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企業社會責任公司的股票購回之宣告效果

Signaling Effect of Share Repurchase for Firm with Corporate Social

Responsibility

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摘要

過去文獻顯示企業社會責任(CSR)可以增進公司的財務績效，CSR 公司的企業社會責任可被視為一種公司聲譽的保證，進而提升公司價值，但也有文獻顯示 CSR 與財務績效二者關係不明。本研究利用 CSR 公司從事股票購回事件中，企業社會責任的內涵是否能為公司創造價值？過去文獻表示當公司宣告股票購回時，可能會因為公司的股價被低估，而有顯著為正的宣告報酬，也有文獻指出有多餘自由現金流量的公司更易執行股票購回；而 CSR 相關的文獻中亦指出缺乏投資機會的公司也可能將資源投入到 CSR 中。本研究提出對立假設，CSR 公司所營造的聲譽的保證可被視為”保險效果”，從事企業社會責任的公司(CSR 公司)相較於沒有從事企業社會責任的公司(非 CSR 公司)，在宣告股票購回後，會有較佳的宣告效果(即有更高的宣告報酬)；相反地，CSR 公司也可能被市場解讀為自由現金流量過多、缺乏投資機會，而導致股價績效相對表現較差。此外，本篇嘗試檢視股票購回公司的實際購回政策情形，來推論企業社會責任公司的聲譽保證。本篇結果中，CSR 公司和非 CSR 公司在購回宣告後，都有顯著為正的宣告報酬，與過去股票購回研究一致。然而，CSR 公司較非 CSR 公司之間的差異是顯著為負的關係，即 CSR 公司表現較非 CSR 公司較差。公司的購回情形方面，CSR 公司則較非 CSR 公司有較多的完成購回事件，雖然實際購回的比率沒有顯著差異。此外，長期下 CSR 公司與非 CSR 公司財務表現都相較市場顯著較佳，但 CSR 公司仍然較非 CSR 公司財務表現顯著較差。

關鍵字: 企業社會責任、股票購回、宣告效果

ABSTRACT

Prior studies show that CSR help improve firm's financial performance, while some show no evidence. In addition, some studies show that a better CSR score can create a higher financial performance, which in turn leads to the increase of firm's value. In this study, we intend to investigate what extent the CSR creates value for firms executing important corporate decisions. The extant literature shows the positive announcing returns when firms announced share repurchase; this could be attributed to share price undervalued; while some proposed that firms might undertake share repurchase due to too much free cash flow. We proposed two competing hypotheses: one asserted that CSR-firms would lead to higher positive announcing returns in the event of share repurchase than non-CSR firms due to "insurance effect" induced by more prestigious reputation and the other asserted that the market will react less favorably to CSR-firms than non-CSR firms due to lack of investment opportunity. Besides, firms accredited with CSR could be regarded as "certification" on their reputations. We tried to conduct the buy-back policy of share repurchase firms with the actual share repurchased. We hypothesize that firms with CSR will follow their buy back policy strictly as they claim in the share repurchase announcement, compared to others that are non-CSR firms. Our CSR and non-CSR firms sample show a significant positive announcing return around share repurchase announcement, which are consistent with prior repurchased studies. However, CSR firms underperform non-CSR firms with a significant negative difference in announcing returns. Besides, our results show that CSR firms acquired more "complete" share repurchase events than non-CSR firms, but there is no significant difference in actual share repurchased between CSR and non-CSR firms. In the long-term, there is a significantly positive abnormal return, however, CSR firms still underperform non-CSR firms.

Keyword: Corporate Social Responsibility, Share Repurchase, Signaling Effect

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INTRODUCTION

Since Corporate Social Responsibility (CSR) has already become a trend in our global village for a decade, nowadays individuals and corporates are strongly interested in this hot issue. Empirical studies showed that CSR has value-added for firms' contribution to financial performance. Statman (2005) used four different kinds of socially responsible indexes, Domini 400 Social Index (DS 400 Index), Citizens Index, Calvert Social Index, and U.S. portion of the Dow Jones Sustainability Index, compared to S&P 500 index with the content of conventional firms. He found out that the returns of DS 400 Index outperform those of S&P 500 Index in the period May, 1990 to April, 2004. Hill, Ainscough, Shank, and Manullang (2007) studied socially responsible mutual fund in Asian, Europe, and U.S. and their results showed a significantly positive return of Europe portfolio at a 3-year time horizon and a significantly positive return of all three countries at 10-year time horizon. Socially responsible mutual funds are what investors believed that the securities in companies committed to socially responsible activities will earn competitive returns.

However, some studies showed that there are disadvantages of socially responsible activities which will erode firm's financial profit. Critics on CSR are related to the highly cost of socially responsible burden detracted financial performance (Barnett and Salomon, 2006). Furthermore, some scholars found no significant evidence on CSR (Bello, 2005; McWilliams and Siegel, 2000) or compound results of the impact of CSR (Barnett and Salomon, 2006). Although debates continuing in those perspectives, we can expect CSR still fever in next ten years.

Smith (2011) defined CSR as a business system that combines ethical system and sustainable management practices which brings improvement of the production and distribution of wealth to its stakeholders. We realize that CSR is a concept concerned about ethical events, sustainable management, and stakeholders' welfare, etc. CSR is an ethical issue related to environmental, social, and governance contents which is identified by Environment, Social, and Governance Statistics of Morgan Stanley Capital International Index (MSCI ESG STAT). According to MSCI ESG STATS, there are seven categories contained in ESG STATS ratings which included environment, community, human rights, employee relations, diversity, customers, and governance. Besides, the seven categories were composed by over 50 indicators which were derived from MSCI ESG research.

In concern with managers' decisions on CSR issues, whether to accept socially responsible projects, such as environment conservation or maintaining community relationship, is the focal point of making strategies. However, whether managers will take socially responsible activities under the risk of profit dilution and whether investors believe that those activities will add value to the company? If the answer is certain, we expect socially responsible projects will create positive net value to shareholders and positive externality to society; those effect will contribute to the value-added of corporate social responsibility. Some investors who are green investors are willing to pay for the CSR investment to pursue a greater social welfare, such as a healthy living-environment, more jobs opportunities, or a more stable social order. Green investors might ask for a lower expected returns and actively invest in CSR firms as a long-term

investment. In contrast, other investors who are tracing for the higher profits investment might ask for a higher expected returns to CSR firms due to its socially responsible costs.

Firms with good CSR practices seem to have a signaling effect of certification and gain a better reputation. We would like to examine the impact of CSR by event study, whether or not CSR firms outperform non-CSR firms around share repurchase announcement. Besides, we expect a better certification of CSR firms on its reputation which could be indicate from difference of actual share repurchased between CSR firms and non-CSR firms. Our study gives some evidences of CSR with practical event, share repurchase program. The results show that the extent of CSR contributed to firms executing share repurchase and show a negative value-added of CSR performance. The following sections are (i) literature reviews of corporate social responsibility and share repurchase; (ii) data description and methodology explanation; (iii) empirical results and discussion; (iv) conclusion.

LITERATURES REVIEW

Corporate Social Responsibility

In line with previous studies, we know that there is a controversy of CSR for a long period of time. Numerous scholars tried to figure out the main question: how could a firm make balance between shareholders' profits and social benefits? Company involved in CSR activities could reduce information asymmetry between managers and

investors (Cui, Jo, and Na, 2012), such as disclosure of CSR-report equipped with more information for investors and mitigation of agency problems through corporate governance, thus market prices will reflect more efficiently. Bauer, Guenster, and Otten (2004) analysed Deminor Corporate Governance Ratings of firms included FTSE Eurotop 300 to conduct the relationship between corporate governance and firms' value. Their results showed a significantly positive relation between corporate governance and firms' value. However, their evidence showed an insignificant negative relation between corporate governance and stock returns.

In addition, Lopatta, Buchholz, and Kaspereit (2012) concluded that company with higher sustainability-ranking (defined as CSR dimensions) prompts to execute disclosure more voluntarily. Good relationship between CSR firms and direct stakeholders (e.g. employees, customers, retailers, producers, suppliers) can contribute to a decrease in agency cost. CSR involves environmental, social, and governmental activities can allow firms to echo the anticipation of indirect stakeholders (e.g. social communities, charities, legislative organization, and government) and win their faith and trust.

More information about corporate social performance is strongly related to numerous factors, such as whether investors are capable to recognize a good or poor CSR firm. Therefore, the screening process of CSR could affect company's return, as well CSR firms might gain higher screening scores to become more security when undergo financial crisis or environmental suffering. Several studies showed that CSR screening intensity has significant effect on financial performance. For instance, Galema, Plantinga, and Scholtens (2008) found that the score of employee relationship

generate significant positive effect to excess returns. Kempf and Osthoff (2007) used the SRI ratings of KLD Research & Analytics to make up a stock portfolio with high SRI ratings and another one with a low SRI rating and the findings showed that the higher ratings portfolio performs better than the lower ratings portfolio. They also demonstrated that using the strategy long high-ratings stock portfolio and short low-ratings stock portfolio can generate a significantly positive 8.7% four-factor abnormal return annually. However, Barnett and Salomon (2006) indicated that there is a curvilinear relationship between screening intensity and financial performance.

CSR is a certification for a company to receive superior reliability and reputation. It is saying that a well reputation can attract more capitals, quality employees, and good investors. Turban and Greening (1997) indicated that outstanding reputation makes company attractive to high-qualified employees thus provide a competitive advantage. Therefore, we can believe that CSR creates a good signaling effect and earn a certification on its reliability. Theoretically, the input in socially responsible activities might output a reduction of firm's risk through mitigating the litigious fee caused by environment polluting and regulatory invention (Luce, Barber, and Hillman, 2001). Via these so-called CSR activities, firms may ease more volatility of their excess returns. In this view, firm's expected return might be lower corresponding to its lower risk. For instance, Orlitzky and Benjamin (2001) found out a significantly negative relationship between CSR firm and firm's risk; if firms with CSR, they will have lower firms' risk. This gives another hint on corporate social responsibility.

Share Repurchase

In our study, we try to conduct our event study by using the event, share repurchase program, which is very common in reality. In most of the time, managers execute share repurchase program due to stock's underpricing, capital structure adjustment, extra cash flows distribution, and sometimes substitution for dividend mechanism. When the stock is really underpricing, share repurchase program release a positive signal to the market, and it implies that managers anticipate financial performance of the company is optimistic in the upcoming future. Thus, in an efficient market, the stock price must adjust to the equilibrium price as soon as the share repurchase announcement occurred. That is so-called the signaling effect of the share repurchase program. Lie (2005) reformed the model with quarterly data to carry out shortly reaction around repurchase announcement, then he found that firms with share repurchase announcement are accompanied with improving performance. Some other motivations to apply share repurchase are in order to avoid overinvestment, which is consistent with free cash flow hypothesis (Jenson, 1986). Grullon and Michaely (2004) pointed out that most mature firms experienced shrinking investment opportunities (proxy by capital expenditure and R&D expenses) and equipped with more free cash flow to conduct share repurchase program. In addition, Denis and Kadlec (1994) demonstrated the significantly positive relation between trade activities and systematic risk enclosed with share repurchases. Also they discovered trade activities will decrease explicitly after share repurchases. Furthermore, Grullon and Michaely (2004) demonstrated that repurchasing firms will encounter a significant reduction in systematic risk and cost of capital.

One of the important concepts in our paper is the certification of CSR firms when implementing the event, share repurchase program. A firm has no obligation to follow their share repurchase proposal plan and buy back all the announcement shares. Many firms implement share repurchase announcement in purpose to raise their stock price with sending a wrong signal of underpricing instead of buying back shares in reality. We try to conclude that CSR firms could theoretically gain more guarantee at the share repurchase program, which suggests CSR firms will buy back more shares authorized and convey a true signal than non-CSR firms. In open-market share repurchase, a higher shares sought at announcement date will contribute to a stronger signaling power (Comment and Jarrell, 1991; Stephens and Weisbach, 1998). Stephens and Weisbach (1998) suggested that some factors will affect actual share repurchased but are not related to share sought at announcement. They found out a positive relation between announcing returns and actual share repurchased. We use the status of actual share repurchased information provided by SDC platinum to conclude the buy-back policy of CSR firms. We try to calculate the numbers of actual share repurchased to infer whether CSR firms acquire more actual share repurchased than non-CSR firms suggesting that a more certificated signaling convey from CSR firms.

HYPOTHESES

Empirical evidences showed numerous results about CSR firms on performance. Kempf and Osthoff (2007) stated that higher CSR-ratings stock portfolio outperforms lower CSR-ratings stock portfolio. Firms with corporate social responsibility are positive related to corporate financial performance (McGuire, Schneeweiss, and

Sundgren, 1988); a better corporate governance can attributed to firms' value (Bauer et al., 2004). In addition, CSR firms did more detail disclosure of CSR-report which reduces the information asymmetry (Cui et al., 2012; Lopatta et al., 2012); the certification on CSR firms' reputation makes them equipped with high-qualified funds and employees, furthermore, a higher sales and profits (Turban and Greening, 1997). These kinds of value-added are contributed by the certification of corporate social responsibility. Therefore, we expect that CSR can create a better signaling effect around share repurchase announcement.

Hypothesis 1a: Announcing returns of CSR firms outperform those of non-CSR firms around share repurchase announcement.

However, some arguments stated that corporate socially responsible activities generate more cost and dilute financial profits (Barnett and Salomon, 2006). Free cash flow is one of the motivation for firms to execute corporate social responsibility activities, which might be considered an over investment or wasting resources to the firm. In addition, most mature firms are equipped with more free cash flow to conduct corporate social responsibility activities, in the other words, firms are likely to take more CSR investments since they are in lower growing conditions and without other investment opportunities.

If firms with extra free cash flow to authorize share repurchase program, these firms' might undergo a lower profit in the upcoming future due to their shrinking investment opportunities and lower growing conditions. This is consistent with the results of Grullon and Michaely (2004), stated that firms did not have an increase in financial performance after share repurchase announcement and experience a

significant reduction in systematic risk (Orlitzky and Benjamin, 2001). Furthermore, if firms with CSR and execute share repurchase program, investors might take these firms with much lower expected return due to their decrease in investment opportunities, declining growth rate, and other free cash flow that thought to be waste in investing CSR activities. Thus, we expected that CSR firms will encounter lower announcing return after share repurchase announcement.

Hypothesis 1b: Announcing returns of CSR firms underperform those of non-CSR firms around share repurchase announcement.

CSR plays a critical role of certification in firm's reputation and reliability, which might directly influence stock price, excess returns, public relationship, firm's risk, and cost of capital as well. In addition, firm's reputation might affect firm's credit to win more shareholders and supporters. Therefore, a well reputation and certification theoretically should allow CSR firms to obtain more trust and capital funds. In our paper, we would like to establish a study composed by the event, share repurchase program, to verify whether CSR firms will execute their buy-back policy more strictly than non-CSR firms. We use the share repurchases' status information provided by SDC Platinum to conduct hypothesis 2. And the certification is measured by the actual share repurchased execution provide by SDC Platinum as well.

Hypothesis 2: CSR firms gain more complete share repurchase events which are contributed to more strictly buy-back policy than non-CSR firms.

Hypothesis 3: CSR firms implement higher percentage of actual share repurchased after share repurchase announcement than non-CSR firms.

Last but not least, corporate social responsibility is a focal point to the community who want to ensure the company they concern with is secure and worthy to invest; in other hand, corporate social responsibility becomes the main issue to the strategy makers who took charge in the decision making related to social, environmental, and governing issues. Socially responsible activities can thought to be a long-term investment due to the diversity and sustainability, however, the valuation is very hard to be measured precisely in the short run.

The long-term issues related to CSR are meaningful, such as sustainable community relationship, goodwill promotion contributed to higher sales and etc. Those activities can be the competitive advantages by promoting a superior reputation allowed firms to attract high-qualified employees (Turban and Greening, 1997) and reduce firm's risk through decrease in the litigious fee caused by environment polluting and regulatory invention (Luce, Barber, and Hillman, 2001). We expect those activities can be valuable in the long run, and it is reasonable that CSR could generate positive value-added for CSR firms. Prior studies also showed a significantly positive long-term performance of the event share repurchase program. Ikenberry, Lakonishok, and Vermaelen (1995) found that the compounded buy and hold returns are significantly positive at year 1 to 4 following open-market share repurchase announcement. In more detail, we try to look over the long-term performance and try to find a supporting idea that firm with CSR is more dependable and more accredited to public community. Here, we set 1-year, 2-year, 3-year windows to carry out the result, which could provide a comparable and information about corporate social responsibility.

Hypothesis 4: CSR firms outperform non-CSR firms in the long-term following the open-market share repurchase announcement.

DATA AND METHODOLOGY

Data description

We conduct 22,555 open-market share repurchase events during 1991 to 2010 data from SDC Platinum, those stocks was traded in NYSE, AMEX, or NASDAQ. We combined share repurchase data with the Morgan Stanley Capital International Index (MSCI) KLD400 Social Index which is conducted by MSCI ESG STAT rating agency. We ruled out the financial industries and deleted the overlapped share repurchase event data within 3 years and choose the first event data within the 3-year in order to make sure the long-term performance measurement is precisely. Besides, some financial information and market resources was captured from COMPUSTAT and CRSP. Until then our data is composed by 685 CSR firms' events and 6,801 non-CSR firms' events with share repurchase authorizations, total is 7,486 sample firms. In order to access the benchmark, we use the size and book-to-market control firm model, which is conducted by size (calculated by shares outstanding time the stock prices) within $\pm 30\%$ and the minimum difference in book-to-market ratio, therefore, our CSR sample firms and non-CSR control firms are 543 separately.

Short-term announcing return around share repurchase announcement

Fama and French (1993) three-factor model is used in our study to conduct the short-term financial performance. We use various windows (-1, -1), (0, 0), (+1, +1),

(-1, +1), (-3, +1) to conduct the announcing returns of share repurchase announcement.

The data period is during 1991-2010.

Comment, and Jarrell (1991) stated that share authorization has a significantly positive relation with the signaling effect. We add the share authorization factor into our announcing return examination, and the results are show in quartile 25th and 50th.

The short-term measurement model is showing below:

$$R_{p,T} = \alpha_p + \beta_p R_{m,T} + s_p SMB_T + h_p HML_T + \varepsilon_T \quad (1)$$

Where $R_{p,T}$ is portfolio's daily return around the announcement date T ; $R_{m,T}$ is the daily market return of market index traded in NYSE, AMEX, and NASDAQ at the announcement date T ; SMB_T is the difference between daily return of small firms and large firms; HML_T is the difference between daily return of high B/M ratio and low B/M ratio firms; β_p , s_p , and h_p are the estimated parameters of each variables.

We define the abnormal return around the announcement date as:

$$AR_{p,T} = R_{p,T} - \widehat{R}_{p,T} = R_{p,T} - (\widehat{\alpha}_p + \widehat{\beta}_p R_{m,T} + \widehat{s}_p SMB_T + \widehat{h}_p HML_T) \quad (2)$$

Where $\widehat{\alpha}_p$, $\widehat{\beta}_p$, \widehat{s}_p , and \widehat{h}_p are the ordinary least squares estimations of α_p , β_p , s_p , and h_p .

Long-term financial performance

Long-term financial performance is conducted by cumulated abnormal return (CAR) model, buy and hold abnormal return (BHAR) model, Fama and French (1993) three-factor model, and four-factor model with Carhart (1997) momentum factor. The

long-term performance is in the event month period 1991 to 2008. First, we matched the benchmark firms with size and book-to-market control firm model for the calculation of CARs and BHARs. The benchmark control firms are conducted by $\pm 30\%$ size (calculated by shares outstanding time the stock prices) and choose the minimum difference in book-to-market ratio between sample and control firms. The CAR and BHAR model are below:

$$CAR_{p,T} = \sum_{t=0}^T AR_{p,t} \quad (3)$$

$$CAR_{A,T} = \frac{\sum_{j=1}^n CAR_{p,T}}{n} \quad (4)$$

Where $AR_{j,t}$ is the monthly abnormal return of j^{th} firm; $CAR_{p,T}$ is the cumulated abnormal return of the CSR sample firms portfolio at the end of holding period T ; $CAR_{A,T}$ is average cumulated abnormal return of the CSR sample firms portfolio.

$$BHAR_{p,T} = BHR_{p,T} - BHR_{b,T} \quad (5)$$

$$BHAR_{A,T} = \frac{\sum_{j=1}^n BHAR_{p,T}}{n} \quad (6)$$

Where $BHR_{p,T}$ is the buy and hold return of the CSR sample firms portfolio; $BHR_{b,T}$ is the buy and hold monthly return of benchmark firms; $BHAR_{p,T}$ is the buy and hold abnormal return of the CSR sample firms portfolio; $BHAR_{A,T}$ is the average buy and hold abnormal return at the end of holding period T ; $n=543$; $T=11, 23, 35$.

The rest model to capture the long-term performance is Fama and French (1993) three-factor model and four-factor model adjusted by Carhart (1997). Fama and French (1993) states that stock's return rate has a highly positive relation with size and book-

to-market value ratio and establish the three-factor model. However, Carhart (1997) added the momentum factors with the existed three factors in order to enhance the power of the model. In our study, we use three-factor and four-factor model with both ordinary least square (OLS) and weighted least square (WLS) regression model (the weighted is calculated by one over the volatility) to examine the post-event month 1-year, 2-year, 3-year long-term abnormal returns.

$$R_{p,T} - R_{f,T} = \alpha_p + \beta_p(R_{m,T} - R_{f,T}) + s_pSMB_T + h_pHML_T + \varepsilon_{p,T} \quad (6)$$

$$R_{p,T} - R_{f,T} = \alpha_p + \beta_p(R_{m,T} - R_{f,T}) + s_pSMB_T + h_pHML_T + m_pHmMLm_T + \varepsilon_{p,T} \quad (7)$$

Where $R_{p,T}$ is monthly return of the CSR sample firms portfolio at the end of holding period T ; $R_{f,T}$ is the return of ten-month U.S. treasury bills at the end of holding period T ; $R_{m,T}$ is the monthly return of market value weighted index traded in NYSE, AMEX, and NASDAQ at the end of holding period T ; SMB_T is the difference in the return of small firms and large firms portfolio; HML_T is the difference in the return of high B/M ratio and low B/M ratio firms portfolio; $HmMLm_T$ is the momentum factor.

Actual share repurchased

In order to examine the actual reacquisition of share repurchase programs, we use the criteria reported in SDC repurchase announcement data. SDC provides some further information of share repurchase program, such as status of repurchase program (i.e. complete, incomplete), and type of repurchase transactions (i.e. open-market, tender offer). The definition of the status in SDC is divided by complete, terminated, suspended, which describe the status of actual share buy-back. In our study, we focus

on the open-market share repurchase programs, which is most common in actuality. After we rule out the “incomplete” share repurchase data, we are interested in the performance of those “complete” firm. The complete implementation by share repurchase firms might contribute to their reputation and certification of commitment.

To conduct the CSR certification on repurchase firm, and examine the performance of those data (complete firms and incomplete firms), regime A has been established. In regime A, we would like to conduct the actual repurchased situations of CSR firm accredited with buy-back policy. We filter our sample with the status description to screen out “complete” and “incomplete” events separately in each CSR firms (group RC) and non-CSR firms (group RN). Furthermore, we would like to examine the performance of complete group with and without CSR. In purpose to analysis performance of the actual repurchase firms (firms realize their buy-back policy strictly) with and without CSR, we divided the complete and incomplete group in four subgroups; which are group complete firms with CSR, RCCO, group complete firms without CSR, RNCO, group incomplete firms with CSR, RCIN, and group incomplete firms without CSR, RNIN (i.e. Figure 1. Regime A). We would like to make a comparison of the announcing returns between each subgroup (RCCO, RNCO, RCIN, RNIN group) using Fama and French (1993) three-factor model (*Equation 1*). The short-term performance results are showed in Table 4, and long-term performance results are show in Table 9.

Regression Analysis

To examine the effect of CSR dummy and other control variables on announcing returns, the multivariate regression has been set up. Dependent variable is the

announcing return around share repurchase announcement. Announcing return is defined as daily return conducted from Eventus. Empirical evidences demonstrated a positive relation between corporate financial performance and corporate social performance, which is defined as the fortune survey of CSR firms' performance rate on corporate social activities (McGuire, Schneeweiss, and Sundgren, 1988). McGuire, Schneeweiss, and Sundgren (1988) suggest that prior financial performance (defined as return on assets, return on equity, and return on sales) should be considered as a variable affected corporate social responsibility. We try to use return on equity (*ROE*) and return on sales (*ROS*) following Waddock, and Graves (1997); *CSR*ROE* and *CSR*ROS* are the interaction terms of financial performance and CSR. Prior study found that the numbers of share authorization is significantly positive related to the announcing return (Comment, and Jarrell, 1991). According to Grullon and Michaely (2004), some control variables related to share repurchase program are *Size*, *B/M ratio*, *ROA*, *cash*, and number of share sought (*Shs_aut*). The regression model is showing below:

$$\begin{aligned} \text{Announcing returns}_{j,T} = & \alpha + \beta_1 \text{CSR}_j + \beta_2 \text{Size}_{j,T} + \beta_3 \frac{B}{M} \text{Ratio}_{j,T} + \beta_4 \text{ROA}_{j,T} + \\ & \beta_5 \text{Cash}_{j,T} + \beta_6 \text{Shs_aut}_{j,T} + \beta_7 \text{CSR} * \text{ROE}_{j,T} + \beta_8 \text{CSR} * \text{ROS}_{j,T} + \epsilon_{j,T} \end{aligned} \quad (8)$$

Where *CSR* is the dummy variable, if *CSR*=1, then the firm is a CSR firm; if *CSR*=0, otherwise; *size* is the logarithms of the price at announcement date times the number of share outstanding; *B/M Ratio* is the book-to-market ratio; *ROA* is the return on assets; *Cash* is free cash flow=operating activities net cash flow-capital expenditures-cash dividends; *ROE* is the return on equity; *ROS* is the return on sales. All the variables

above are measured at the year-end prior to the announcement date. *Shs_aut* is the numbers of shares sought at share repurchase announcement.

EMPIRICAL RESULTS

Table 1 shows the distribution of our sample by CSR firms and non-CSR firms separately. The share authorization is the average share sought of sum in that year at announcement date. We can see that the average size of CSR (10.08 billions) is larger than non-CSR firms (9.01 billions). The total average share authorization of CSR firms (15.49 millions) is higher than of non-CSR firms (13.55 millions), in addition, the percentage of share authorization are 6.87% with CSR firms and 7.01% with non-CSR firms. However, all the variables are not significantly different (conducted by T-test) between CSR and non-CSR firms; it means these characteristics of our matching benchmark are similar to our sample firms.

Announcing returns around share repurchase announcement

Table 2 shows the announcing returns around share repurchase announcement from 1991 to 2010. The results demonstrate a positive signaling effect around share repurchase announcement with both CSR and non-CSR firms. The announcing return on announcement date is 0.57% of CSR firms and 1.00% of non-CSR firms; both have a significant t-stat and signed z-stat. This indicates a significantly positive signaling effect post event, share repurchase announcement, and the result is consistent with the previous studies (Lie, 2005; Grullon, and Michaely, 2004). However, the negative difference -0.42% (significant level 10%) between CSR firms and non-CSR firms is

consistent with our *hypothesis 1b*, *CSR firms underperform non-CSR firms around share repurchase announcement*. CSR firms begin to have a higher cumulative abnormal return than non-CSR firms at window (0,+20), (0, +30), and (0,+40), besides, the difference in window (0, +30) shows difference 0.12% at significant level 1%.

Figure 2 show the cumulated abnormal returns around share repurchase announcement, the dashed line represents CSR firms and the solid line represents non-CSR firms. The result implies that CSR firm underperform non-CSR firms at the announcement date and outperform non-CSR firms at the window (0, +30) after the announcement.

Comment, and Jarrell (1991) stated that the announcing returns are significantly increase with the magnitude of share sought at announcement date. In line with the empirical evidence, we study the quartile share authorization to conduct whether there is a better signaling power with higher share sought announcement. Table 3 show quartile share authorization comparison of announcing returns with CSR and non-CSR firm from 1991 to 2010. Share authorization is the numbers of share sought at share repurchase announcement, which means the numbers of share target that firm are going to repurchase.

Panel A and B are samples categorized with the average total share authorization which is comparing announcing returns of the first and last 50% of Shares authorization groups. Panel C and D are comparing the samples categorized with the first and last 25% of share authorization. In panel A and Panel C, there are positive differences in window (0, 0) of CSR firms. This implicated a little evidence that CSR firms with first 25% and 50% share authorization will generate higher announcing returns than with

last 25% and 50% share authorization, however, there is no significant evidence. Besides, CSR firms with first 50% share authorization group begin to underperform the last 50% share authorization group one day after share repurchase announcement. In panel B, non-CSR firms with first 50% share authorization group has a significant worse announcing return (-1.43%) than last 50% share authorization group at announcement date. Panel D show same results at announcement date as Panel B; we find a significantly negative difference (-1.54%) in announcing returns of announcement date and significantly negative difference (-1.97%) of window (-1, +1). These results might imply that the share authorization by non-CSR firms gain lower signaling power with significant evidence.

Certification of Corporate Social Responsibility

Table 4 presents the actual share repurchased distribution of complete and incomplete status. Panel A shows the distribution of the share repurchase status in our CSR firms sample are 238 complete firms and 305 incomplete firms. Regarding to non-CSR firms, there are 171 complete firms and 372 incomplete firms. The total complete firms are higher in CSR firms (238) than in non-CSR firms (171), which suggests that CSR firms follow their buy-back policy more strictly than non-CSR firm. Besides, the Chi-square statistic is 17.61 with significant level 1%, which means whether the firm is CSR firm or not has significant effect on the share repurchase conditions. Panel B are the share authorization distribution in complete and incomplete firms. The share authorization has significant difference in incomplete firms with and without CSR. CSR firms with incomplete status has significant higher share authorization (18.79 millions) than non-CSR firms with incomplete status (13.39 millions).

Table 4 panel C demonstrates the number of actual share repurchased in comparison across complete and incomplete, CSR and non-CSR firms. CSR firms has similar numbers of actual share repurchased in complete and incomplete conditions. Non-CSR firms with complete status has higher numbers of share repurchased (5.20 millions) than non-CSR firms with incomplete status (2.85 millions). However, the difference between CSR and non-CSR firms are not significant is both status conditions. In addition, the complete firms with CSR have lower actual share repurchased (4.26 millions) than complete group without CSR (5.20 millions), however, the difference is not significant.

Table 4 panel D shows the percentage of actual share repurchased, number of actual share repurchased scaled by the number of share authorization. CSR firms with complete status has a higher percentage of actual share repurchased (54.68%) than non-CSR firms with complete status (42.25%). While the difference between CSR and non-CSR is not significant, CSR firms are capable to buy more shares than non-CSR firms.

Table 5 demonstrates the announcing return of subgroup RC and RN. RCCO is a subgroup screened by the status with “complete” of RC group and RCIN is a subgroup screened by those share repurchase events which did not implement share buy-back policy completely of RC group. Besides, RNCO are those non-CSR firms which have complete the share repurchase implementation, RNIN are those non-CSR firms with incomplete share repurchase implementation. The results show significant signaling effect in both CSR and non-CSR firms. To compare RCCO and RNCO, we found that CSR firms significantly underperform non-CSR firms at the announcement date, however, CSR firms significantly outperform non-CSR one day after announcement

date. Regarding to those incomplete firms, CSR firms are underperform non-CSR firms after share repurchase announcement. However, there is no significant level on the evidence.

We conduct the regression analysis of short-term announcing return at announcement date showed in Table 6. Models (1) to (6) are conducted separately by using each variables. The variance inflation factor (VIF) shows that collinearity has been ruled out in all regression models. In model (6), most of the control variables of share repurchase program have significant influence on announcing return. *Size*, *B/M ratio*, and *ROA* have significantly negative estimated coefficient and share sought at announcement date (*Shs_aut*) has a significantly positive effect on announcing returns, which is consistent with the previous study (Comment, and Jarrell, 1991). *Size* is the logarithms of the price at announcement date times the number of share outstanding. The results can explain that when size increase 1%, the announcing return will decrease 0.56% (model 6). CSR dummy indicates that corporate social responsibility has significantly negative influence on announcing return (model 2). We already known from McGuire, Schneeweiss, and Sundgren (1988) that prior corporate financial performance has significant impact on corporate social responsibility. For the reason, we add the interaction variables, *CSR*ROE* and *CSR*ROS*, to explain the interaction effect of corporate social responsibility and corporate financial performance on announcing return. The interaction terms of corporate social responsibility and corporate financial performance are positive related to announcing return; the firms with corporate social responsibility and have higher corporate financial performance will acquire more announcing return. Both *CSR*ROE* and *CSR*ROS* have significantly

positive effect on announcing return.

Long-term performance

Table 7 and 8 measure the long-term performance of CSR firms after share repurchase announcement. Table 7 shows the results using CAR and BHAR model separately. According to the empirical results in Table 7, the cumulative abnormal return of 1-year, 2-year, and 3-year long-term performances are -6.67%, -10.02%, and -11.85% which are all underperform than non-CSR firms (benchmark). The 1-year, 2-year, and 3-year buy and hold abnormal returns are -9.90%, -12.59%, and -16.26%, indicated an underperformance of CSR firms. The results are all significant in CAR and BHAR model using the benchmark comparison. However, panel C and D, compared CSR firms' performance to market performance, suggest significantly positive CARs and BHARs in the long-term. The cumulative abnormal returns in panel C are 3.74%, 8.01%, and 12.77%, which mean CSR firms long-term performance of 1-year, 2-year, and 3-year outperformance the market. Panel D show the same results with 2.44%, 5.10%, and 7.06% positive returns in long-term outperformed the market as panel C. To sum up, the long-term performance conducted by CAR and BHAR of CSR firms underperform non-CSR benchmark and outperform the market.

We present the long-term performance calculated by Fama and French (1998) three-factor model and the Carhart (1997) four-factor model in Table 8. Both ordinary least squares and weighted least squares method are used, and the returns are monthly data and value weighted conducted from Eventus. The results in three-factor model show few significant evidences that CSR firms have positive abnormal return in the long-term, and non-CSR firms have significantly positive abnormal returns. Regarding

to the four-factor model, the results are all significant with positive abnormal return. Both CSR and non-CSR firm have positive performance in the long-term.

We conduct T-test for four-factor model abnormal returns, and the mean difference in 1-year, 2-year, and 3-year are -0.09%, -0.11%, and -0.12% separately between CSR and non-CSR firms using WLS; and the t-statistic all are not significant (-0.43, -0.48, and -0.33). This imply that there is no significant difference in CSR firms' long-term abnormal returns and non-CSR firms. We expected the buy-back policy will affect the firms' long-term performance due to the certification of those share repurchase implementation.

Table 9 is established to conclude the long-term performance of RCCO and RNCO. Our subgroup RCCO and RNCO have positive long-term performances in 1-year, 2-year, and 3-year period. Empirical results show significant abnormal returns in 3-year performance, however, there are only little evidences in 1-year and 2-year long-term performance.

CONCLUSION

Empirical results show the short-term performance is positive after share repurchase announcement, which is consistent with prior research, however, CSR firms underperform non-CSR firms with a significantly negative difference in announcing return so that our *hypothesis 1b* cannot be rejected. In addition, our regression analysis suggest that the interaction between corporate social performance and corporate financial performance (conducted by ROE and ROS) are significantly positive related to announcing return. The evidence on share authorization is consistent with previous

study (Comment, and Jarrell, 1991). We found a significantly positive relation between share authorization and announcing return in our sample CSR firms. In addition, Table 3 Panel A and Panel C also show positive difference in announcing returns of CSR firms with quartile 50th and 25th share authorization. However, the quartile comparison in Table 3 Panel B and Panel D show contradicted results with the previously study, which implies that the share authorization have negative effect on signaling effect with non-CSR firms.

It is saying that a firm with corporate social responsibility should obtain more trust and reputation which contributed to a certification of reliability. We try to conclude this concept with the buy-back policy taken by the share repurchase firms. Number of actual share repurchased has been calculated to examine the buy-back implementation. We also use the information of status description provided by SDC platinum to check the practical situation. CSR firms acquire more “complete” share repurchase events than non-CSR firms in our sample, consistent with *hypothesis 2*. However, results show no significant difference in actual share repurchased between CSR and non-CSR firms so that *hypothesis 3* could not be supported.

Long-term performance show consistent results with previously share repurchase studies. There is a positive abnormal return in the long-term, however, there is no significant evidence that CSR firms are difference with non-CSR firms, thus, *hypothesis 4* could not be supported. To sum up, the significantly positive announcing return and significantly positive long-term performance are consistent with previously share repurchase studies. However, we only conclude a little evidence on value-added of CSR with the more strictly buy-back policy. The numbers of actual share repurchased

couldn't give sound evidence on CSR firms' certification since there are still other possible factors could affect the implementation, such as free cash flow, bid prices, or prior share repurchase implemented conditions.

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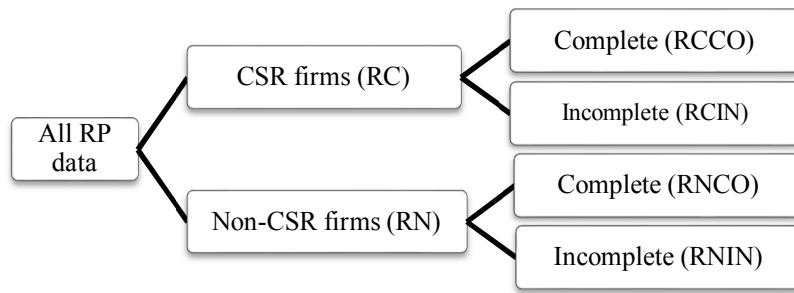


Figure 1 Regime A

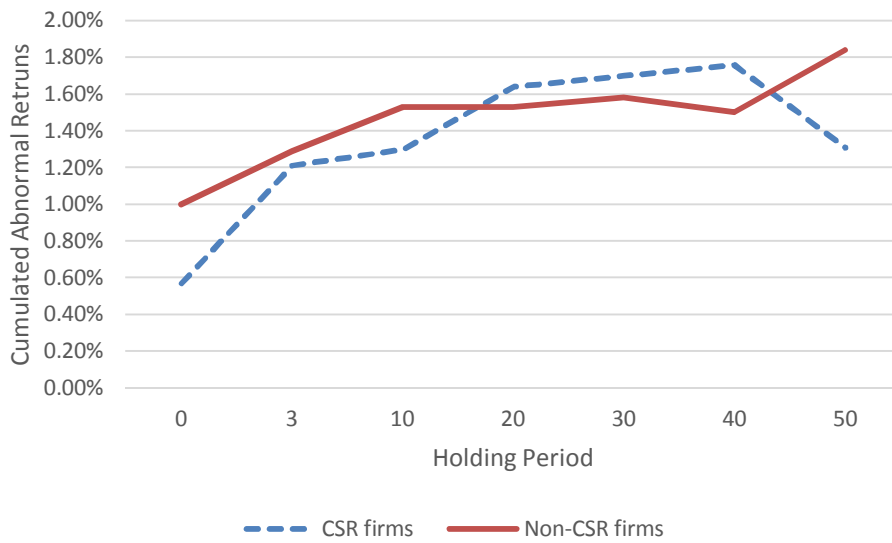


Figure 2 Cumulated abnormal returns around share repurchase announcement with CSR and non-CSR firms

Table 1 Distribution of CSR firms and non-CSR firms by Calendar Year and average shares authorization

year	CSR firms				Non-CSR firms			
	Obs.	Firm size	Average Share Authorization	Percentage of share authorization	Obs.	Firm size	Average Share Authorization	Percentage of share authorization
		(bil.)	(mil.)	(%)		(bil.)	(mil.)	(%)
1991	3	5.92	5.68	4.40%	0	0	0	0
1992	4	13.86	25.52	13.14%	4	1.25	2.35	7.90%
1993	14	3.73	4.59	4.45%	8	9.30	7.53	4.54%
1994	57	4.41	6.46	6.16%	30	10.01	10.22	5.10%
1995	26	9.50	5.84	5.09%	30	4.18	7.08	5.26%
1996	43	8.05	10.80	7.10%	25	6.27	8.79	8.16%
1997	28	4.44	4.44	5.71%	28	4.95	4.44	5.44%
1998	32	7.24	9.33	7.48%	39	7.14	11.75	5.84%
1999	32	8.86	11.75	8.27%	41	4.35	8.54	6.80%
2000	34	17.81	9.60	6.09%	24	16.09	7.47	7.40%
2001	24	15.28	14.87	4.98%	22	7.44	8.38	4.76%
2002	16	18.27	23.73	5.60%	15	4.74	7.26	6.89%
2003	24	6.48	9.61	6.42%	23	5.46	10.70	6.46%
2004	43	12.89	18.16	6.82%	34	9.92	8.16	4.80%
2005	46	10.67	24.38	7.17%	56	11.58	30.14	9.18%
2006	33	19.19	42.36	7.42%	48	8.88	14.58	7.78%
2007	29	10.51	18.14	8.70%	56	8.70	17.47	8.58%
2008	15	6.67	15.27	7.42%	18	20.63	17.77	7.19%
2009	7	4.51	7.72	8.37%	15	22.27	20.83	7.86%
2010	33	9.98	30.77	8.66%	27	10.49	21.63	9.37%
Total	543	10.08	15.49	6.87%	543	9.01	13.55	7.01%

Size is calculated by stock price time the number of share outstanding; average share authorization is the number of shares sought at the announcement date; percentage of share authorization is calculated by number of share authorization over the number of share outstanding at the announcement date.

Table 2 Announcing returns around share repurchase announcement, 1991-2010

Holding Period	CSR firms (sample firms)				Non-CSR firms (control firms)			Difference (sample-control)		
	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	Mean	t-stat
-10	543	-0.15%	-1.61	-0.53	543	-0.16%	-1.51	-0.24		
-9	543	0.06%	0.66	1.87*	543	-0.11%	-0.79	-1.96*		
-8	543	0.01%	0.10	0.24	543	-0.38%	-3.99***	-3.93***		
-7	543	-0.03%	-0.26	-0.53	543	-0.12%	-0.96	-1.44		
-6	543	-0.08%	-0.94	-0.96	543	0.02%	0.18	1.48		
-5	543	-0.24%	-2.09**	-1.48	543	-0.13%	-1.01	-1.79*		
-4	543	-0.17%	-1.77*	-0.36	543	-0.16%	-1.54	-1.01		
-3	543	-0.05%	-0.44	0.24	543	-0.03%	-0.34	-1.19		
-2	543	-0.20%	-1.81*	-0.62	543	-0.35%	-2.82***	-1.79*		
-1	543	-0.13%	-1.02	-0.79	543	-0.16%	-1.25	-0.41	0.03%	0.15
0	543	0.57%	4.44***	4.45***	543	1.00%	4.79***	6.97***	-0.42%	1.73*
+1	543	0.43%	2.71***	2.99***	543	0.31%	1.69*	3.19***	0.12%	0.51
+2	543	0.24%	2.31**	1.02	543	0.05%	0.55	-0.84	0.19%	1.31
+3	543	-0.05%	-0.57	-0.45	543	-0.07%	-0.66	-0.50	0.03%	0.18
+4	543	-0.06%	-0.79	-0.10	543	0.01%	0.04	0.62	-0.07%	0.47
+5	543	-0.03%	-0.33	0.41	543	-0.10%	-1.07	-1.19	0.07%	0.54
(-1, +1)	543	0.88%	3.96***	5.22***	543	1.15%	3.82***	7.15***	-0.27%	-0.73
(-3, +1)	543	0.64%	2.39**	4.28***	543	0.77%	2.25**	5.77***	-0.13%	-0.31
(0, +3)	543	1.21%	5.30***	4.54***	543	1.29%	3.98***	5.51***	-0.08%	-0.21
(0, +10)	543	1.30%	4.39***	4.28***	543	1.53%	3.61***	5.86***	-0.23%	-0.44
(0, +20)	543	1.64%	4.08***	4.19***	543	1.53%	3.08**	4.31***	0.11%	0.17
(0, +30)	543	1.70%	3.48***	3.94***	543	1.58%	2.84**	3.28**	0.12%	1.28***
(0, +40)	543	1.76%	3.05**	3.59***	543	1.50%	2.41*	3.71***	0.27%	0.31
(0, +50)	543	1.31%	1.97**	2.73***	543	1.84%	2.63***	2.85***	-0.53%	0.55

*** indicates significance level at 0.01; ** indicates significance level at 0.05; and * indicates significance level at 0.1.

Table 3 Quartile share authorization comparison of Announcing returns with CSR and non-CSR firms, 1991-2010

Panel A. First/last 50% share authorization with CSR firms comparison										
Holding Period	First 50% of Shares authorization				Last 50% of Shares authorization				Difference (sample-control)	
	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	Mean	t-stat
(-1,-1)	267	-0.21%	-1.23	-1.42	276	-0.04%	-0.24	0.29	-0.17%	-0.68
(0,0)	267	0.62%	3.49***	3.48***	276	0.53%	2.83**	2.82***	0.09%	0.34
(+1,+1)	267	0.10%	0.55	0.90	276	0.76%	2.89**	3.31***	-0.66%	-2.07**
(-1,+1)	267	0.50%	1.80*	3.48***	276	1.25%	3.64***	3.91***	-0.74%	-1.68*
(-3,+1)	267	0.21%	0.60	2.50**	276	1.05%	2.62**	3.55***	-0.84%	-1.58
Panel B. First/last 50% share authorization with non-CSR firms comparison										
Holding Period	First 50% of Shares authorization				Last 50% of Shares authorization				Difference (sample-control)	
	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	Mean	t-stat
(-1,-1)	267	-0.25%	-2.24*	-0.98	276	-0.06%	-0.28	0.38	-0.19%	-0.78
(0,0)	267	0.27%	1.03	4.66***	276	1.70%	5.37***	5.20***	-1.43%	-3.47***
(+1,+1)	267	0.41%	1.71*	2.57**	276	0.22%	0.77	1.95*	0.19%	0.53
(-1,+1)	267	0.42%	1.13	4.04***	276	1.86%	3.99***	6.05***	-1.43%	-0.12
(-3,+1)	267	0.29%	0.67	3.31***	276	1.23%	2.36**	4.84***	-0.94%	-1.37
Panel C. First/last 25% share authorization with CSR firms comparison										
Holding Period	First 25% of Shares authorization				Last 25% of Shares authorization				Difference (sample-control)	
	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	Mean	t-stat
(-1,-1)	134	-0.05%	-0.23	-1.23	115	0.36%	1.23	0.78	-0.42%	-1.12
(0,0)	134	0.79%	3.28**	3.95***	115	0.46%	1.55	1.71*	0.33%	0.88
(+1,+1)	134	0.08%	0.36	0.67	115	0.91%	2.19**	1.90*	-0.34%	-1.16
(-1,+1)	134	0.82%	2.09*	2.05*	115	1.73%	3.33***	2.64***	-0.91%	-1.42
(-3,+1)	134	0.77%	1.46	2.74**	115	1.63%	2.60***	2.64***	-0.87%	-1.07
Panel D. First/last 25% share authorization with non-CSR firms comparison										
Holding Period	First 25% of Shares authorization				Last 25% of Shares authorization				Difference (sample-control)	
	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	Mean	t-stat
(-1,-1)	134	-0.11%	-0.91	-0.12	115	-0.11%	-0.33	0.17	0.00%	0.00
(0,0)	134	0.23%	0.74	2.47**	115	1.77%	3.43***	2.40**	-1.54%	-2.63***
(+1,+1)	134	0.22%	0.75	1.61	115	0.65%	1.60	2.22**	-0.43%	-0.87
(-1,+1)	134	0.35%	0.72	1.95*	115	2.31%	3.17***	4.64***	-1.97%	-2.31**
(-3,+1)	134	0.44%	0.82	1.43	115	1.34%	1.62	3.15***	-0.90%	-0.94

*** indicates significance level at 0.01; ** indicates significance level at 0.05; and * indicates significance level at 0.1.

Table 4. Actual share repurchased

Panel A. Distribution of Share Repurchase Status					
	CSR firms		Non-CSR firms		Chi-Square Test
	Obs.	Percentage	Obs.	Percentage	
Complete	238	43.83%	171	31.49%	17.61***
Incomplete	305	56.17%	372	68.51%	
Total	543	100%	543	100%	

Panel B. Average Share Authorization					
	CSR firms		Non-CSR firms		Difference
	Obs.	Number of Share authorization (mil.)	Obs.	Number of Share authorization (mil.)	T-stat
Complete	237	11.34	173	14.76	-1.18
Incomplete	298	18.79	362	13.39	2.09**
Total	535	15.49	535	13.83	-0.86

Panel C. Percentage of Share Authorization					
	CSR firms		Non-CSR firms		Difference
	Obs.	Percentage of Share authorization	Obs.	Percentage of Share authorization	T-stat
Complete	227	5.88%	166	6.72%	-1.46
Incomplete	290	7.64%	348	7.15%	0.89
Total	517	6.87%	514	7.01%	0.35

Panel D. Average Actual Share Repurchased					
	CSR firms		Non-CSR firms		Difference
	Obs.	Number of actual share repurchased (mil.)	Obs.	Number of actual share repurchased (mil.)	T-stat
Complete	226	4.26	169	5.20	-0.78
Incomplete	270	4.29	314	2.85	1.53
Total	496	4.28	483	3.67	0.82

Panel E. Average Percentage of Actual Share Repurchased					
	CSR firms		Non-CSR firms		Difference
	Obs.	Percentage of share repurchased	Obs.	Percentage of share repurchased	T-stat
Complete	226	54.68%	169	42.25%	1.20
Incomplete	270	27.60%	314	29.87%	-0.58
Total	496	39.94%	483	34.20%	1.20

Share authorization is the number of shares sought at the announcement date; percentage of Share authorization is the number of share sought scaled by the number of share outstanding at the announcement date; actual share repurchased is the number of share that firms repurchased after the share repurchase announcement; percentage of actual share repurchased is calculated by actual share repurchased scaled by the share authorization; *** indicates significance level at 0.01; ** indicates significance level at 0.05; and * indicates significance level at 0.1.

Table 5 Announcing returns of subgroups, RCCO, RNCO, RCIN, and RNIN, 1991-2010

Panel A. Complete share repurchase implementation with CSR and non-CSR firms										
Holding Period	CSR firms (RCCO)				Non-CSR firms (RNCO)				Difference (sample-control)	
	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	Mean	t-stat
(-1,-1)	238	-0.25%	-1.46	-1.64	171	-0.22%	-1.54	0.49	-0.03%	0.11
(0,0)	238	0.48%	2.67***	2.51**	171	1.03%	3.55***	4.47***	-0.55%	-1.71**
(+1,+1)	238	0.70%	2.99***	3.29***	171	-0.04%	-0.09	2.63***	0.74%	1.72**
(-1,+1)	238	0.93%	2.75***	3.16***	171	0.77%	1.47	2.79***	0.16%	0.27
(-3,+1)	238	0.73%	1.82*	3.68***	171	0.69%	1.20	4.01***	0.04%	0.05

Panel B. Incomplete share repurchase implementation with CSR and non-CSR firms										
Holding Period	CSR firms (RCIN)				Non-CSR firms (RNIN)				Difference (sample-control)	
	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	No. of Obs.	Mean CAR	t-stat.	Sign z-stat.	Mean	t-stat
(-1,-1)	305	-0.03%	-0.19	0.40	372	-0.12%	-0.74	-0.83	0.09%	0.36
(0,0)	305	0.65%	3.55***	3.72***	372	0.98%	3.59***	5.39***	-0.33%	-0.97
(+1,+1)	305	0.22%	1.03	1.09	372	0.47%	2.34**	2.07**	-0.25%	-0.83
(-1,+1)	305	0.84%	2.85***	4.18***	372	1.33%	3.61***	6.74***	-0.49%	-1.00
(-3,+1)	305	0.56%	1.58	2.46***	372	0.80%	1.90*	4.25***	-0.24%	-0.42

RCCO is the complete share repurchase sample of CSR firms; RNCO is the complete share repurchase sample of non-CSR firms; RCIN is the incomplete share repurchase sample of CSR firms; RNIN is the share repurchase sample of non-CSR firms. *** indicates significance level at 0.01; ** indicates significance level at 0.05; and * indicates significance level at 0.1.

Table 6. Regression analysis of short-term performance of window (-1, 0) (with year dummy=1; SIC dummy=1)

Variables	(1)		(2)		(3)		(4)		(5)	
	Mean	VIF	Mean	VIF	Mean	VIF	Mean	VIF	Mean	VIF
Intercept	0.0066	0	-0.0324	0	-0.0323	0	-0.0326	0	0.0028*	0
Size	-0.0023**	1.5149	-0.0068***	2.8041	-0.0068***	2.8046	-0.0068***	2.8059	-0.0107***	6.1247
B/M ratio	-0.0059	1.7170	-0.0089*	1.7578	-0.0087*	1.7588	-0.0084	1.9097	-0.0126**	2.2461
ROA	0.0265	1.4001	0.0283	1.4008	0.0287	1.4009	0.0340	2.1274	0.0394	2.1236
Cash	-4.81E-07	1.2755	-5.79E-07	1.2812	-6.57E-07	1.2819	-6.54E-07	1.2962	-9.37E-07	1.3035
SHS_AUT			0.0065***	2.3506	0.0066***	2.3535	0.0066***	2.3536	0.0068***	2.3747
CSR dummy					-0.0056*	1.0820	-0.0054	1.1424	-0.0060*	1.1397
CSR*ROE							-0.0028	1.3639	-0.0033	1.3636
CSR*ROS							-0.0005	1.3867	-0.0005	1.3912
CAPX									0.0038*	4.0747
Total obs.	1016		1003		1003		1003		978	
Adjusted R-square	0.0097		0.0235		0.0255		0.0236		0.0287	

CSR is the dummy variable, if *CSR*=1, then the firm is a CSR fir; if *CSR*=0, otherwise; *Size* is the logarithms of the price at announcement date times the number of share outstanding; *B/M Ratio* the logarithms of book-to-market ratio; *ROA* is the return on assets; *Cash* is free cash flow=operating activities net cash flow-capital expenditures-cash dividends; *ROE* is the return on equity; *ROS* is the return on sales; *CSR*Cash* is the interaction of *CSR* and *Cash*; *CSR*ROE* is the interaction of *CSR* and return on equity; *CSR*ROS* is the interaction of *CSR* and return on sales; *CAPX* is the capital expenditure. All the variables above are measured at the year-end prior to the announcement date. *Shs_aut* is the logarithms of the numbers of shares sought at share repurchase announcement. VIF is the variance inflation factor. *** indicates significance level at 0.01; ** indicates significance level at 0.05; and * indicates significance level at 0.1.

Table 7 Long-term (three-year) stock performance using control-firm adjusted return,

1991-2008

Panel A: CARs (benchmark)

Holding period	N	Mean CAR	t-stat.	Sign z-stat.	Skewness t-stat.
1-year	501	-6.67%	-2.82***	-2.53**	-2.85***
2-year	501	-10.02%	-3.23***	-3.43***	-3.22***
3-year	501	-11.85%	-3.25***	-2.35**	-3.28***

Panel B: BHARs (benchmark)

Holding period	N	Mean CAR	t-stat.	Sign z-stat.	Skewness t-stat.
1-year	501	-9.90%	-3.18***	-1.64	-3.46***
2-year	501	-12.59%	-3.02***	-2.00**	-3.20***
3-year	501	-16.26%	-2.37**	-0.48	-2.71***

Panel C: CARs (market)

Holding period	N	Mean CAR	t-stat.	Sign z-stat.	Skewness t-stat.
1-year	543	3.74%	2.77***	3.00***	2.75**
2-year	543	8.01%	4.04***	3.43***	4.16***
3-year	543	12.77%	5.48***	4.63***	5.61***

Panel D: BHARs (market)

Holding period	N	Mean CAR	t-stat.	Sign z-stat.	Skewness t-stat.
1-year	543	2.44%	1.69*	-0.95	1.74*
2-year	543	5.10%	1.98**	-1.03	2.13**
3-year	543	7.06%	2.29**	-0.26	2.39**

*** indicates significance level at 0.01; ** indicates significance level at 0.05; and * indicates significance level at 0.1.

Table 8 Long-term abnormal stock returns, using the Fama and French three-factor model and Carhart Four-factor model (Value-Weighted), 1991-2008

Holding period (Year)	Fama and French three-factor model				Carhart Four-factor model			
	OLS		WLS		OLS		WLS	
	CSR firms	Non-CSR firms	CSR firms	Non-CSR firms	CSR firms	Non-CSR firms	CSR firms	Non-CSR firms
1	0.0030 (1.04)	0.0053** (2.12)	0.0013 (0.71)	0.0034 (1.62)	0.0052* (1.86)	0.0073*** (3.03)	0.0041** (2.52)	0.0055*** (2.73)
2	0.0041* (1.70)	0.0036* (1.97)	0.0018 (1.27)	0.0038** (2.40)	0.0059** (2.54)	0.0050*** (2.84)	0.0041*** (3.42)	0.0052*** (3.45)
3	0.0032 (1.51)	0.0040** (2.54)	0.0028** (2.31)	0.0047*** (3.39)	0.0046** (2.22)	0.0051*** (3.29)	0.0045*** (4.35)	0.0057*** (4.39)

This table presents the long-term performance (showed by 1-year, 2-year, and 3-year) abnormal sample returns conducted from Fama and French (1998) three-factor model and the Carhart (1997) four-factor model. Time-series regression coefficients are estimated in calendar time using the following models:

$$R_{p,T} - R_{f,T} = \alpha_T + \beta_p(R_{m,T} - R_{f,T}) + s_pSMB_T + h_pHML_T + \varepsilon_T$$

$$R_{p,T} - R_{f,T} = \alpha_T + \beta_p(R_{m,T} - R_{f,T}) + s_pSMB_T + h_pHML_T + m_pHmMLm_T + \varepsilon_T$$

Where $R_{p,T}$ is monthly return of portfolio at T ; $R_{f,T}$ is the monthly return of ten-month U.S. treasury bills at the end of holding period T ; SMB_T is the difference in the return of small firms and large firms portfolio; HML_T is the difference in the return of high B/M ratio and low B/M ratio firms portfolio; $HmMLm_T$ is the momentum factor. The abnormal return is calculated by $AR_{j,T} = R_{j,t} - R_{b,t}$; $AR_{j,t}$ is the abnormal return of j^{th} firm; $R_{j,t}$ is the firm's return at t ; $R_{b,t}$ is the monthly return of benchmark at t . *** indicates significance level at 0.01; ** indicates significance level at 0.05; and * indicates significance level at 0.1.

Table 9 Long-term abnormal stock returns of subgroup, RCOC and RCON, using the Fama and French three-factor model and Carhart Four-factor model (Value-Weighted), 1991-2008

Holding period (Year)	Fama and French three-factor model				Carhart Four-factor model			
	OLS		WLS		OLS		WLS	
	RCCO	RNCO	RCCO	RCON	RCCO	RNCO	RCCO	RNCO
1	0.0041 (1.09)	0.0046 (1.42)	-0.0003 (-0.13)	0.0011 (0.39)	0.0067* (1.81)	0.0031 (0.85)	0.0028 (1.40)	0.0027 (1.50)
2	0.0061 (1.46)	0.0051 (1.62)	0.0002 (0.11)	0.0027 (1.27)	0.0078* (1.87)	0.0019 (0.70)	0.0028* (1.68)	0.0032** (2.18)
3	0.0041 (1.42)	0.0056** (2.11)	0.0006 (0.42)	0.0044** (2.38)	0.0059** (2.06)	0.0059** (2.59)	0.0029** (2.05)	0.0040*** (3.11)

This table presents the long-term performance (showed by 1-year, 2-year, and 3-year) abnormal sample returns conducted from Fama and French (1998) three-factor model and the Carhart (1997) four-factor model. Time-series regression coefficients are estimated in calendar time using the following models:

$$R_{p,T} - R_{f,T} = \alpha_T + \beta_p(R_{m,T} - R_{f,T}) + s_pSMB_T + h_pHML_T + \varepsilon_T$$

$$R_{p,T} - R_{f,T} = \alpha_T + \beta_p(R_{m,T} - R_{f,T}) + s_pSMB_T + h_pHML_T + m_pHmMLm_T + \varepsilon_T$$

Where $R_{p,T}$ is monthly return of portfolio at T ; $R_{f,T}$ is the monthly return of ten-month U.S. treasury bills at the end of holding period T ; SMB_T is the difference in the return of small firms and large firms portfolio; HML_T is the difference in the return of high B/M ratio and low B/M ratio firms portfolio; $HmMLm_T$ is the momentum factor. The abnormal return is calculated by $AR_{j,T} = R_{j,t} - R_{b,t}$; $AR_{j,t}$ is the abnormal return of j^{th} firm; $R_{j,t}$ is the firm's return at t ; $R_{b,t}$ is the monthly return of benchmark at t ; RCCO is the complete share repurchase sample of CSR firms; RNCO is the complete share repurchase sample of non-CSR firms. *** indicates significance level at 0.01; ** indicates significance level at 0.05; and * indicates significance level at 0.1.