10.65)	1.9726*** (11.01)	1.9751*** (10.90)	-0.7599*** (-4.51)	-0.7901*** (-4.67)	-0.7667 (-4.44)	-1.1450*** (-11.88)	-1.1820*** (-12.28)	-1.2077*** (-12.47)
		<i>MANHOLD</i>		0.1627 (0.63)	0.0274 (0.11)		0.1906 (0.77)	0.2171 (0.90)		-0.3532** (-2.51)	-0.2445* (-1.79)
		<i>PLEDGE</i>		0.1331*** (5.85)	0.1165*** (5.15)		-0.0694*** (-3.25)	-0.0488 (-2.27)		-0.0637*** (-5.24)	-0.0676*** (-5.65)
		<i>BOARD</i>		0.6812*** (4.29)	0.6263*** (3.72)		-0.6544*** (-4.46)	-0.6328 (-3.99)		-0.0294 (-0.35)	0.0035 (0.04)
		<i>INSTHOLD</i>		0.0127 (0.60)	0.0286 (1.30)		-0.0317 (-1.59)	-0.0143 (-0.68)		0.0189* (1.66)	-0.0143 (-1.23)
		<i>INDUSTRY_D + QUARTER_D</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>
		Num. of Obs.	8,170	8,170	8,170	8,170	8,170	8,170	8,170	8,170	8,170
		Chi-square	308.00	348.59	967.14	228.32	261.00	967.14	445.15	413.50	1229.75
		Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note:

This table reports two-stage estimation results of regression analysis. The first stage employed last-period natural log of assets (*L_ASSET*), last-period debt ratio (*L_DEBT*) and last-period natural log of after-tax net income (*L_PROFIT*) as determinants of samples being CSR-firms. The second stage is estimation of regression relating firm's analyst's recommendation (*BUY*, *HOLD* and *SELL* as explained variable, respectively) to CSR dummy and other control factors. Quarterly data is ranged from 2005Q1 to 2012Q2. The *t*-statistics are shown in the parentheses below estimated coefficients, and ***, ** and * denote 1%, 5% and 10% significantly different from zero.

Table 8 Two-stage Estimation Results of Effects of CSR on Analyst's Recommendation (Cont.)

Panel B.											
First-stage		Second-stage									
Explanatory Variables	Explained Variable	Explanatory Variables	Explained Variable								
	<i>CSR_D</i>		<i>MEAN</i>			<i>MEDIAN</i>			<i>NUMBER</i>		
			Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)	Spec. (1)	Spec. (2)	Spec. (3)
Constant	-9.3536*** (-32.67)	Constant	4.2856*** (40.82)	4.1898*** (37.25)	3.7716** (21.38)	4.2843*** (38.02)	4.2027*** (34.83)	3.6085*** (19.00)	-23.744*** (-44.39)	-21.103*** (-35.49)	-27.110*** (-31.59)
<i>L_ASSET</i>	0.4647*** (27.40)	<i>CSR_D</i>	0.2934** (2.14)	0.1920 (1.38)	0.4195*** (3.10)	0.1661 (1.13)	0.0633 (0.42)	0.3025** (2.07)	7.7879*** (12.05)	9.6066*** (14.13)	8.3266*** (13.30)
<i>L_DEBT</i>	-0.1735*** (-3.74)	<i>PE</i>	-0.0000 (-0.60)	0.0000 (-0.58)	0.0000 (-0.82)	-0.0000 (-0.79)	-0.0000 (-0.76)	-0.0000 (-0.98)	0.0000 (0.18)	0.000 (0.46)	0.0003 (1.11)
<i>L_PROFIT</i>	0.0194*** (4.94)	<i>MV</i>	-0.0869*** (-6.99)	-0.0905*** (-6.58)	-0.1044*** (-7.59)	-0.0848*** (-6.35)	-0.0916*** (-6.21)	-0.1040*** (-7.03)	2.9290*** (46.56)	2.7426*** (37.81)	2.9170*** (42.74)
		<i>MTB</i>	0.0194*** (2.97)	0.0249*** (3.77)	0.0154** (2.31)	0.0146** (2.08)	0.0209*** (2.96)	0.0114 (1.59)	0.2195*** (6.31)	0.1615*** (4.40)	0.0646* (1.84)
		<i>ABR</i>	0.0023** (2.55)	0.0022** (2.53)	-0.0045 (-0.68)	0.0029*** (2.99)	0.0028*** (2.96)	-0.0044 (-0.62)	-0.0105** (-2.25)	-0.0120** (-2.45)	0.0224 (0.61)
		<i>INTANG</i>	0.0000 (-1.36)	0.0000* (-1.90)	0.0000 (-1.34)	0.0000 (-1.49)	0.0000** (-2.07)	0.0000 (-1.52)	0.0000*** (6.94)	0.0000*** (6.85)	0.0000 (0.59)
		<i>ROA</i>	0.0465*** (12.16)	0.0482*** (12.60)	0.04823*** (12.50)	0.0492*** (12.00)	0.0510*** (12.45)	0.0513*** (12.40)	0.0589*** (2.87)	0.0379* (1.77)	0.0355* (1.74)
		<i>MANHOLD</i>		-0.0012 (-0.22)	-0.0030 (-0.56)		-0.0053 (-0.90)	-0.0059 (-1.03)		-0.0406 (-1.28)	-0.0706** (-2.42)
		<i>PLEDGE</i>		0.0033*** (6.84)	0.0028*** (5.89)		0.0037*** (7.12)	0.0030*** (5.96)		-0.0202*** (-7.60)	-0.0119*** (-4.83)
		<i>BOARD</i>		0.0097*** (2.87)	0.0052 (1.47)		0.0106*** (2.91)	0.0069* (1.80)		-0.2017*** (-11.75)	-0.1127*** (-6.49)
		<i>INSTHOLD</i>		0.0003 (0.74)	0.0008* (1.77)		0.0005 (1.04)	0.0009* (1.79)		0.0192*** (7.70)	0.0269*** (11.07)
		<i>INDUSTRY_D + QUARTER_D</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>
		Num. of Obs.	8,170	8,170	8,170	8,170	8,170	8,170	8,170	8,170	8,170
		Chi-square	404.56	401.57	1147.4	392.63	378.37	1085.0	10364	3544.7	5797.1
		Prob. > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note:

This table reports two-stage estimation results of regression analysis. The first stage employed last-period natural log of assets (*L_ASSET*), last-period debt ratio (*L_DEBT*) and last-period natural log of after-tax net income (*L_PROFIT*) as determinants of samples being CSR-firms. The second stage is estimation of regression relating firm's analyst's recommendation (*MEAN*, *MEDIAN* and *NUMBER* as explained variable, respectively) to CSR dummy and other control factors. Quarterly data is ranged from 2005Q1 to 2012Q2. The *t*-statistics are shown in the parentheses below estimated coefficients, and ***, ** and * denote 1%, 5% and 10% significantly different from zero.