

Corporate Social Responsibility and Cost of Equity Capital:

A Global Perspective

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ABSTRACT

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Research Question/Issue: This paper investigates how corporate social responsibility (CSR) influences the cost of equity capital from a global perspective.

Research Findings/Insights: With a sample of 11,055 firm-year observations from 35 countries, the study finds that, in general, firms with better CSR scores are significantly associated with a reduced cost of equity capital in North America, Europe and Africa. In contrast, the results do not continue to hold in Asian countries.

Theoretical/Academic Implications: Firms in North America and Europe can reduce the cost of equity capital through implementing effective CSR strategies. However, firms with better CSR performance in Asia face more expensive equity financing, which reveals that investor understanding and perception of CSR varies in different continents.

Practitioner/Policy Implications: Our study provides implications for global regulators and policymakers when setting social reporting standards, suggesting that institutional and/or cultural factors affect top management's social reporting behavior and regional investors' impressions of CSR value. In particular, the Asian regulators should promote public understanding/awareness of CSR information. Additionally, our findings may be informative to international managers and investors when considering CSR as an indicator in their internal governance designation and decision-making. Firms should carefully evaluate the risk of CSR investing and its effect on equity financing in different regions.

Key words: corporate social responsibility, cost of equity capital, global perspective

INTRODUCTION

Porter and Kramer (2006) state that, under the scrutiny of government bodies, activist shareholders, and the media, corporate social responsibility (CSR) is “*an inescapable priority for business leaders in every country*”. The notion of CSR is increasingly important in today’s global business climate, as companies compete and pursue economic growth through internationalization¹. In 2001, the Commission of the European Communities provided a clear definition of CSR as “*a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis*”. More recently, negative publicity about working conditions in Apple’s Chinese supply chain has raised renewed concern about CSR². Since international capital market regulations, government laws, environmental policies, labor protection and financial reporting standards may all increase the legal liabilities of multinational companies, investing in CSR is seen to be one way to reduce the cost of financing and maintain a competitive advantage. It has also been suggested that effective use of CSR strategies can obtain public support, achieve subconscious advertising, and help compete in globally competitive markets (Fry et al. 1982). In practice, major institutional investors, such as CalPERS, also prefer to invest in companies with better CSR performance (Galema et al. 2008).

Since it is important for public companies and market investors to know whether better CSR performance can actually reduce the cost of equity capital, prior studies have conducted empirical research on this issue in a number of Western countries. For example, Dhaliwal et al. (2011) indicate that U.S. firms with a high level CSR tend to voluntarily disclose more environmental and general social responsibility information, which results in a lower cost of

equity capital, because these companies want to convey positive messages to investors and stakeholders. Likewise, El Ghouli et al. (2011) also find that those U.S. firms that make clear efforts to improve employee welfare and environment protection benefit from a lower cost of equity capital. In addition, Bassen et al. (2006) survey 44 companies in developed countries, 37 of which are in the North America or Europe, and find that good CSR performance reduces the overall risk of a firm being negatively perceived by analysts and investors, and in turn leads to less expensive equity financing.

However, these findings may only apply to firms in North America or Europe, where CSR has been developed for many decades, and it is likely that the value of CSR is viewed differently worldwide. Whately (1999) suggests that differences in political and financial climates, labor education, and culture can explain different attitudes regarding CSR in various countries. Muirhead et al. (2002) investigate the practices, expectations, and trends of global management with regard to corporate citizenship, and report how senior managers they value the effects of CSR with regard to the future success of their firms. Their report shows that more than 50% of U.S. and European managers rate CSR as “extremely effective” or “somewhat effective” with regard to improving firm performance; in contrast, more than 60% of Asian managers see it as “not very effective” or “not effective at all” (Appendix A). Opponents of CSR argue that firms only carry out such efforts to enhance their reputations with stakeholders for commercial benefits, to attract more employees, to reduce turnover rate and training cost, or to disguise earnings management behavior strategically (Turban and Greening 1997; Prior et al. 2008). Once managers commit their companies to CSR activities, the significant related expenditures may actually harm business performance and increase operating costs. The benefits and synergies that have been claimed for CSR usually take time to appear, and in some cases investments in CSR

may have no positive financial impacts. Concerns about this may thus increase cost of equity capital for firms with higher CSR ratings.

With increasing globalization, public companies, especially multinational ones, have to attract worldwide funds, and thus the question arises to whether firms in different regions that engage in CSR activities are consistently rewarded by investors, and thus benefit from a lower cost of equity capital. Since most previous studies only explore the effects of CSR on firms in a single country or area, our study aims to provide comparative multi-country evidence from a global sample. Using the cost of equity based on both earnings forecasts and a realized return base measure, we find that CSR reduces the cost of equity capital of firms in North America and Europe, which is consistent with the findings of prior studies carried out in Western contexts (Dhaliwal et al. 2011; El Ghouli et al. 2011; Bassen et al. 2006). Conversely, this positive CSR effect on cost of equity capital of firms does not continue to hold in Asia. Our findings are consistent with the arguments of institutional theory (Matten and Moon 2008) and survey results of Muirhead et al. (2002), and suggest that managers and capital market investors in Asia have different perceptions toward the value and effectiveness of CSR under different historically institutions and cultural contexts.

This study contributes to the literature in several ways. First, our findings show that firms in North America and Europe can reduce cost of equity capital by implementing CSR strategies, based on CSR performance data from Thomson Reuters ASSET4 database. These results are consistent with prior U.S. findings based on a different database³, and thus reinforce the existing literature and support the robustness of our empirical analysis. Second, CSR performance has limited influence on firms' cost of equity capital in Asia, as well as Middle and South America, and this suggests that, in general, investors in some countries may view CSR activities differently.

Our results may be informative in understanding the disputed literature about the relationship between corporate social performance and corporate financial performance (e.g., Orlitzky et al. 2003; Margolis and Walsh 2003), and the Western CSR research should be applied with caution in different regions. Third, our results provide some insights for global regulators and policy makers when setting social reporting standards, indicating that they should consider how institutional and/or cultural factors affect CSR practices, as well as regional investors' attitudes towards such efforts. Fourth, our findings may be useful for international managers and other information users when considering CSR in their internal governance designation and decision making. For example, the management should carefully evaluate the risk of CSR investing and its effect on equity financing in different countries. In particular, the Asian firms should consider increasing the diversity of its board of directors and communications with employees and communities, which may be helpful to signal the market that CSR investing is to serve all the stakeholders, not a small interest group. Finally, confronting to the swelling of global warming crunch and customer consciousness, Asian policy makers, cannot keep themselves out of the mess, should promote public understanding/awareness of CSR, intensify mandatory CSR disclosure, and CSR institution development. As improvements in information technology and the acceleration of globalization enable people to access social reporting information very easily, investors around the world with concerns about CSR can use the findings of this work to assess whether their investment targets fit their own ethical standards.

The reminder of this paper is organized as follows. In Section 2, we review the literature and local CSR practices. Section 3 develops our hypotheses. Section 4 describes the data and sample selection process in this study, along with the definitions of the variables and the regression models. Section 5 reports the descriptive statistics and main regression results, while

the final section presents our conclusions and limitations.

CSR LITERATURE AND LOCAL PRACTICES BY CONTINENT

To examine whether CSR may be valued differently by investors in different regions, the empirical evidence in this study is presented based on the five major continents. Therefore, we first review the literature and describe local CSR practices by continent, as follows.

North America

In North America, CSR activities, such as socially responsible investing (SRI) have been promoted for many decades in the U.S. and Canada (Heinkel et al. 2001), and thus there are many studies exploring the effects of CSR on capital markets in this region. Further, Heinkel et al. (2001) point out that if the number of green investors holding a polluting firm's stock is very small, the firm does not have much opportunity to diversify risk, and thus that the cost of capital will increase, and that more than the proportion of green investors needs to be at least 20% to make a polluting firm become more socially responsible. In addition, Sharfman and Fernando (2008) report that if U.S. firms can improve the management of environmental risk, their cost of equity capital will decline. Likewise, Dhaliwal et al. (2011) indicate that U.S. companies with a high level of CSR tend to disclose more information, because these companies want to convey positive messages to investors and stakeholders. Therefore, the problem of information asymmetry is alleviated at such firms, which in turn leads to lower cost of equity capital. Chava (2010) proposes that investors who invest in firms that engage in practices that are seen as harming the environment will demand higher expected returns. El Ghouli et al. (2011) find that U.S. firms with good CSR performance have a lower cost of equity capital, and especially that firms which endeavor to improve employee welfare and environmental protection can efficiently

reduce the cost of equity capital. Furthermore, if a company belongs to a so-called “sin” industry, such as tobacco or nuclear power, then its cost of equity capital is also likely to increase. Overall, prior evidence in North America mostly supports that the view that CSR performance helps to reduce cost of equity capital.

Europe

The development of CSR practice is advanced in Europe as well, and thus they are also perceived positively by managers and the general public. However, CSR investments may still be somewhat different in North America and Europe. For example, Maignan and Ralston (2002) examine self-presentations on corporate websites, and find that 53% of U.S. companies mention CSR-related actions on their website, while only 29% of French and 25% of Dutch firms do. Moreover, Brammer and Pavelin (2005) indicate that, in terms of corporate contributions to local communities, the financial value of the donations made by U.S. firms is much higher than that of U.K. companies⁴.

Regarding the effects of CSR on the cost of equity capital, most of the European evidence supports the view that better CSR performance decreases the cost of equity capital, as in North America. Using data from large U.K. firms, Murray et al. (2006) find that consistently high returns are associated with greater social and environmental disclosure. Schadewitz and Niskala (2010) find that firms in Finland that undertake CSR reporting efforts based on the Global Reporting Initiative (GRI) experience positive effects with regard to their market values, and that CSR reporting is an effective way to reduce information asymmetry between managers and investors. However, there are a few studies that draw the opposite conclusions in Europe. For example, Reverte (2009) examines a sample of Spanish firms, and finds that differences in CSR disclosure have no significant effects on a profitability and leverage.

Asia

Unlike North America and Europe, the concept of CSR is relatively new in Asia, where individual countries are still building up their own CSR reporting systems (Chambers et al. 2003). The development of CSR reporting may be affected by the different cultures of the various Asian countries, and it is also likely that Asian managers and investors will have different perceptions with regard to the value and effectiveness of CSR than those in other regions. Traditionally, people in Asia focus on the family or other close group relationships, and work to help members of their inner circles before the general public. In Japan, politicians publicly announce that their first loyalty is to their group's leader, rather than to any sound social policy (Banyan 2011), and a similar culture can be found in Japanese business. For example, in the Olympus scandal, Hisashi Mori (the company's former executive vice president) admitted to committing fraud and stated that his loyalty was to his superior, Tsuyoshi Kikukawa (the former President and CEO), and not to the firm's stakeholders (Banyan 2011). Likewise, CSR investments have been empirically shown to have quite different outcomes in Japan compared to those seen in Western countries. Lasmin and Nuzula (2011) find that Japanese investors are not impressed by companies that invest large sums in environmental protection efforts. Tanimoto and Suzuki (2005) also point out that the adoption of GRI in Japan differs from that in Western countries, due to cultural or system resistance. In addition, Fukukawa and Teramoto (2009) indicate that many Japanese managers disagree with what they see as Western values of social responsibility, suggesting that Japan can be unique in its understanding and adoption of CSR.

In China, CSR is specifically relevant to the country's particular social, institutional and cultural background. Although the concept of CSR has recently begun to emerge in China, it is still limited to a small number of firms. As seen in the case of Apple's Chinese supply chain the

related legislation and public awareness of CSR still lag that seen in other regions. With regard to legislation, Tan (2009) indicates that regulatory and CSR standards in China remain inadequate, and that multinational corporations are able to exploit these in their downstream supply chains. With regard to public awareness, Xu and Yang (2010) conduct a survey of 630 CEOs and business owners in 12 provinces of China, and find that over half of business owners have no idea what CSR is. In addition, compared to Western firms, in which CSR efforts is mainly driven by stakeholders, in China, state-owned companies are the major advocates of CSR (Mullich 2011). This is because the general public commonly believes that social responsibilities are the duty of government bodies, and not of private firms, and most China CEOs thus prefer to pursue individual fame and wealth rather than stakeholder interests (Chen 2009). Overall, these studies support the view that perceptions of CSR in China are very different to those in Western countries.

The CSR literature of other Asian countries is briefly summarized as follows. Chambers et al. (2003) investigate CSR reporting in Asia by analyzing the websites of the top 50 companies in seven countries, including India, Indonesia, Malaysia, the Philippines, Singapore, South Korea and Thailand, and find that, in general, CSR levels in Asia lag behind those in North America and Europe. In their study, companies in India have the most extensive CSR reporting and the highest CSR penetration, which may be due to that country's religious traditions with regard to philanthropy. However, firms in the other countries generally do not engage in any significant CSR investments. Gunawan (2007) indicates that the extent of CSR disclosure in listed companies is very low in Indonesia, while Khan et al. (2009) find that there is little CSR reporting on a voluntary basis in Bangladesh, even though the public would like to see more of this. In addition, Rettab et al. (2009) state that in Dubai higher CSR positively affects corporate

financial performance, while Lin et al. (2009) suggest that in Taiwan, firms with good CSR performance can reduce the risk of harming their brand only in long term, and not in the short term. Obviously, the evidence shows that CSR is underdeveloped in most Asian countries, and the effect of CSR performance on the cost of equity capital is ambiguous.

Africa

There are relatively few studies on CSR in Africa. Dawkins and Ngunairi (2008) compare the top 100 companies listed on the Johannesburg Stock Index with the Fortune Global 100, and indicate that the level of CSR reporting of among these is significantly greater than that of the Fortune Global 100. This result shows that these large South African companies have a greater willingness to consider CSR in their disclosure practices, although CSR report exposures are relatively low elsewhere in Africa (KPMG, 2005). Kolk and Lenfant (2010) examine how multinational corporations report on CSR and military unrest in three Central African countries (Angola, Democratic Republic of the Congo, and Republic of the Congo), and find that such reporting is fairly generic, and pays a limited attention to conflicts. In addition, Rizk et al. (2008) suggest that CSR disclosure and reporting practices vary significantly among industries in Egypt. Overall, in Africa, the evidence on how CSR affects the investment community remains very unclear.

Middle and South America

CSR report exposures are relatively low in Middle and South America (KPMG, 2005), and there are also few CSR studies in this context. Welford (2005) indicates that Mexico generally has far fewer CSR policies than Canada or the U.S. In addition, Crisóstomo et al. (2011) argue that CSR is value destroying in Brazil, finding a significant negative correlation between CSR investments and firm value. However, due to the relatively few studies that have been carried out,

there remains insufficient evidence with regard to the effects of CSR on the provision of capital in Middle and South America.

HYPOTHESES DEVELOPMENT

We propose three primary theories in the extant literature which predict that a firm's CSR initiatives link the cost of equity capital. The first one, market equilibrium theory, is developed by Mossin (1966) and Merton (1987) based on capital market equilibrium model which suggest that when the size of a company's investor base increases, its cost of equity capital will in turn decrease. Because the fewer the investors, the lower the opportunities for stock holding risk can be diversified (Heinkel et al. 2001). Firms with better CSR ratings usually have a larger population of investors (Fry et al. 1982; Galema et al. 2008), therefore; their cost of equity capital is more likely to be lower.

The second one is the agency theory, which suggests that there exists an information asymmetry between the agent (manager) and the principal (shareholders); consequently, the agent does not always act in the best interests of the principal (Jensen and Meckling, 1976). This information asymmetry leads to a higher level of perceived idiosyncratic risk which cannot be diversified (El Ghouli et al. 2011). Likewise, Lombardo and Pagano (2002) suggest that investors have to spend external costs on monitoring firm's managers, and this monitoring cost (a major agency cost) is compensated by higher required returns. Since firms with superior CSR ratings have more voluntary environmental and social responsibility disclosure, the information asymmetry of CSR firms is thus mitigated and cost of equity capital is then reduced (Dhaliwal et al. 2011).

The third theory is the investor choice behavior. Williams (2007) suggests that investors

who care about social issues may extend this behavior into their portfolio strategies. When ethical intensity is included into the investor's total utility function, corporate ethical investments can increase the total utility and psychic returns of investors (Beal et al. 2005). Based on the positive feelings to the disclosure of social responsibility, investors may favor the stocks of the firms with better CSR ratings (Aspara and Tikkanen 2008). The existing literature also shows accumulating evidence for the influence of investor sentiment on the firm's cost of equity. For example, Chava (2010) proposes that the investors, who invest in firms excluded by environmental screens such as hazardous chemical, substantial emissions and climate change concerns, will ask higher expected returns, that is to say, firm's cost of equity capital will increase. Finally, firms with good CSR performance encounter lower cost of equity capital, especially the firms endeavoring to improve employee's welfare and environment protection (El Ghoul et al. 2011). In contrast, if the companies belong to "sin" industry, namely, tobacco and nuclear power, firms' cost of equity capital will increase. As a consequence, summarizing the perspectives above, we predict the CSR initiatives may influence firms' cost of equity capital.

Hypothesis 1: CSR performance has significant influence on firm's cost of equity capital.

However, all the above theoretical applications of CSR are based on assumptions that stakeholders, especially the market investors, are well-informed and positively perceive such CSR disclosures. Matten and Moon (2008) indicated that institutional theory is more informative in understanding cross-national differences in CSR. The core concept of institutional theory illustrates that, as institutions and regulations influencing corporate governance implementation, the key differences in CSR among different countries are due to a variety of historically institutions and cultural context for CSR development (Ball et al. 2000; Matten and Moon 2008; Lattemann et al. 2009). Hence, the positive effect of CSR on equity financing is more likely to

exist in the Western countries since the institution and concept of CSR is more mature and has been widely accepted by the stakeholders (Bassen et al. 2006; El Ghouli et al. 2011; Dhaliwal et al. 2011). In contrast, the development of CSR is far behind (Chambers et al. 2003; Xu and Yang 2010) and the value of CSR may be viewed differently in Asia and some other regions (Whitely 1999; Muirhead et al. 2002). The different perception of investors toward CSR may influence their incentives in investing CSR firms. As we discussed, stakeholders in China believe that CSR is the accountability of state-owned enterprises (Chen 2009; Mullich 2011), and China firms communicate less CSR primarily due to a more relation-based, governance environment (Lattemann et al. 2011); those in Japan consider that CSR investments merely serve a certain interest group in the company (Banyan 2011). If Eastern stakeholders do not understand CSR or merely have deficient confidence on CSR performance, the increase of company's investor base and its effect on cost of equity capital will be very limited.

The other alternative explanation why there are different CSR effects with respect to the cost of equity is through customer satisfaction. In the marketing literature, stakeholder theory (Maignan et al. 2005) points out such a link. Customers, who are also the members of stakeholder groups, fairly value their purchase and consumption experiences with products, so that they may be more likely to trust on products and services provided by social responsible firms than social irresponsible ones. Luo and Bhattacharya (2006) explore this relationship and found that a strong CSR initiative results in greater consumers' satisfaction that contributes to uprisings market value of firms. Moreover, Mittal et al. (2005) find that customer satisfaction has a positive and strong association with respect to firms' revenue expansion and firms' cost reduction. Customer satisfaction thus can be seen as a moderate variable between CSR and the cost of equity capital.

However, a country's development stage may influence CSR effect through customer satisfaction. In general, consumers hold more negative perceptions of product manufactured by firms in developing countries (Wang and Lamb 1983). For example, firms of the majority developed countries in North America and Europe are more likely to build up their own brands; therefore, they are easier to gain the customer satisfaction through the brand managing when engaging in CSR initiatives. On the other hand, firms in developing countries, most of them in Asia and South America, usually engage in original equipment manufacturer (OEM) services or manufacture the products related to components, which more difficultly benefit from customer satisfaction through relatively small group of customers.

Overall, we hypothesize that firms in different regions experience the diverse institutions, culture contexts and perspectives for CSR initiatives, resulting in different influence on cost of equity capital:

Hypothesis 2: In North America and Europe where CSR institution and concept are well-established, CSR firms generally enjoy lower cost of equity capital than those in the other regions.

DATA AND METHOD

Sample Selection and Description

The sample used in this study includes large multinational enterprises with CSR performance data from 2002 to 2010 in the Thomson Reuters ASSET4 database. The analyst forecast data used to calculate the cost of equity capital is obtained from the Thompson Institutional Brokers Earnings Services (I/B/E/S) database⁵. Worldscope and Datastream are the main source for the sample financial data of the sample firms.

The sample selection procedure is depicted as follows. ASSET4 compiles information on CSR since 2002, and encompasses the initial sample of 19,754 firm-year observations. After matching ASSET4 data with the Datastream database, we lose 2,221 firm-year observations. We then drop 6,478 observations without financial data to construct the first type of cost of equity and control variables. This process yields a sample of 11,055 firm-year observations from 2,565 different companies. Otherwise, we also delete 4,153 observations in order to calculate the Fama and French's (1993) cost of equity, and acquire a sample of 6,902 firm-year observations.

To ensure our empirical analyses are robust, we construct two different measures to estimate the cost of equity capital under the traditional finance and accounting theories. The first measure, implied cost of equity capital, is calculated by the average of four different models in terms of analysts' future expectations⁶. The second measure, realize returns, is based on Fama and French's (1993) three-factor asset pricing model which advocates the CAPM theory in corporate finance. The followings are the detail descriptions of all models:

Implied Cost of Equity Capital

We set up the following math symbols which are used to the models of the first measure:

P_t : stock price in June of year t ,

DPS_0 : actual dividend per share in year $t-1$,

EPS_0 : actual earnings per share,

LTG : long-term growth forecast in June of year t ,

$FEPS_{t+\tau}$: forecast EPS for year $t+\tau$ recorded in June of year t ,

B_t : book value per share at beginning of year t ,

r_f : yield of a 10-year Treasury note in year t .

The models we adopted are as follows:

Claus and Thomas Model (2001)

This model considers the concept of clean surplus accounting (Ohlson, 1995), assuming the stock price consists of book values and the forecast residual earnings. The model is explained in more detail below.

According to the abnormal returns model, the expected dividend is calculated by equation (1).

$$d_t = e_t - (bv_t - bv_{t-1}) \tag{1}$$

We then transform the dividend growth model into the abnormal returns one.

$$P_0 = bv_0 + \frac{ae_1}{1+K} + \frac{ae_2}{(1+K)^2} + \frac{ae_3}{(1+K)^3} + \dots \tag{2}$$

where

e_t = earning expectation in year t,

bv_t = expected book value of equity in the end of year t,

$ae_t = e_t - kbv_{t-1}$ = expected excess earning return in year t or expected accounting earning minus cost of equity capital,

k = cost of capital of market portfolio calculated by abnormal return model.

However, I/B/E/S only provides five years of analyst forecast data, so Claus and Thomas assume that the years beyond the fifth one will grow at a constant growth rate perpetually. For the observations without fourth and fifth year forecast data, we assume they satisfy the following equation:

$$FEPS_{t+\tau+1} = FEPS_{t+\tau} \times (1 + g), \quad g = r_f - 0.03 \tag{3}$$

The risk free rate, r_f , equals the yield of U.S. ten-year Treasury notes, and the dividend payout ratio is assumed to be 50%.

The modified model is as follows:

$$P_t = B_t + \sum_{\tau=1}^5 \frac{ae_{t+\tau}}{(1+K_{CT})^\tau} + \frac{ae_{t+5}(1+g)}{(K_{CT}-g)(1+K_{CT})^5} \quad (4)$$

where

$$ae_{t+\tau} = FEPS_{t+\tau} - K_{CT}B_{t+\tau-1}$$

$$B_{t+\tau} = B_{t+\tau-1} + FEPS_{t+\tau}(1-DPR_{t+\tau})$$

$$DPR_{t+\tau} = 0.5; \quad g = r_f - 0.03.$$

Our study employs the Newton method and the numerical computing software, MATLAB, to solve the equations.

Easton (2004)

This generalized model is based on the price-earnings-growth model developed by Easton (2004), which assumes that the stock price is composed of the one-year ahead forecast dividend, and the one- and two-year ahead forecast earnings per share. The related equation is as follows:

$$P_t = \frac{FEPS_{t+2} + K_{ES}DPS_{t+1} - FEPS_{t+1}}{K_{ES}^2} \quad (5)$$

where $DPS_{t+1} = DPS_0$.

Ohlson and Juettner-Nauroth (2005)

This model is the generalized form of the Gordon constant growth model. We implement the model with the method developed by Gode and Mohanram (2003). The earnings growth rate (g_2) is the arithmetic average of the long- and short-term growth rates. We can find the long-term growth forecast in I/B/E/S, and the short-term growth is the percentage difference between the one-year ahead and two-year ahead forecast earnings per share. The model is as follows:

$$K_{oj} = A + \sqrt{A^2 + \frac{FEPS_{t+1}}{P_t}(g_2 - (\gamma - 1))} \quad (6)$$

where

$$A = \frac{1}{2} \left((\gamma - 1) + \frac{DPS_{t+1}}{P_t} \right)$$

$$g_2 = \frac{STG + LTG}{2}$$

$$STG = \frac{FEPS_{t+2} - FEPS_{t+1}}{FEPS_{t+1}}; \quad (\gamma - 1) = r_f - 0.03$$

Gordon Finite Horizon Model (1997)

We assume that the dividends grow over a four-year explicit forecasting horizon, and the model is as follows:

$$P_t = B_t + \sum_{\tau=1}^4 \frac{DPS_{t+\tau}}{(1 + K_{GF})^\tau} + \frac{NEPS_{t+1} (1 + LTG)^4}{(K_{GF} - g)(1 + K_{GF})^5} \quad (7)$$

where

$$DPS_{t+\tau} = DPS_0 (1 + LTG)^\tau,$$

$$NEPS_{t+1} = \frac{FEPS_{t+3}}{(1 + LTG)^2}.$$

Again, we use MATLAB to solve the equations. The solution contains five roots, some of which may contain imaginary numbers. In such cases, we only consider the real part of the root, and drop the imaginary one.

Fama and French's (1993) three-factor cost of equity capital

The second measure of cost of equity capital is constructed using Fama and French's three-factor model. This is a model of market equilibrium with three risk factors which are the excess return of a security explained by the market portfolio and two mimicking portfolios related to size and book to market ratio. As in Fama and French (1993), the firms' cost of equity capital is estimated using following cross-sectional regression model (the i subscript refers to

individual stocks):

$$R_i - R_f = a_{it} + b_i(R_M - R_f) + s_iSMB + h_iHML + e_i \quad (8)$$

where R_i is a return on stock i ; R_f is the return on one-month Treasury bill rate; R_M is the return of value-weighted portfolio based on FTSE all world index accounting for 90-95% of world's investable market capitalization; SMB and HML are returns on two factor mimicking portfolios for market equity and book to market via global sample, respectively. In fact, the explanatory variable, SMB , is the equal weight average of the returns on the small stock portfolio, which comprises the stocks below the median market capitalization, minus the equal weight average of the returns on the big stock portfolio, including the stocks above the median market capitalization. And the other explanatory variable, HML , is the difference between the average of the equal weight returns on the value stock portfolio based on the stocks above the 70 percent book to market equity breakpoint minus the average of the equal weight returns on the growth stock portfolio in terms of the stocks below the 30 percent book to market equity breakpoint.

To estimate the Fama and French's three-factor cost of capital, we employ three-factor regressions each quarter for each security using rolling windows of past ten years quarterly returns, starting July of 1991. We then use the in-sample regression coefficients and next quarter explanatory returns to generate out-of-sample quarters' returns, and annualize it to acquire the cost of equity for each company in each year.

Corporate Social Performance

We collect the CSR-related data from the ASSET4 database, which contains details of the firms' ESG performance (Environment, Social and Corporate Governance). Information related to the environment and social parts of this are reported in CSR reports, sustainability reports,

websites and annual reports, while corporate governance information is drawn from annual reports, corporate governance reports and proxy filings. The ESG performance score is a value between 0% and 100%. The ESG rating is an equally weighted combination of four dimensions: environment, social, corporate governance and economic. These four dimensions contain 18 categories that are composed of more than 250 indicators, as in Appendix B.

Control Variable

We follow Ge and McVay (2005), Dhaliwal et al. (2011), Ashbaugh-Skaife et al. (2007), Doyle et al. (2007), Ogneva et al. (2007), and El Ghouli et al. (2011), and consider the various factors that influence the cost of equity capital. Our control variables include beta (BETA), size (SIZE), leverage (LEV), book-to-market ratio (BTM), sales growth (SALEGRW), inventory (INVENTORY), business segments (LOG_SEGMENTS), foreign operations (FOREIGN), and loss (LOSS).

Beta, BETA

According to the capital asset pricing model (CAPM), the cost of equity capital is positively related to a firm's beta. In addition, Sharpe (1964) and Lintner (1965) find that a firm's beta is positively associated with its expected stock return. We calculate beta with the CAPM model, and regress daily stock returns of year t on the market premium, which equals the daily market index minus risk free rate.

Size, SIZE

The scale of company is an important control variable. Compared to small companies, large-scale ones not only attract more media, social organizations and analysts, but also have more resources to engage in CSR. Therefore, large-scale firms have more motivation to invest in CSR-related issues. Bowen et al. (2008) indicate that large companies attract more attention,

which can reduce the problem of asymmetric information and lowers the cost of equity capital, and many other studies also include company scale as control variable (Waddock et al. 1997; Husted and Allen 2007). We measure firm's size as the natural logarithm of total assets.

$$SIZE = \ln(Asset)$$

Leverage, LEV

The risk a company faces is another consideration for CSR decisions. A firm with higher levels of debt will need to consider whether an investment in CSR exceeds its risk tolerance. Griffin and Mahon (1997) and Husted and Allen (2007) also consider leverage as a control variable, while Fama and French (1992) show that companies with greater leverage have higher stock returns. In this study, we use the ratio of total debt and total equity to evaluate the relationship between leverage and cost of equity capital.

$$LEV = \frac{Total\ debt}{Total\ equity}$$

Book-To-Market Ratio, BTM

Fama and French (1992) suggest that a firm's stock returns and book-to-market value have a positive relationship. In other words, a firm with a higher book-to-market value is expected to have better stock returns. Botosan and Plumlee (2005) also note that the cost of equity capital is significantly related to book-to-market value. In this study, we take the ratio of a firm's book value and market value as a control variable.

$$BTM = \frac{Book\ value}{Market\ value}$$

Sales Growth and Inventory, SALEGRW and INVENYORY

The sales growth and level of inventory are generally used to capture the operating characteristics of a firm that are likely to expose it to accounting measurement and application

risk. Ashbaugh-Skaife et al. (2007) point out that rapidly growing firms with higher sales growth have much greater difficulty maintaining the same level of cost of equity due to the increased customer demands or expanded market share, which is generally positively associated with the cost of equity. A high level of inventory also raises the internal control risks related to the proper measurement and recording of inventory, and this is reflected in the rising cost of equity. Accordingly, we define two control variables, sales growth (SALEGRW) and inventory (INVENTORY), as the percentage change in sales and the level of inventory as a percentage of total assets.

$$SALEGRW_t = \frac{Total\ sales_t - Total\ sales_{t-1}}{Total\ sales_{t-1}}, \quad INVENTORY = \frac{Inventory}{Total\ assets}$$

Business Segments and Foreign Operations, LOG_SEGMENTS and FOREIGN

Prior studies indicate that the number of business or geographic segments and foreign transactions that firm engages in are important factors with regard to internal corporate control and the cost of equity (Ashbaugh-Skaife et al. 2007; Doyle et al 2007; Ogneva et al. 2007). Firms operating in diverse industries or international markets will encounter more potential internal control challenges, such as the difficulty of managing enormous subsidiaries; the cultural conflicts that arise when dealing with various local political and legal systems; and the challenge of consolidating information in financial statements. Therefore, we conjecture that firms which have more complex organizational structures or transactions are more likely to encounter internal control problems, and thus face greater equity costs. The logarithm of the sum of the number of business segments (LOG_SEGMENTS) and the existence of foreign currency transactions are defined as our control variables to examine firm complexity.

LOG_SEGMENTS = logarithm of the sum of business segments.

FOREIGN = indicator variable equal to 1 if the firm has non-zero foreign currency

transactions, and 0 otherwise.

Loss, LOSS

It has been well documented in the literature that poorly performing firms may not be capable of investing money at the appropriate time. Ogneva et al. (2007) find evidence the poor financial performance is strongly and positively associated with cost of equity, suggesting that poorly performing firms tend to increase cost of equity. We thus use LOSS, defined as negative earnings reported in financial statements, to proxy for poor financial performance, as follows.

LOSS = indicator variable equal to 1 if earnings before extraordinary items less than 0 ,
and 0 otherwise.

Regression Model

In this study, we use the following models to examine our hypotheses:

$$r_{AVG} = \alpha_0 + \beta_1 * CSP + \beta_i * control_i$$

$$r_{FF} = \alpha_0 + \beta_1 * CSP + \beta_i * control_i$$

r_{avg} : average implied cost of equity capital of four earns expectations models

r_{FF} : the cost of equity capital based on Fama and French (1993)

CSP : CSR performance acquired from the ASSET4 database

$control_i$: control variables, which include BETA, SIZE, LEV, BTM, SALEGRW, INVENTORY, LOG_SEGMENTS, FOREIGN, and LOSS.

EMPIRICAL RESULTS

Descriptive Statistics

Table 1 reports the descriptive statistics for different costs of equity capital measures and

the related Pearson correlation coefficients. In panel A, the arithmetic average of these four models is 9.52%. The mean of r_{CT} is slightly lower than r_{ES} and r_{OJ} , which are calculated by similar numerical methods. This result is consistent with Dhaliwal et al. (2006) and Gode and Mohanram (2003), indicating that the OJ model provides the upper bound of the implied cost of equity capital estimates. The final row of Panel A reports firms' cost of equity r_{FF} from the three-factor model. The second measure of cost of equity is significant higher than others four model, showing that realized cost of equity are remarkably raised by violently variations of market excess returns, *SMB*, and *HML* premiums in international stock markets. In fact, Panel B shows that all models including r_{FF} are highly related to each other, proving that our estimates are consistent and robust. Our results are similar to the findings of Dhaliwal et al. (2006) and El Ghouli et al. (2011).

-Insert Table 1 about here-

Table 2 reports the descriptive statistics of explanatory variables for the full sample, the continent samples, and the Pearson correlation coefficients⁷. Panel A of Table 2 reveals that the CSR scores range from a low of 0.04 to a high of 0.97, with a mean of 0.57 and a median of 0.6, and a higher CSR score means that the company has better CSR performance. Otherwise, the summary statistics on the distribution of the three factors also present in Panel A. The market, *SMB*, and *HML* premiums are all found significant positive for quarterly, which complies with the results of Fama and French (1993) for the United States market and Fama and French (2012) for global market. Panel B shows that the sample observations vary across five continents. CSR grows vigorously in North America and Europe, meaning that there are numerous companies that make significant CSR efforts, so that observations in these areas are definitely larger than others. Europe has the highest number of observations (4,159), while Africa has the lowest (33). The

magnitudes of the CSR score indicate that, on average, the listed enterprises in Europe have more advanced CSR practices than those in other continents, with a high average CSR score (0.66). North America has the large mean of the CSR scores (0.55), meaning that the investor attitudes toward CSR in this continent are also positive, and close to those in Europe. This is consistent with the fact that, in both the U.S. and Europe, the concept of CSR has been widely known for many decades. In contrast, the mean (0.45) and median (0.43) of the CSR scores in Asia show that managers in this region have different perspectives on CSR than those in the U.S. and Europe. In addition, compared to firms in North America and Europe, those in Asia have a significantly smaller size, higher book to market ratio, less leverage, higher sales growth, lower inventory ratio, more business segments, more foreign transactions, and lower losses.

Panel C reports the Pearson correlation coefficients between the average cost of equity capital (r_{AVG}), Fama and French's three-factor cost of equity (r_{FF}), and the explanatory variables of the full sample. Most control variables and r_{AVG} have the same relationships as those in prior studies (Sharp 1964; Linter 1965; Fama and French 1993; Ashbaugh-Skaife et al. 2007; and Doyle et al 2007), with r_{AVG} positively correlated with the beta, size, book-to-market ratio, leverage, inventory ratio, logarithm of the sum of business segments, foreign transactions, and losses. The r_{FF} is significantly related to size and positively related to book to market ratio, which is generally consistent with the three Fama-French (1993) factors and four Carhart (1997) factors being priced in stock returns.

-Insert Table 2 about here-

Multivariate Regression Analyses

In order to examine whether CSR performance affects the cost of equity capital, this study regresses the average cost of equity (r_{AVG}) and Fama-French cost of capital (r_{FF}) on the corporate

social responsibility score (CSR_S) and the control variables. Companies in North America and Europe generally have much more mature CSR practices. Due to the different cultures, development, location and institutional factors, firms in different regions may have different attitudes toward CSR, and to uncover these we divide our global sample based on the five continents, namely, North America, Europe, Asia, Africa, and Middle and South America (Appendix C lists the countries for each continent).

Table 3 reports the main regression results. In North America, the coefficient of the CSR score for the r_{AVG} is significantly and negatively associated with the cost of equity capital at the 5% level, supporting H1, which is consistent with the finding of El Ghouli et al. (2011). Furthermore, the Fama-French three-factor cost of equity r_{FF} test for North America reports the consistent evidence that a firm adhering to high CSR practices will enjoy good reputation effect, and in turn lowering its cost of equity (significant at the 1% level).

In Europe, the negative relationships between the CSR score and average cost of equity capital (r_{AVG}) and Fama-French cost of capital (r_{FF}) are even stronger than in North America (both are significant at the 1% level), supporting H1 and the view that CSR practices are more advanced in Europe. This result echoes the finding of Welford (2005) that the CSR disclosure policies of European firms are more transparent than those of North American and Asian ones, such as the human rights protection, accountability and citizenship, or internal stakeholder aspects of CSR. The relatively high level of CSR reporting in Europe fully reflects the efforts of European nations to set up strong standards with regard to these issues, back up by forceful regulatory actions. For instance, firms listed on the French, Norwegian, German or Swedish stock exchanges must provide annual reports of their social and environmental performance (Baughn et al. 2007).

Table 3 also presents the results of the regression analysis between CSR scores and the r_{AVG} as well as r_{FF} in Asia. The result of r_{AVG} indicates that the cost of equity capital for Asian firms which enthusiastically engage in CSR activities is significantly greater than for those firms that do not engage in such activities (two-tailed, $p < 0.01$). The r_{FF} measure presents the insignificant result and indicates that CSR practice in Asian firms generally cannot reduce their cost of equity capital. Therefore, investing in CSR is thus less attractive for Asian managers, due to the high costs of such actions and the less favorable market response. In sum, our results support that if an Asian firm's CSR investment increases, the cost of equity capital would not decrease, supporting H2.

Table 3 further reports the regression coefficients between the CSR scores and the costs of equity capital, r_{AVG} and r_{FF} , for African firms. The r_{AVG} result shows that in Africa a strong CSR performance is associated with a substantial reduction in the cost of capital (two-tailed, $p < 0.05$), the r_{FF} result, however, presents the insignificant but negative association. Also this sample is limited to South African listed firms that undertake CSR disclosure, and it should be noted that this country adopted many of its business practice from Europe. The weak results show that South African companies may have a greater willingness to disclose information about their CSR practices, consistent with the findings of prior studies (Dawkins and Ngunairi 2008; Ntim et al. 2012) and supports H2.

Table 3 also shows the relationships between CSR score and two costs of equity capital in Middle and South America, with the coefficient of CSR_S being insignificant at any conventional level, meaning that the concept of CSR in Middle and South America is still rather undeveloped, supporting H2, and suggesting that there is a lot room to improve the regulatory capacity of governments in this regard.

For the control variables, as expected, higher BETA, SIZE, BTM, LEV, and INVENTORY, and LOSS are positively associated with the cost of equity capital in most models, suggesting that greater business risk increases the cost of equity capital. Finally, we also examine the multicollinearity associations among independent variables and find that multicollinearity is less likely to exist, since all the VIFs are all smaller than 10^9 .

-Insert Table 3 about here-

To further investigate the isolated impacts of individual CSR components on the cost of equity capital, we separate overall the CSR score into four dimensions: Corporate Governance (CSR_GOV), Economic (CSR_ECO), Environmental (CSR_ENV) and Social (CSR_SOC). Table 4 shows that, in line with the results for North America shown in Table 3, all CSR dimensions in this region are negatively associated with two measures for cost of equity capital. In particular, the coefficients of CSR_ECO and CSR_ENV are significantly negative on the cost of equity capital results, which indicate that firms in North America can reduce the cost of equity capital if they have better CSR economic performance (measured by profitability, long-term growth and cost) and environment performance (measured by resource and emission reductions). If companies can increase their profits and maintain good interactions with their customers, as well as concerning environment protection, they can benefit from a lower cost of equity capital.

With regard to the effects of individual CSR components on the average cost of equity capital (r_{AVG}) in Europe, Table 4 shows that not only firms with higher CSR_ECO scores can significantly reduce the average cost of equity capital (two-tailed, $p < 0.001$) but also firms with better CSR_ENV (two-tailed, $p < 0.05$) and CSR_SOC (two-tailed, $p < 0.10$) scores. Furthermore, the relationships between Fama and French's cost of equity and majority CSR components exist negative and significant relationships such as CSR_GOV (two-tailed, $p < 0.05$), CSR_ENV

(two-tailed, $p < 0.01$), and CSR_SOC (two-tailed, $p < 0.05$). Therefore, European firms that engage in CSR activities are rewarded by financial analysts and investors, leading to a lower cost of equity capital.

Turning to Asia, individual components of the CSR score do not have a negative effect on the r_{AVG} . Similarly, the r_{FF} results show that only the CSR_ENV coefficient is negative and significant, which suggest that investors in Asia only concerns the companies' environmental problems but have not perceived the other CSR dimensions. Overall, our results imply that firms with CSR investments on average are relatively more risky in Asia compared to firms in North America or Europe.

The results for the African firms show that all the estimated coefficients on the separate CSR components for both r_{AVG} and r_{FF} have negative signs, in particular with CSR_ECO and CSR_SOC being significant at the 5% and 10% levels for r_{AVG} . Therefore, firms with higher CSR_ECO or CSR_SOC scores are more likely to have a lower cost of equity capital in this region. Finally, the results for the Middle and South America firms are consistent with the prior analysis in Table 3, in that all the CSR components have insignificant effects on the cost of equity capital.

-Insert Table 4 about here-

To ensure that our regression results for each continent are not driven by a few countries, Table 5 (r_{AVG}) and Table 6 (r_{FF}) show the analyses of the effects of CSR on the cost of equity capital for different nations⁸. In North America, the CSR_S, and CSR_ECO of the U.S. firms are significantly and negatively associated with cost of equity capital. In Europe, the CSR score (CSR_S) negatively affects the cost of equity capital in most countries. Specifically, investors and financial analysts are more likely to decrease the cost of capital for firms in U.K. that engage

in more CSR activities (two-tailed, $p < 0.05$). However, there is a positive relationship for the Spanish firms, which is consistent with the finding in Reverte (2009) that increased CSR efforts do not improve financial performance in Spain. A possible reason may be that its enormous government deficits might affect investor and analyst confidence with regard to firms that are seen as over-investing in CSR.

The country-by-country analyses of the results for Asia in Table 5 show that there are consistently positive relationships between CSR scores and the costs of equity capital in Northeast Asian countries, namely China, Japan, Korea, and Taiwan. These results support those of prior studies (Welford 2005; Tanimoto and Suzuki 2005; Fukukawa and Teramoto 2009; and Xu and Yang 2010), and indicate that CSR practices in different countries are closely related to their own varied social, institutional and cultural backgrounds. Welford (2005) notes that one particular challenge in Asian countries is recognizing the right of employees to have standardized working hours. Indeed, working for long hours and not being seen as the first person to go home seem to be part of the work ethic for employees in this continent, especially in Northeast Asian countries.

As noted above, the coefficients of CSR_ECO and CSR_SOC in South Africa are both negative. Since the South African government places particular emphasis on socio-economic issues related to CSR, such as working to reduce unemployment and carry out affirmative action through the policy of Black Economic Empowerment, which gives previously disadvantaged groups (black Africans, Indians, and some Chinese) economic privileges that were previously not available to them (Kolk and Lenfant 2010), the CSR effect on cost of equity capital is thus prominent.

Finally, in Middle and South America, the relation between CSR score and cost of equity

capital remains unclear for firms in Brazil and Mexico, suggesting that their governments should have more effective regulatory requirements for public companies regarding CSR disclosure.

-Insert Table 5 and Table 6 about here-

CONCLUSIONS

This study examines whether CSR performance affects the cost of equity capital for firms in five different continents. Many researchers argue that undertaking CSR activities is beneficial to companies, and there are two possible explanations for this. First, CSR expenditure can be seen as part of a firm's advertising expenses, as they can be used to enhance the company's image. In this way, by investing in CSR firms can both satisfy stakeholders' demands and attract potential customers and investors. Second, the trend toward greater adoption of CSR practices has been accelerated since 2000, and many multinational companies have changed their policies to take this into account. There is also a growing perception that companies may suffer if they do not do something about CSR, perhaps due to a loss of customers, or being put into a relatively weak position in relation to rival firms.

In this study, we anticipated that CSR performance can significantly affect a firm's cost of equity capital and has different impacts in different continents. We find evidence to support our two research hypotheses. In addition, we examine various components of CSR performance, and find similar results with regard to the environmental, social and corporate governance dimensions. Among these categories, most companies in North America and Europe can significantly reduce the costs of equity capital, especially managing the economic and environment parts. This shows that the relevant considerations for firms in Western countries are their financial performance and environment protection, as the most effective ways to reduce

cost of equity capital.

We also find that better CSR performance failed to reduce the cost of equity capital for firms in most Asian countries. This result suggests that significant differences exist with regard to CSR in different regions, perhaps due to the varying institutional environments, cultures and religions.

In conclusion, we suggest that global managers and policy makers should reconsider how to utilize these regional and institutional influences when combining CSR and business practices. For instance, in Sweden, a domestic fast food company, Max Hamburger, known for promoting energy efficiency and health issues, has out-performed McDonald's for eight consecutive years. However, CSR is a complex concept that includes many factors, and these should not only be considered based on their relation with company profits and CSR, as there are also important and human and environmental issues that are at stake.

Our study has some limitations. First, our sample firms consist of the data from I/B/E/S and ASSET 4 databases, which possibly suffer from large firm bias even we have controlled for the size effect. Thus, our results may not apply to the small firms engaging in CSR activities. Second, these databases have limited access to information of firms in some countries (e.g., our Africa countries only encompass South Africa). Third, all of tests conducted in the paper are cross-sectional. Hence, any dynamic effect of CSR on the cost of equity capital may not be fully captured.

For future research, more work can be done by examining how the country development, such as well-developed or emerging markets, influences the associations between CSR initiatives and the cost of equity capital. Under the new classifications, it may enable us to further clarify the puzzles between CSR initiatives and firm's financial performance.

Furthermore, extended studies also can examine the relationship of CSR activities on the firm's financing cost from bond holders' perspective.

NOTES

1. By January 2011, more than 60 countries and 3,000 enterprises and organizations had adopted GRI (Global Reporting Initiative) and make commitments to compile perpetual development reports. According to a report by PRI (Principle of Responsible Investment) in 2011, the number of institutions signing contracts to perform ESC (Environment, Social, Corporate Governance) investments rose from less than 100 in 2006, to 900 in 2011 with total investments of 33 trillion dollars.
2. Apple's Chinese supply chain attracted negative publicity in 2010 when it was revealed that employees at one plant were exposed to harmful chemicals, and that there had also been a rise in suicides at the factory (The Wall Street Journal: China, 2012).
3. Prior studies (Dhaliwal et al. 2011; El Ghouli et al. 2011) use data for U.S. firms from the KLD Database.
4. Taking the year 2001 as an example, the amount US companies contributed was ten times greater than that from UK ones.
5. To ensure our results are robust, we try to follow El Ghouli et al. (2011) and calculate the implied cost of equity capital by using four traditional models. However, we do not use the same four models, because the missing data for Gebhardt's (2001) model made us lose many observations. Therefore, we use the Gordon finite horizon model instead.
6. Early studies of the cost of equity capital are usually based on the ex post realized returns to measure the cost of equity capital, however, according to Fama and French (1997) and Elton (1999), the concept of realized returns is not an appropriate proxy for the cost of equity capital. Hail and Leuz (2006, 2009) suggest another method, which is based on analysts' forecast data, and state that this ex ante cost of equity capital has the advantage that it can control the effects of growth rate and future cash flows. Another benefit is that the ex ante cost of equity capital avoids disturbances and provides more accurate measurements of expected returns. Therefore, ex ante cost of equity capital is used in our study.
7. We winsorize all variables at the top and bottom 1 percent to ensure that our result are not driven by extreme values.
8. We eliminate some countries with less than 10 observations and eventually include 29 counties in Table 6.
9. Kutner et al. (2004) and Wooldridge (2009) suggest that if VIF value of an individual independent variable is above 10, then we have to exclude this variable from the regression model.

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TABLE 1

Descriptive Statistics and Correlation Coefficients for Cost of Equity Capital

Panel A: Descriptive statistics of implied cost of equity capital

Variables	N	Mean	Min.	Q1	Median	Q3	Max.	St.dev
r_{AVG}	11,055	9.52%	3.44%	7.70%	9.09%	10.86%	19.99%	3.00%
r_{CT}	11,055	7.75%	0.26%	6.42%	7.83%	9.38%	15.29%	2.85%
r_{ES}	11,055	11.16%	0.50%	8.31%	10.19%	12.92%	37.41%	5.81%
r_{OJ}	11,055	10.69%	1.21%	8.61%	10.12%	12.19%	29.12%	4.28%
r_{GF}	11,055	8.53%	0.79%	6.69%	8.11%	9.87%	21.02%	3.15%
r_{FF}	6,902	21.70%	0.00%	11.39%	18.91%	29.10%	53.34%	13.94%

Panel B: Pearson correlation coefficients

Variables	r_{AVG}	r_{CT}	r_{ES}	r_{OJ}	r_{GF}	r_{FF}
r_{AVG}	1.0000					
r_{CT}	0.4022***	1.0000				
r_{ES}	0.8794***	0.0858***	1.0000			
r_{OJ}	0.9229***	0.1188***	0.8852***	1.0000		
r_{GF}	0.6658***	0.3440***	0.3259***	0.5235***	1.0000	
r_{FF}	0.1122***	0.0080	0.1322***	0.1007***	0.0482***	1.0000

Table 1 presents the descriptive statistics and distribution of implied cost of equity capital estimates which are calculated by 11,055 firm-year sample observations from 2002 to 2010. Panel A contains mean, minimum (Min), first quartile (Q1), median, third quartile (Q3), maximum (MAX), standard derivation (std.dev)). r_{AVG} is the average cost of equity capital from the four models. r_{CT} , r_{ES} , r_{OJ} , r_{GF} and r_{FF} represent the cost of equity capital developed by Claus and Thomas (2001), Easton (2004), Ohlson and Juettner-Nauroth (2005), Gordon and Gordon (1997) and Fama and French (1993), respectively. Panel B is the results of Pearson pair-wise correlation. ***, **, *, † indicates significance at the 0.1%, 1%, 5%, and 10% levels or better, based on t-statistics, respectively.

TABLE 2
Descriptive Statistics of Model Variables

Panel A: Full Sample

Variables	N	Mean	Min.	Q1	Median	Q3	Max.	Std.dev	Skew	Kurt
<i>CSR_S</i>	11,055	0.57	0.04	0.30	0.60	0.85	0.97	0.30	-0.23	1.67
<i>BETA</i>	11,055	0.96	-0.88	0.37	0.85	1.44	3.92	0.87	0.78	4.09
<i>SIZE</i>	11,055	16.07	12.87	14.95	15.88	17.01	20.78	1.58	0.63	3.34
<i>BTM</i>	11,055	0.61	-0.04	0.30	0.49	0.76	2.94	0.48	2.25	9.99
<i>LEV</i>	11,055	1.31	-2.23	0.30	0.64	1.30	14.51	2.29	3.68	18.78
<i>SALEGRW</i>	11,055	0.08	-5.68	-0.01	0.06	0.16	0.99	0.22	-1.02	52.90
<i>INVENTORY</i>	11,055	0.19	0.00	0.01	0.16	0.32	0.77	0.19	0.87	3.17
<i>LOG_SEGMENTS</i>	11,055	0.54	0.00	0.48	0.60	0.70	0.95	0.26	-0.80	2.81
<i>FOREIGN</i>	11,055	0.48	0.00	0.00	0.00	1.00	1.00	0.50	0.61	1.00
<i>LOSS</i>	11,055	0.10	0.00	0.00	0.00	0.00	1.00	0.30	2.63	7.90
<i>R_m-R_f</i>	6,902	0.01	-0.16	-0.03	0.01	0.05	0.16	0.08	-0.22	3.02
<i>SMB</i>	6,902	0.03	-0.05	-0.004	0.02	0.05	0.12	0.04	0.24	2.50
<i>HML</i>	6,902	0.03	-0.12	-0.01	0.02	0.06	0.14	0.06	-0.26	3.13

Panel B: Descriptive statistics by continental sample

Variables	North America			Europe			Asia			Middle/South America			Africa		
	N	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median
<i>CSR_S</i>	4,085	0.55	0.53	4,159	0.66	0.76	2,721	0.45	0.43	57	0.57	0.69	33	0.68	0.77
<i>BETA</i>	4,085	1.19	1.08	4,159	0.79	0.68	2,721	0.88	0.80	57	0.84	0.83	33	0.71	0.62
<i>SIZE</i>	4,085	16.13	15.96	4,159	16.07	15.75	2,721	15.97	15.85	57	16.72	16.36	33	15.83	15.78
<i>BTM</i>	4,085	0.54	0.42	4,159	0.61	0.49	2,721	0.70	0.60	57	0.54	0.49	33	0.52	0.50
<i>LEV</i>	4,085	1.18	0.60	4,159	1.66	0.75	2,721	0.98	0.55	57	1.21	0.63	33	0.93	0.50

(Continued on next page)

TABLE 2 (Continued)
Descriptive Statistics of Selected Variables

<i>SALEGRW</i>	4,085	0.08	0.07	4,159	0.07	0.06	2,721	0.10	0.06	57	0.16	0.11	33	0.09	0.06
<i>INVENTORY</i>	4,085	0.20	0.16	4,159	0.19	0.16	2,721	0.18	0.16	57	0.18	0.18	33	0.24	0.22
<i>LOG_SEGMENTS</i>	4,085	0.48	0.60	4,159	0.56	0.60	2,721	0.57	0.60	57	0.60	0.60	33	0.54	0.60
<i>FOREIGN</i>	4,085	0.27	0.00	4,159	0.60	1.00	2,721	0.63	1.00	57	0.65	1.00	33	0.73	1.00
<i>LOSS</i>	4,085	0.12	0.00	4,159	0.10	0.00	2,721	0.07	0.00	57	0.04	0.00	33	0.06	0.00

Panel C: Pearson correlation coefficient of selected variables

Variables	r_{AVG}	r_{FF}	<i>CSR_S</i>	<i>BETA</i>	<i>SIZE</i>	<i>BTM</i>	<i>LEV</i>	<i>SALEGRW</i>	<i>INVENTORY</i>	<i>LOG_SEMENTS</i>	<i>FOREIGN</i>	<i>LOSS</i>
r_{AVG}	1.0000											
r_{FF}	0.1122***	1.0000										
<i>CSR_S</i>	0.0654***	-0.0497***	1.0000									
<i>BETA</i>	0.1585***	0.1446***	-0.0199†	1.0000								
<i>SIZE</i>	0.1294***	-0.0909***	0.3707***	-0.0035	1.0000							
<i>BTM</i>	0.2780***	0.0347**	-0.0611***	0.2183***	0.2044***	1.0000						
<i>LEV</i>	0.1334***	-0.0262*	0.0669***	0.0264*	0.4199***	0.0531***	1.0000					
<i>SALEGRW</i>	-0.1216***	0.0006	-0.0193	-0.0428**	0.0004	-0.1797***	0.0061	1.0000				
<i>INVENTORY</i>	0.0385**	-0.0772***	0.0835***	-0.0064*	-0.2678***	-0.0814***	-0.2092***	-0.0196	1.0000			
<i>LOG_SEGMENTS</i>	0.1052***	-0.0906***	0.1509***	-0.0278*	0.2796***	0.0999***	0.0918***	-0.0350**	-0.0542***	1.0000		
<i>FOREIGN</i>	0.0407***	0.0439***	0.0850***	-0.0244***	-0.1684***	-0.0196	-0.1770***	0.0071	0.0837***	0.0981***	1.0000	
<i>LOSS</i>	0.2566***	0.0461***	-0.0842***	0.2043***	-0.0211†	0.2209***	0.0585***	-0.1836***	-0.0038	-0.0285*	-0.0070	1.0000

This table presents the descriptive statistics and distribution of explanatory variables which are calculated by 11,055 firm-year sample observations from 2002 to 2010. The descriptive statistics of three factors, *Rm-Rf*, *SMB*, and *HML* are also presented from the quarter 3, 1991 until the quarter 4, 2010, total 78 quarters. Panel A contains mean, minimum, first quartile, median, third quartile, maximum and standard deviation. r_{avg} is the average cost of equity capital from the four models. r_{CT} , r_{ES} , r_{OJ} , and r_{GF} represent the cost of equity capital developed by Claus and Thomas (2001), Easton (2004), Ohlson and Juettner-Nauroth (2005), and Gordon and Gordon (1997), respectively. r_{FF} is the second measure of cost of equity capital from Fama and French's (1993). Panel B is the result of Pearson pair-wise correlation of total variables. ***, **, *, and † indicates significance at the 0.1%, 1%, 5%, and 10% levels or better, based on t-statistics, respectively.

TABLE 3: Regression Results for Five Continents

Variables	North America		Europe		Asia		Africa		South America	
	r_{AVG}	r_{FF}	r_{AVG}	r_{FF}	r_{AVG}	r_{FF}	r_{AVG}	r_{FF}	r_{AVG}	r_{FF}
<i>CSR_S</i>	-0.0044*	-0.0337**	-0.0048**	-0.0299**	0.0080***	-0.0156	-0.1812*	-0.1927	-0.0039	0.1141
	(-2.54)	(-3.09)	(-2.76)	(-2.73)	(3.69)	(-1.21)	(-2.98)	(-0.89)	(-0.24)	(0.81)
<i>BETA</i>	0.0022***	0.0111***	0.0036***	0.0183***	0.0394***	0.0079†	-0.0393*	0.0187	0.0062	0.0846
	(5.02)	(3.21)	(5.8)	(4.37)	(5.69)	(1.75)	(-2.94)	(0.17)	(0.59)	(1.77)
<i>SIZE</i>	0.0022***	-0.0087**	0.0012***	0.0007	-0.0023***	-0.0168***	0.0553*	-0.0860	0.0063	-0.0241
	(5.31)	(-3.08)	(3.19)	(0.27)	(-4.07)	(-4.42)	(3.36)	(-1.24)	(1.06)	(-0.57)
<i>BTM</i>	0.0103***	-0.0701***	0.0086***	-0.0225*	0.0065***	-0.0569***	-0.0804*	-0.0329	0.0470**	0.0109
	(9.94)	(-7.84)	(8.19)	(-2.53)	(4.34)	(-4.78)	(-2.88)	(-0.15)	(2.82)	(0.16)
<i>LEV</i>	0.0005***	-0.0077**	0.0012***	-0.0077***	0.0025***	0.0026***	0.0313	-0.0187	-0.0077	0.0214
	(3.2)	(3.04)	(5.51)	(-2.94)	(5.99)	(0.70)	(1.65)	(-0.40)	(-1.39)	(0.36)
<i>SALEGRW</i>	-0.0032	0.0559**	-0.0015	0.0823***	0.0013	0.1011***	0.0065	-0.7167	-0.0141	0.2886†
	(-1.58)	(3.04)	(-0.82)	(4.43)	(0.53)	(4.36)	(0.21)	(-1.55)	(-0.76)	(2.13)
<i>INVENTORY</i>	0.0101**	-0.1549***	0.0051	-0.0478†	0.0131***	-0.0184	-0.4630*	-0.6648	-0.01358	-0.0912
	(3.05)	(-6.63)	(1.47)	(-1.93)	(2.87)	(-0.65)	(-3.57)	(-1.46)	(-0.25)	(-0.20)
<i>LOG_SEGMENTS</i>	0.0020***	-0.0324***	0.0050**	-0.0171	-0.0054*	-0.0117	-0.0007	-0.0265	-0.0014	0.0537
	(1.24)	(-3.32)	(2.84)	(-1.51)	(-2.18)	(-0.78)	(-0.61)	(-0.12)	(-0.09)	(0.72)
<i>FOREIGN</i>	0.0193*	-0.0071**	0.0002	0.0067	0.0021	0.0142†	0.0559	0.1601	-0.0077	-0.0054
	(2.13)	(-1.23)	(0.23)	(1.14)	(1.61)	(1.89)	(1.78)	(1.31)	(-0.73)	(-0.09)
<i>LOSS</i>	0.0171***	0.0188*	0.0177***	-0.0205*	0.0198***	-0.170	-0.0916**	-	0.0620**	-
	(13.76)	(2.38)	(12.76)	(-2.21)	(8.76)	(-1.26)	(-3.75)	-	(2.47)	-
<i>INTERCEPT</i>	0.04290***	0.4732***	0.0814***	0.3104***	0.1253***	0.5626***	-0.7900**	1.9013	-0.0041	0.7740
	(4.77)	(8.73)	(10.92)	(6.58)	(13.49)	(9.15)	(-2.99)	(1.77)	(-0.04)	(1.20)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	4,085	2,828	4,159	2,380	2,721	1,636	33	18	57	31
<i>R</i> ²	30.3%	27.4%	28.9%	32.6%	25.6%	26.9%	93.8%	42.8%	79.2%	97.1%
<i>F-Statistic</i>	29.24***	16.56***	27.28***	19.20***	14.76***	9.33***	3.5†	0.67	2.86**	8.32**

This table reports the regressing results of implied cost of equity capital (r_{AVG}) and the cost of equity capital (r_{FF}) estimated by three-factor model on CSR score and control variables from 2002 to 2010. r_{AVG} is the average cost of equity capital from the four models, and r_{FF} is the cost of equity capital from Fama and French's (1993). The sample observations are categorized into five groups by continent. The five continents are North America, Europe, Asia, Africa and Middle and South America, respectively. ***, **, *, and † indicates significance at the 0.1%, 1%, 5%, and 10% levels or better, based on t-statistics, respectively.

TABLE 4

Regression Results for the Cost of Equity Capital versus Different CSR Components in Five Continents

<i>Variables</i>	<i>CSR_GOV</i>		<i>CSR_ECO</i>		<i>CSR_ENV</i>		<i>CSR_SOC</i>		<i>INTERCEPT</i>		<i>Year</i>	<i>Industry</i>	<i>N</i>	<i>R²</i>	<i>F-Statistic</i>
<u>Country</u>	<u>Coeff.</u>	<u>t-stat</u>	<u>Coeff.</u>	<u>t-stat</u>	<u>Coeff.</u>	<u>t-stat</u>	<u>Coeff.</u>	<u>t-stat</u>	<u>Coeff.</u>	<u>t-stat</u>	<i>effect</i>	<i>effect</i>			
North American															
<i>r_{AVG}</i>	-0.0014	-0.54	-0.0054***	-3.48	-0.0024	-1.52	-0.0017	-1.03	0.0500***	-5.80	Yes	Yes	4,085	0.3131	29.10***
<i>r_{FF}</i>	-0.0281	-1.50	-0.0277**	-2.80	-0.0338***	-3.49	-0.0173	-1.64	0.5361***	10.43	Yes	Yes	2,828	0.2721	16.40***
Euro															
<i>r_{AVG}</i>	0.0019	1.12	-0.0071***	-4.50	-0.0044*	-2.50	-0.0032†	-1.76	0.0859***	-11.7	Yes	Yes	4,159	28.77%	27.13***
<i>r_{FF}</i>	-0.0213*	-1.97	-0.0055	-0.54	-0.0310**	-2.71	-0.0265*	-2.23	0.3337***	7.24	Yes	Yes	2,380	32.49%	18.93***
Asia															
<i>r_{AVG}</i>	0.0196***	8.53	0.0034	1.59	-0.0003	-0.13	0.0060**	2.80	0.1153***	12.97	Yes	Yes	2,721	27.22%	16.04***
<i>r_{FF}</i>	0.0135	0.98	0.0069	0.56	-0.0384**	-3.03	-0.0149	-1.21	0.5842***	9.96	Yes	Yes	1,636	26.86%	9.32***
Africa															
<i>r_{AVG}</i>	-0.0729	-0.91	-0.1159*	-3.27	-0.0781	-0.71	-0.2157†	-2.41	-0.4422	-1.28	Yes	Yes	33	86.55%	1.48
<i>r_{FF}</i>	-0.0450	-0.16	-0.2762	-1.48	-0.0199	-0.10	-0.3432	-1.36	1.6027	1.41	Yes	Yes	18	37.44%	0.53
South American															
<i>r_{AVG}</i>	-0.0212	-0.78	-0.0060	-0.36	0.0058	0.33	-0.0023	-0.17	-0.0216	-0.23	Yes	Yes	57	79.66%	2.94
<i>r_{FF}</i>	0.2184	1.47	0.0197	0.14	0.1349	0.88	0.0778	0.56	0.7173	1.21	Yes	Yes	31	97.62%	10.23***

This table examines the regression of cost of equity capital, r_{AVG} and r_{FF} , on individual components of CSR_S and control variables from 2002 to 2010. r_{AVG} is the average cost of equity capital from the four models, and r_{FF} is the second measure of cost of equity capital from Fama and French's (1993). For the sake of concision, we only display the regression coefficients of four individual CSR components. Besides, the coefficients of Intercept and F-Statistic are estimated by the cost of equity capital on CSR_COR. The sample observations are categorized into five groups by continent. The five continents are North America, Europe, Asia, Africa and Middle and South America, respectively. Individual components of CSR_S are Corporate Governance (CSR_COR), Economic (CSR_ECO), Environmental (CSR_ENC) and Social (CSR_SOC). ***, **, *, and † indicates significance at the 0.1%, 1%, 5%, and 10% levels or better, based on t-statistics, respectively.

TABLE 5

Regression Results for the Implied Cost of Equity Capital versus CSR Score and CSR Components by Country

Country	CSR_S		CSR_GOV		CSR_ECO		CSR_ENV		CSR_SOC		INTERCEPT		N	R ²
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat		
North America														
Canada	0.0058	0.37	0.0044	0.19	0.011	1.11	0.0138	0.55	-0.0084	-0.27	0.2362	-2.84	12	99.32%
United States	-0.0041*	-2.31	-0.0011	-0.43	-0.0055***	-3.53	-0.0018	-1.15	-0.0013	-0.78	0.0545***	6.97	4,073	31.24%
Europe														
Austria	-0.0366	-1.31	0.0176	0.49	-0.0457*	-2.06	-0.0158	-0.56	0.0011	0.04	0.4714	1.66	61	73.51%
Belgium	-0.0215†	-1.8	-0.0010	-0.08	-0.0136	-1.18	-0.0243*	-2.27	-0.0196†	-1.69	0.1641	1.81	120	37.65%
Denmark	-0.0195†	-1.82	-0.0311*	-2.33	-0.0210*	-2.15	-0.0036*	-0.29	-0.0144	-1.31	0.0320	0.59	132	61.22%
Finland	-0.0088	-0.59	0.0108	0.63	-0.0239†	-1.95	0.0069	0.42	-0.0039	-0.27	-0.0743	-0.59	152	52.17%
France	-0.0024	-0.4	0.0115*	2.17	0.0006	0.14	-0.0055	-0.91	-0.0121†	-1.83	0.0299	1.06	548	51.53%
Germany	-0.0101	-1.40	0.0060	0.68	-0.0101	-1.40	0.0050	0.76	-0.0011	-0.16	0.0493	1.39	432	45.55%
Greece	-0.0036	-0.21	-0.0016	-0.09	0.0050	0.39	-0.0160	-0.96	-0.0124	-0.78	0.0487	0.53	73	59.81%
Italy	-0.0017	-0.26	-0.0029	-0.36	-0.0036	-0.55	0.0037	0.53	-0.0040	-0.61	0.1394***	3.42	220	68.64%
Ireland	-0.0177	-0.77	0.0036	0.11	-0.0181	-1.03	-0.0214	-1.04	-0.0038	-0.16	0.2068	0.63	52	76.23%
Luxembourg	-0.2298	-1.58	0.0197	0.15	-0.0815†	-9.36	0.3386	2.00	0.1313	0.45	1.6360	1.25	10	92.62%
Netherlands	-0.0159	-1.61	-0.0032	-0.31	-0.0210*	-2.50	-0.0018*	-0.20	-0.0104	-1.01	0.0988*	2.08	218	56.06%
Norway	-0.0075	-0.42	0.0035	0.18	-0.0052	-0.29	-0.0313†	-1.77	-0.0075	-0.42	0.1882*	2.24	104	53.28%
Portugal	0.0102	0.41	0.0083	0.36	0.0102	0.59	0.0020	0.08	0.0104	0.33	0.4347	1.15	45	80.14%
Spain	0.0244*	2.45	0.0168	1.63	0.0170*	2.11	0.0126	1.23	0.0344**	3.02	0.0591	1.63	229	36.52%
Sweden	0.0038	0.40	0.0008	0.08	0.0038	0.40	0.0095	0.97	0.0102	1.07	0.1753***	3.73	285	40.74%
Switzerland	-0.0135*	-2.10	-0.0101*	-1.46	-0.0135*	-2.10	0.0009	0.13	-0.0093	-1.42	0.1248***	4.21	310	54.19%
United Kingdom	-0.0074*	-2.00	-0.0057	-1.21	-0.0016	-0.55	-0.0080	-2.19	-0.0067†	-1.78	0.0532***	3.25	1,148	28.45%

(Continued on next page)

TABLE 5 (Continued)

Regression Results for the Implied Cost of Equity Capital versus CSR Score and CSR Components by Country

Country	CSR_S		CSR_GOV		CSR_ECO		CSR_ENV		CSR_SOC		INTERCEPT		N	R ²
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat		
Asia														
Australia	0.0031	0.49	0.0081	1.21	-0.0035	-0.61	0.0058	0.90	0.0008	0.12	0.1603***	5.33	534	40.56%
China	0.0368†	1.72	-0.0110	-0.49	0.0104	0.56	0.0397*	2.08	0.0287*	1.30	0.1384*	2.34	80	71.13%
Hong Kong	-0.0017	-0.17	-0.0011	-0.09	0.0006	0.07	-0.0067	0.79	0.0008	0.09	0.1686***	3.72	269	36.07%
India	-0.0690*	-3.03	-0.0203	-0.88	-0.0585**	-3.18	-0.0430†	-2.00	-0.0442†	-1.80	0.1248	1.44	64	74.97%
Japan	0.0050	1.53	0.0070	1.05	-0.0028	-0.93	0.0073*	2.36	0.0031	1.11	0.0913***	5.87	1,402	31.40%
Korea	0.3176	3.62	0.2902	2.36	0.3177	3.62	0.0224	0.08	0.0602	0.31	1.3721	3.47	26	99.79%
Malaysia	-0.0245	-1.01	-0.0489†	-2.03	-0.0244†	-1.01	-0.0214	-0.68	-0.0334	-1.28	0.1338	0.65	28	85.74%
New Zealand	-0.0081	-0.27	0.0011	0.03	0.0616	1.53	-0.0100	-0.44	-0.0236	-0.79	-0.2482	-1.00	37	82.22%
Philippines	-0.0565	-0.53	0.3333	1.13	0.0222	0.07	-0.0584	-0.66	-0.0771	-1.03	-0.4881	-0.48	11	87.20%
Singapore	-0.0111	-0.77	0.0171	1.11	-0.0076	-0.72	-0.0104	-0.77	-0.0060	-0.42	-0.0183	-0.31	169	36.30%
Taiwan	0.0696†	2.19	0.0884	1.65	0.0424	1.51	0.0542	1.69	0.0850†	2.50	0.1949	1.14	36	90.17%
Thailand	-0.0420	-0.73	-0.0317	-0.66	-0.0187	-0.20	0.0893	0.64	-0.0355	-0.59	-0.1978	-0.77	14	79.09%
Turkey	-0.0435	-1.34	-0.0625	-1.74	0.0569	0.83	-0.0532†	-2.48	-0.0193	-0.44	-0.1150	-0.36	21	97.31%
Africa														
South Africa	-0.1812*	-2.98	-0.0729	-0.91	-0.1159*	-3.27	-0.0781	-0.71	-0.2157†	-2.41	-0.7900*	-2.99	33	93.81%
Middle and South America														
Brazil	0.0203	0.39	0.0129	0.26	-0.0425	-1.02	0.0665	1.48	0.0102	0.24	0.0408	0.18	41	85.45%
Mexico	-0.0527	-1.70	-0.1198	-1.07	-0.0354	-0.89	-0.0743†	-2.78	-0.0407	-1.41	-0.3385	-0.58	13	71.84%

This table examines the regression of cost of equity capital (r_{AVG}) on corporate social responsibility score (CSR_S) and control variables and shows the results of different regression models, which contain 11,055 sample observations with the period from 2002 to 2010. Model 1 uses overall CSR score as independent variable. Model 2-5 use individual components of CSR_S, including Corporate Governance (CSR_COR), Economic (CSR_ECO), Environmental (CSR_ENC) and Social (CSR_SOC). ***, **, *, and † indicates significance at the 0.1%, 1%, 5%, and 10% levels or better, based on t-statistics, respectively.

TABLE 6

Regression Results for the Cost of Equity Capital (r_{FF}) versus CSR Score and CSR Components by Country

Country	<u>CSR_S</u>		<u>CSR_GOV</u>		<u>CSR_ECO</u>		<u>CSR_ENV</u>		<u>CSR_SOC</u>		<u>INTERCEPT</u>		N	R^2
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat		
North American														
United States	-0.0338 **	-3.09	-0.0281	-1.50	-0.0277 **	-2.70	-0.0338 ***	-3.49	-0.0173	-1.64	0.4732 ***	8.73	2,828	27.40%
Euro														
Austria	0.0355	0.09	-0.0217	-0.16	-0.0353	-0.29	0.0436	0.30	-0.1000	-0.23	7.5755 †	2.17	29	99.18%
Belgium	-0.1335	-1.14	-0.0962	-0.81	-0.1837	-1.49	-0.0981	-0.88	0.0591	0.41	0.5351	0.57	57	68.74%
Denmark	0.1012 †	1.76	0.0913	1.25	0.0626	1.09	0.0920	1.28	0.0716	1.19	1.0470 **	2.70	90	58.98%
Finland	-0.2099 **	-3.29	-0.1398 †	-1.84	-0.0737	-1.21	-0.2506 ***	-3.31	-0.2140 ***	-3.42	-1.3472 †	-1.97	103	69.82%
France	-0.0877 *	-2.04	-0.0049	-0.13	-0.0292	-0.94	-0.0934 *	-2.11	-0.0488	-1.05	0.2691 †	1.72	321	50.27%
Germany	-0.0318	-0.66	-0.0547	-1.03	0.0059	0.16	-0.0450	-1.05	0.0259	0.53	0.2160	1.03	432	45.55%
Greece	0.0175	0.11	0.1665	1.56	-0.0312	-0.31	-0.0348	-0.25	-0.1981	-1.37	-0.3078	-0.36	36	88.00%
Ireland	-0.1081	-0.88	-0.2797 †	-1.80	0.0090	0.08	-0.0056	-0.04	-0.2424 †	-1.88	-0.3583	-0.14	40	83.64%
Italy	0.1070	1.47	0.1436	1.51	-0.0121	-0.17	0.1288	1.63	0.1134	1.59	0.7774	1.13	91	56.62%
Netherlands	0.1469 **	2.62	0.1163 †	1.90	0.0470	0.91	0.1064 *	1.05	0.1415 *	2.37	0.3511	1.38	160	63.20%
Norway	-0.0553	-0.40	-0.2709 *	-2.34	0.0431	0.35	0.0826	0.62	-0.0378	-0.28	0.0048	0.00	51	79.63%
Portugal	0.4708	1.83	0.3976	1.51	0.2676 *	2.70	0.4244	1.22	0.2723	0.62	1.8381	0.62	27	86.62%
Spain	0.1169 †	1.82	0.0579	0.87	0.0756	1.46	0.0889	1.51	0.0896	1.04	0.1013	0.30	133	48.47%
Sweden	-0.0631	-0.78	0.0476	0.73	-0.0572	-1.15	0.0889	1.51	0.0896	1.04	1.1134 **	2.78	147	59.62%
Switzerland	-0.0724	-1.33	-0.0813	-1.35	-0.0181	-0.40	-0.0884	-1.64	0.0146	0.27	0.2345	0.71	164	58.82%
United Kingdom	-0.0662 **	-2.82	0.0127	0.43	-0.0144	-0.79	-0.0979 ***	-4.23	-0.0638 **	-2.72	0.17 †	1.70	701	35.48%

This table examines the regression of cost of equity capital (r_{FF}) on corporate social responsibility score (CSR_S) and control variables and shows the results of different regression models, which contain 6,902 sample observations with the period from 2002 to 2010. Model 1 uses overall CSR score as independent variable. Model 2-5 use individual components of CSR_S, including Corporate Governance (CSR_COR), Economic (CSR_ECO), Environmental (CSR_ENC) and Social (CSR_SOC). ***, **, *, and † indicates significance at the 0.1%, 1%, 5%, and 10% levels or better, based on t-statistics, respectively.

TABLE 6 (Continued)

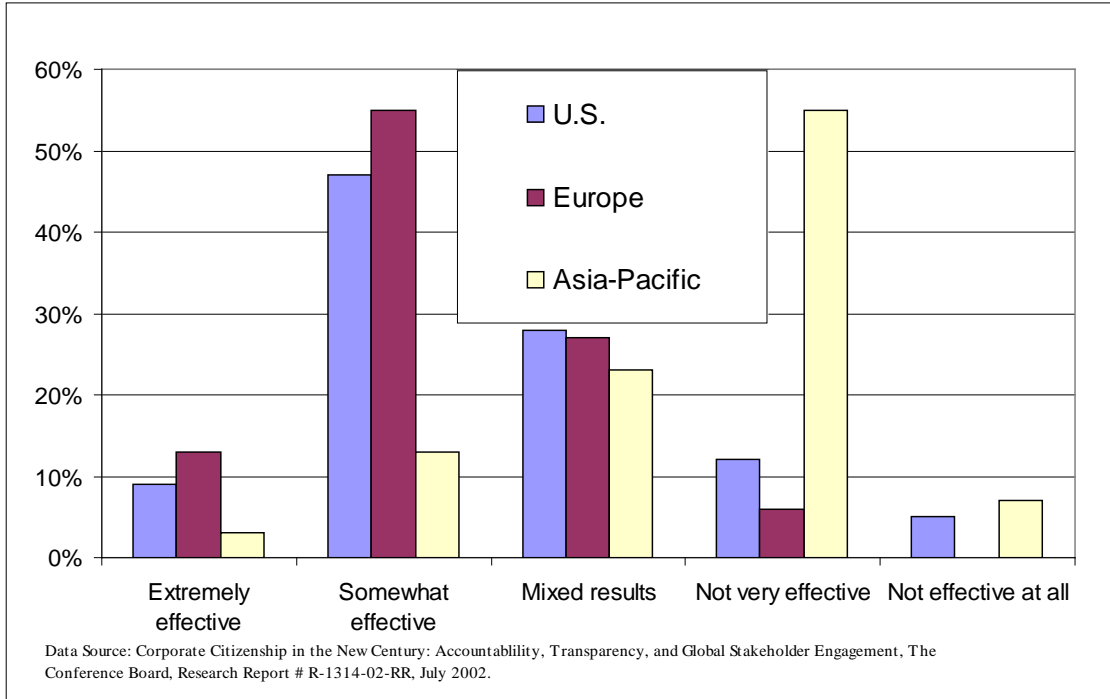
Regression Results for the Cost of Equity Capital (r_{FF}) versus CSR Score and CSR Components by Country

<u>Country</u>	<u>CSR_S</u>		<u>CSR_GOV</u>		<u>CSR_ECO</u>		<u>CSR_ENV</u>		<u>CSR_SOC</u>		<u>INTERCEPT</u>		<u>N</u>	<u>R²</u>
	<u>Coeff.</u>	<u>t-stat</u>	<u>Coeff.</u>	<u>t-stat</u>	<u>Coeff.</u>	<u>t-stat</u>	<u>Coeff.</u>	<u>t-stat</u>	<u>Coeff.</u>	<u>t-stat</u>	<u>Coeff.</u>	<u>t-stat</u>		
Asia														
Australia	-0.1778 ***	-4.73	-0.1673 ***	-3.70	-0.0982 **	-2.70	-0.1498 ***	-4.03	-0.1325 ***	-3.56	0.4448 *	2.53	253	54.28%
China	-1.2456	-0.24	-2.1049 †	-2.39	-0.2691	-0.19	-0.6494	-0.53	-0.9369	-0.90	0.2595	0.11	13	62.77%
Hong Kong	0.0053	0.10	0.0631	0.97	-0.0107	-0.22	-0.0001	-0.00	-0.0018	-0.03	0.8246 **	3.20	171	20.23%
India	0.5376 *	2.14	0.1292	0.67	0.2993	1.48	0.3373	1.08	0.1677	0.71	2.3086 †	1.84	38	89.88%
Japan	0.0205	1.26	-0.0038	-0.12	0.0222	1.49	0.0167	1.14	0.0158	1.18	0.5393 ***	6.67	926	36.03%
Korea	-0.0439	-2.10	-0.0772	-0.65	-0.0443	-1.50	-0.0517 †	-3.40	-0.0610	-2.59	2.627 **	14.6	12	99.76%
Malaysia	0.0036	0.03	-0.0060	-0.03	-0.0593	-0.47	0.0326	0.21	0.0338	0.23	-0.0391	-0.06	20	4.96%
Singapore	0.1272	1.54	-0.0017	-0.02	0.0971	1.49	0.0203	0.24	0.1991 *	2.15	0.8159 †	1.76	94	64.47%
Taiwan	0.9992 †	2.44	1.3264	1.68	0.4104	1.20	0.9091	1.80	1.1515	1.90	6.6013 †	2.43	26	90.80%
Turkey	-0.0336	-0.18	0.1082	0.29	-0.1770	-0.57	-0.0159	-0.11	-0.0251	-0.10	1.138	0.93	16	76.86%
Africa														
South Africa	-0.1928	-0.89	-0.0450	-0.16	-0.2762 **	-1.48	-0.0199	-0.10	-0.3432	-1.36	1.9014 **	1.77	18	42.83%
South American														
Brazil	-0.2862 †	-1.78	-0.2366	-1.29	-0.1108	-0.78	-0.3257	-1.64	-0.2848 †	-1.88	0.7045 †	1.87	24	59.55%

This table examines the regression of cost of equity capital (r_{FF}) on corporate social responsibility score (CSR_S) and control variables and shows the results of different regression models, which contain 6,902 sample observations with the period from 2002 to 2010. Model 1 uses overall CSR score as independent variable. Model 2-5 use individual components of CSR_S, including Corporate Governance (CSR_COR), Economic (CSR_ECO), Environmental (CSR_ENC) and Social (CSR_SOC). ***, **, *, and † indicates significance at the 0.1%, 1%, 5%, and 10% levels or better, based on t-statistics, respectively.

APPENDIX A

How effective are your efforts today to address the citizenship factors that will ensure your success tomorrow?



APPENDIX B

Pillar	Category
Environmental performance	Resource reduction Emission reduction Product innovation
Economic performance	Client loyalty Performance Shareholder's loyalty
Social performance	Employment quality Health & safety Training & development Diversity Human rights Community Product responsibility
Corporate governance performance	Board structure Compensation policy Board functions Shareholder's rights Vision and strategy

APPENDIX C

Area	Country
North America	Canada, United States
Europe	Austria, Belgium, Denmark, Czech Republic, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Poland, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom
Asia	Australia, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Taiwan, Thailand, Turkey
Africa	South Africa
Middle and South America	Brazil, Chile, Mexico, Peru