

Financial Performance and Corporate Social Responsibility in Asia: Empirical Evidence from Taiwan

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Abstract

This study, using data provided by CSRHub, examines the effect of CSR dimensions on the financial performance of firms in Taiwan. Specifically, we examine whether CSR in employment exhibits a signaling effect and results in financial benefits to firms in Taiwan. We find that allocating resources to diversity, labor rights, treatment of unions, compensation, benefits, training, health, and worker safety can be beneficial to a firm's value creation. Using sustainability ratings by CSRHub, we are able to cover a broader range of companies in size, geography, and industry type than those previously studied.

Keywords: corporate social responsibility; financial performance; CSRHub; Asia; Taiwan JEL classification numbers: G14, D21, L21

1. Introduction

The literature suggests that there are significant differences in corporate social responsibility (CSR, hereafter) initiatives across Western and Eastern countries (Wokutch, 1990; Baughn, Bodie, and McIntosh, 2007; Welford, 2005; Yang and Rivers, 2009; Hah and Freeman, 2014). One way to empirically explore CSR practices in Western/Eastern countries is to examine how the subsidiaries of multinational enterprises align the CSR approaches of their parent firms with local practices in emerging markets. Another approach to exploring these differences is to investigate how CSR works for Asian firms under globalization, in which industries and firms are moving toward practices common around the world. The current study takes the second approach by examining the link between CSR

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and corporate financial performance for Taiwan firms.

Stakeholder theory (Freeman, 1984) suggests that a socially responsible firm devotes attention simultaneously to the interests of all appropriate stakeholders. The link of CSR to corporate financial performance can further be established once investors and key stakeholders reward firms that are sensitive and accountable to stakeholders' concerns. The purpose of this study is to investigate how investors reward firms with good image/reputation across the following four CSR dimensions: Governance, Community, Employees, and Environment. Data is drawn from the CSRHub database for companies listed in Taiwan.

Taiwan companies are a good laboratory for testing the relationship between CSR and corporate financial performance under globalization in Asian countries. On one hand, Taiwan companies have been exposed to the values associated with Asian business, such as the cultivation of special relationships and a substantial distinction between 'insiders' versus 'outsiders' (Ang and Leong, 2000). and weaker policies associating CSR with employment (Welford, 2005). On the other, Taiwan companies are exposed to globalization, which shapes organizational and firm competitiveness. In particular, exports in Taiwan account for around 70 percent of total GDP, predominantly by industrial goods (98% in 2017, including electronics and information & communication products). Taiwan's main exports partners include the USA, Europe, Japan, ASEAN countries, and China & Hong Kong². According to the 2017 Investment Climate Statements issued by the US Department of State, Taiwan is one of the world's top 25 economies in gross domestic product (GDP), the United States' 10th largest trading partner, a key link in global supply chains, and a major center for advanced research and development (R&D). According to the most recent U.S. Department of Commerce data, the total stock of U.S. Foreign Direct Investment (FDI) in Taiwan reached USD 15 billion, while U.S. private commercial services exports to Taiwan totaled over USD 12 billion in 2015³. Therefore, globalization has brought sophisticated suppliers/buyers/investors to Taiwan, who act as a new audience evaluating the reputations of local firms from the perspective of global norms and expectations. In addition, Taiwan firms face intense competition for critical/skilled employees in global supply chains.

Research shows that for Asian companies, the effects of CSR on financial performance are mixed⁴. One reason for the inconclusive results may be inadequate measurement issues and insufficient data (Lee, 2008). To overcome the measurement issues and insufficient data, this study, the first of its kind, uses data provided by CSRHub over the period from 01/2009 to 06/2014 to examine the effect of CSR dimensions on the financial performance of corporations in Taiwan. There are hardly any comprehensive and easily accessible CSR databases that incorporate a variety of sustainability ratings. Previous studies have often relied on the Kinder, Lydenberg, and Domini's KLD Research & Analytics database as a source for sustainability ratings. Currently, CSRHub provides a web-based tool combining over 93 million detailed data items from more than 480 data sources on sustainability into a consistent set of ratings. Using sustainability ratings by CSRHub, we are able to cover a broader range of companies in size, geography, and industry type than previously studied.

We find that allocating resources to diversity, labor rights, treatment of unions, compensation, benefits, training, health, and worker safety can be beneficial to a firm's value creation in a more developed emerging market, such as Taiwan. The contribution of the current study is to provide more recent evidence to update previous findings in Asian emerging markets. Welford (2005) compared large companies' written policies of CSR in fifteen countries across Asia, North America and Europe, and found that Asian companies were less likely to have a policy about CSR in employment. Crane, Matten, and Spence (2013) document that Asian companies usually have a legacy of CSR, including employment, not so much as a result of voluntary corporate policies, but more as a response to the regulatory and institutional environment of business. Using a more comprehensive data and diverse CSR measurements, we find that over years the lack of CSR in employment for Asian companies may have been improved to some extent, at least in economic entities, such as Taiwan, which are exposed to globalization. We do find that corporate sustainability ratings in employment, including labor rights, treatment of unions, compensation, benefits, training, health, and worker safety, will affect Book-to-Market (BM) ratio and Tobin's q for firms listed in Taiwan. Our results indicate that CSR in

² Information available at <u>https://tradingeconomics.com/taiwan/exports</u>

³ Investment Climate Statements issued by the US Department of State and the FDI are available at <u>https://www.state.gov/e/eb/rls/othr/ics/2017/eap/269854.htm</u>

⁴ CSR in Asia has been positively (Cheung, Tan, Ahn, and Zhang, 2010; Oh, Chang, and Martynow, 2011), negatively (Li and Zhang, 2010), and non-significantly (Cao, 2011) related to performance.



employment can become a capability differentiator for Asian companies. Firms which account for employment issues are rewarded by market investors and key stakeholders in Asian companies, at least in a more developed emerging market, such as Taiwan.

The remainder of this study is as follows. Section 2 reviews the related literature and provides hypothesis development. Section 3 describes the data and methodology used in this study. Section 4 addresses the empirical results, while Section 5 presents the conclusions.

2. Literatures Review and Hypothesis Development

2.1 CSR and Financial Performance

Studies show that CSR adds value to a firm's market performance. One way to look at the stock performance of CSR firms is to examine the performance of socially responsible mutual funds. Socially responsible mutual funds are those created by securities investors involving companies they believe are committed to socially responsible activities that will earn competitive returns. Hill, Ainscough, Shank, and Manullang (2007) study socially responsible mutual funds in Asia, Europe, and U.S., finding a significantly positive return in all three countries using a 10-year time horizon.

One underlying reason that CSR adds value to a firm's market performance is the screening process of CSR. Strong CSR firms might gain higher screening scores and become more secure when undergoing financial crises or environmental difficulties. Several studies show that CSR screening intensity has a significant effect on financial performance. Galema, Plantinga, and Scholtens (2008) find that the score of employee relationships generates a significant positive effect on excess returns. Kempf and Osthoff (2007) use the Socially Responsible Investing (SRI) ratings of KLD Research & Analytics to compare stock portfolios with high and low SRI ratings, finding that the higher ratings portfolio performs better than the lower ratings portfolio.

However, some scholars argue that the disadvantages of socially responsible activities will erode a firm's financial performance (Barnett and Salomon, 2006). According to Freeman's (1984) stakeholder theory and Cornell and Shapiro (1987), CSR firms should not only serve their owners by realizing value-maximization but also stakeholders' goals in order to reach their potential value. However, the interests of various stakeholders often conflict with each other. Stakeholder theory indicates that managers need to make tradeoffs to take into account all of the interests of the stakeholders in a firm. Jensen (2001), however, argues that stakeholder theory increases the agency costs and weakens the internal control systems of firms, since its performance measures are only vaguely defined. A new way of measuring value, such as long-run maximization of the value of the firm, could resolve this conflict. Renneboog, Ter Horst, and Zhang (2008) state that in socially responsible investments, portfolio managers pursue both financial goals and social objectives, and this multi-focused nature may weaken fund managers' incentives to pursue high risk-adjusted returns and increase potential agency costs. Barnea and Rubin (2010) find that insiders (managers and large blockholders) who are affiliated with the firm may want to over-invest in CSR for their private benefit since it improves their reputation for being good global citizens.

2.2 Signaling Effect of CSR and Asian Emerging Markets

CSR may create a good signaling effect and earn certification for its reliability, becoming a form of certification for a company that may provide superior reliability and reputation. A good reputation can attract capital, quality employees, and good investors. Turban and Greening (1997) find that an outstanding reputation makes the company attractive to highly-qualified employees, giving it a competitive advantage. In addition, an increase in perceived social responsibility may improve a firm's reputation and permit it to exchange costly explicit claims for less costly implicit charges (McGuire, Sundgren, and Schneeweis, 1998; Robinson, Kleffner, and Bertels, 2008). In addition, companies involved in CSR activities could experience reduced information asymmetry between managers and investors (Cui, Jo, and Na, 2012). For example, disclosure of CSR gives investors more information, mitigating agency problems through corporate governance, which will be reflected in market prices. Bauer, Guenster, and Otten (2004) show a significant positive relation between corporate governance and firm value. Lopatta, Buchholz, and Kaspereit (2012) conclude that companies with higher sustainability rankings (defined as CSR dimensions) are more proactive in disclosing information. Good relationships between CSR firms and direct stakeholders (employees, customers, retailers, producers, suppliers) can contribute to a decrease in agency costs. CSR involves environmental, social, and governmental activities which allow firms to echo the anticipation of indirect stakeholders (social communities, charities, legislative organization, and government) and win their faith and trust.

For emerging markets, Su, Peng, Tan, and Cheung (2016) investigate what signals firms in emerging markets send to stakeholders when they adopt CSR practices. They find a positive relationship between CSR practices and financial performance. The financial benefits of CSR practices are also more salient in low information diffusion markets than in the high information diffusion markets.

A further question is which CSR dimensions, Employment, Governance, Environment or Community, are more likely to generate signaling effects in emerging markets and result in financial benefits. The literature suggests that there are significant differences in CSR practices across different countries (Wokutch, 1990; Baughn, Bodie, and McIntosh, 2007; Welford, 2005; Yang and Rivers, 2009; Hah and Freeman, 2014). In particular, the US business system is rooted in an American society characterized by a high appreciation of individual freedom and fairly unregulated markets. Consequently, many social issues, such as the environment, employment and corporate community contributions, have been at the core of CSR in U.S. companies (Brammer and Pavelin, 2005). However, in Asian countries there has always been a stronger tendency to address social issues through governmental policies (Crane, Matten, and Spence, 2013). Many Asian companies have a legacy of CSR, including employment, benefits, social services, and healthcare, not so much as a result of voluntary corporate policies, but more as a response to the local regulatory regime. Hence, in general, the CSR policies of Asian companies are more likely to be affected by mandatory policies and provide less differentiable information across firms within an economic entity. However, we argue that firms can distinguish themselves in emerging economies by adopting CSR practices in employment for the following reasons.

First, Asian companies tend to focus on CSR's economic rationale, but ignore issues such as human rights for employees. Welford (2005) compares large companies' written CSR policies in 15 countries across Asia, North America and Europe, and finds that Asian companies are less likely to have a policy related to working hours, maximum overtime, and fair wage structures, and are less committed to freedom of union or association, not to mention staff development. By comparison, Welford (2005) does not find significant difference in the frequency of CSR policies related to external stakeholders (suppliers or community) between Asian companies and European and North American. Therefore, voluntary CSR practices in employment may become signals to investors in differentiating firm quality in emerging Asian economies.

Second, a comprehensive employee benefits package is costly, including a competitive salary, insurance, paid time off from work, welfare, health care, training, and retirement. Further, there are costs associated with labor rights, treatment of unions, and worker safety. In addition, firms incur long-term costs, including explicit monetary costs and implicit management costs, when adopting CSR practices and establish sustainability ratings in employment. If an Asian firm is willing to consistently allocate reasonable resources to maintain a sustainable relationship with its employees, this endeavor can be important since it not only helps to strengthen the firm's access to critical employee resources, but is costly for low-capability competitors to imitate. In addition, CSR practices in employment can contribute to a firm's sustainable long-term growth since demonstrated commitment to employee welfare can help a company to attract and retain good employees as well as encourage them to invest in firm-specific human capital. Human capital is quite important when Asian emerging markets face intense competitions for critical/skilled employees in the global supply chains. Therefore, we posit that CSR practices in employment may be a signal that reveals additional information to employees and other stakeholders, especially in Asian emerging economies. We form the following hypothesis:

Hypothesis 1: CSR sustainability ratings in employment are positively related to firm financial performance in emerging economies, such as Taiwan.

For other CSR dimensions, Webb (2006) states that the CSR debate in the Asian countries focuses on the issues of corporate governance and transparency. One way to increase corporate transparency is through the adoption of global norms such as International Financial Reporting Standards (IFRS). In Taiwan, all firms, including listed and unlisted firms, are required to prepare financial statements in accordance with Taiwan-IFRS starting from January 1, 2015. In addition, appointment of independent directors on company boards is required by corporate law, and there is more awareness of the need for related party transactions disclosure in corporate regulations in Taiwan. Hence, in a more developed emerging market, such as Taiwan, it is not so difficult to communicate with stakeholders about the quality of a firm's corporate governance when the local institutional infrastructure is established. Hence, in a more developed emerging market, such as Taiwan, whether firm engagement in CSR practices in corporate governance can signal more



unobservable attributes to stakeholders and whether stakeholders value these unobservable attributes and provide premiums to these firms remain unknown, and we leave them as empirical questions.

Similarly, for CSR practices involving the environment, compliance with certain environmental standards (ISO 14001 environmental management system certification) is often driven by supply chains from the global markets. Companies facing pressure from supply chains are required to adopt certain CSR practices involving the environment. In addition, for Asian companies, CSR practices associated with the community tend to be responses to regulatory regimes. Therefore, whether CSR practices for the environment or the community can become a capability differentiator for Asian companies in a more developed emerging market remains unknown, and we also leave it as an empirical question.

2. Data and Methodology

3.1 Data

In this study, we use the monthly data ratings obtained from CSRHub over the period from 01/2009 to 07/2014 to analyze the relationships between CSR and financial performance in Taiwan firms. The reasons are twofold. First, to the best of our knowledge, no related study with a similar research design using Taiwan data exists. Second, the CSRHub uses data sources from various socially responsible investing firms, well-known indexes, publications, crowdsources and government agencies and provides CSR ratings of more than 5000 companies from 65 countries. Some sources provide numerical scores while others use relative rankings or signs ("+" or "-"). By aggregating and normalizing the information from these sources, CSRHub provides a data format that uses a single value ranging from 0 to 100 for each category/subcategory, which makes the interpretation easier and more meaningful based on the relationships found in the analysis.

Previous studies have often relied on the Kinder, Lydenberg, and Domini's KLD Research & Analytics database as a source for CSR sustainability ratings. The KLD Research & Analytics database includes the following six dimensions: community involvement, corporate governance, diversity, employee relations, environment, and product. KLD uses multiple criteria to evaluate firms, using positive, indicating strength, and negative, indicating weakness, screens. Each screen is a binary variable, 1 and 0. Unlike the classification in KLD Research & Analytics, CSRHub classifies all dimensions into four categories: Community (COMM), Employee (EMP), Environment (ENV), and Governance (GOV). COMM covers activities and concepts related to human rights, supply chain, product guality and safety, product sustainability, community development and philanthropy. EMP covers diversity, labor rights, treatment of unions, compensation, benefits, training, health, and worker safety. ENV covers environmental policy, environmental reporting, waste management, resource management, energy use, climate change policies and performance. GOV covers leadership ethics, board composition, executive compensation, transparency and reporting, and stakeholder treatment. Each of the four categories is further divided into three sub-categories. The three sub-categories for Community (COMM) include: (1) Community Development and Philanthropy, (2) Product, and (3) Human Rights and Supply Chain. The three sub-categories for Employee (EMP) include: (1) Compensation and Benefits, (2) Diversity and Labor Rights, and (3) Training, Safety, and Health. The three sub-categories for Environment (ENV) include: (1) Energy and Climate Change, (2) Policy and Reporting, and (3) Resource Management. The three sub-categories for Governance (GOV) include: (1) Board, (2) Leadership Ethics, and (3) Transparency and Reporting.

CSRHub uses its own methodology to collect information from more than 175 resources and then follows five steps to generate the ratings for each category and subcategory. The first step is to map the data to a central schema. CSRHub divides CSR performance into twelve subcategories, which we roll up into four categories: Community (COMM), Employee (EMP), Environment (ENV), and Governance (GOV). Each element of data received is mapped into one or more subcategories. In the second step, each data item from the data sources is converted into a rating on a 0 to 100 scale (100 = positive rating). The third step is normalizing the data. Comparisons for the same company between scores from different data sources is performed. CSRHub makes adjustments in order to remove bias and create a more consistent rating based on the variation between sources. The data are then aggregated in the fourth step. CSRHub weights each source based on estimate of its credibility and value and then combines all of the available data on a company and generates base ratings at the subcategory level. CSRHub then aggregates these ratings to the category level. Finally, CSRHub drops ratings when it does not have enough information. Detailed explanations of the major CSR categories COMM, EMP, ENV, and GOV, along with the sub-categories COMMsub1-COMMsub3, EMPsub1-EMPsub3, ENVsub1-ENVsub3, and GOVsub1-GOVsub3 are available in the company's



website⁵.

Since we primarily use panel data for this study, 83 firms with adequate data are analyzed. Table 1 presents the sample's industry distribution. Each industry listed in Table 1 contains fewer than five firms, except "Chemicals, Plastics & Rubber", "Computers & Peripherals" and "Semiconductor & Other Electronic", which have nine to fifteen firms. The distribution is consistent with that of listed firms in Taiwan. The list of firms used in the current study is in the Appendix. Table 2 presents the data description for the ratings. The ratings under each major category as well as each sub-category are provided. The ratings range from 12 to 82. There are 875 firm-month observations.

[Insert Table 1 around here.] [Insert Table 2 around here.]

3.2 Methodology

The current study focuses on the relation between financial performance and CSR dimensions. Three financial performance measures are used, including excess stock returns, book-to-market ratios, and Tobin's qs. Excess stock return is defined as the monthly return of a stock that exceeds the risk-free rate (proxied by one-month T-bills rate) in the corresponding month. We use the excess returns to examine the relationship between CSR dimensions and returns after allowing for firm characteristics. Therefore, consistent with Brammer, Brooks, and Pavelin (2006), we control for the firm's systematic beta risk, market capitalization, book-to-market ratio, past average returns, share turnover, and age as performance attribution factors in the excess returns regressions.

Galema, Plantinga, and Scholtens (2008) investigate the impact of SRI on the value of firm using book-to-market regressions. They find that SRI impacts stock returns by lowering the book-to-market ratio, but not by generating positive alphas. Their analyses are based on different dimensions of socially responsible performance classified by KLD Research & Analytics. Consistent with Galema, Plantinga, and Scholtens (2008), we measure the book-to-market ratio of a firm as the logarithm of the book-to-market ratio of equity value. However, the major difference between our study and that of Galema, Plantinga, and Scholtens (2008) lies in the data values we use. Our scores range from 1 to 100, allowing us to generate a more meaningful interpretation of the data. However, data values of 1 and 0 do not enable us to infer the extent of the impact on each subcategory. Consistent with Galema, Plantinga, and Scholtens (2008), our second set of model specifications investigates the impact of CSR dimensions on the value of the firm using book-to-market regressions.

Our third performance measure is Tobin's q. Guenster, Derwall, Bauer, and Koedijk (2011) focus on the environmental aspect of CSR and investigate the impact what they term its "relative eco efficiency" on Tobin's q. Harjoto and Jo (2011) also apply Tobin's q as a financial performance measure to investigate the effects of CSR in corporate governance on firm value. We measure firm value with Tobin's q, which is defined as the ratio of the sum of market equity value and liabilities to its corresponding total asset book value. A firm displaying Tobin's q greater than unity is considered as using scarce resources effectively, and those with lower Tobin's q (or even less than unity) as using resources poorly.

3.2.1 Excess Returns Regressions

To establish the relationship between returns and CSR at the level of individual stocks, we investigate the direct impact of CSRHub scores on excess returns. This allows us to identify whether different dimensions have confounding effects on the relation between CSR and return. Using the CSRHub scores defined above along with a host of control variables, we perform the following regression:

$$R_{i,t} - RF_t = \beta_0 + \beta_1 CSRRating_{i,t-1} + \beta_2 Beta_{i,t} + \beta_3 X_{i,t} + \varepsilon_{i,t},$$
(1)

where $R_{i,t}$ is the monthly return of stock *i* in month *t* and RF_t is the return on one-month T-bills in month *t*. The vector $CSR_{i,t-1}$ includes the scores of four CSR categories (twelve subcategories variables) at the end of month *t*-1. $Beta_{i,t}$ is a stock's post-ranking beta estimated using the traditional method of Black (1972). $X_{i,t}$ is a vector of control variables including the natural logarithm

⁵ <u>https://www.csrhub.com/content/csrhub-data-schema/</u>



of firm *i*'s market capitalization at the end of month *t* (SIZE), the logarithm of the book-to-market ratio of stock *i* at the end of month *t* (BM), a firm's simple average of returns during the past 12 months (AveRet), the one-month lagged monthly average of daily share turnover in firm *i* (TurnOver), and the natural log of a company's age measured at the end of month *t* (Age). $\varepsilon_{i,t}$ is the error term for firm *i* in month *t*.

3.2.2 Book-to-Market Regressions

Book-to-market (BM) ratio, defined as the ratio of book value to market value, is used to proxy for the firm's growth opportunity and bankruptcy risk. High BM is mainly seen as a high bankruptcy risk for equity investors. Hence, it has a higher than expected return. Low BM, sometimes, may reflect the success of managers in overseeing strong operating performance and growth in net assets of the firm. In this study, we examine the relationship between BM and CSR dimensions. The regression is as follows.

$$BM_{i,t} = \beta_0 + \beta_1 CSRRating_{i,t-1} + \beta_2 X_{i,t} + \varepsilon_{i,t}, \qquad (2)$$

where $BM_{i,t}$ is the logarithm of the book-to-market ratio of firm *i* at the end of month *t*. $CSRRating_{i,t-1}$ is the vector containing the (lagged) ratings of four major categories / twelve sub-major categories at end of month *t-1*: community (COMM) / COMMsub1-COMMsub3, employee (EMP) / EMPsub1-EMPsub3, environment (ENV) / ENVsub1-ENVsub3, and governance (GOV) / GOVsub1-GOVsub3. $X_{i,t}$ is the vector of control variables including: the logarithm of return on equity at the end of month *t* (ROE) and the logarithm of age as measured at the end of month *t* (Age). ROE has been winsorized to exclude the 1% smallest and largest observations.

3.2.3 Tobin's q Regressions

We measure firm value with Tobin's q, which is defined as the ratio of the sum of market equity value and liabilities to its corresponding total asset book value. The regression is as follows.

$$TobinQ_{i,t} = \beta_0 + \beta_1 CSRRating_{i,t-1} + \beta_2 X_{i,t} + \varepsilon_{i,t},$$
(3)

where $TobinQ_{i}$, is the logarithm of the ratio of the sum of market equity value and liabilities to its

corresponding total asset book value for firm *i* at the end of month *t*. $CSRRating_{i,t-1}$ is the vector containing the (lagged) ratings of four major categories / twelve sub-major categories at end of month *t-1*: community (COMM) / COMMsub1-COMMsub3, employee (EMP) / EMPsub1-EMPsub3, environment (ENV) / ENVsub1-ENVsub3, and governance (GOV) / GOVsub1-GOVsub3. $X_{i,t}$ is the

vector of control variables including: the logarithm of return on equity at the end of month t (ROE) and the logarithm of age as measured at the end of month t (Age). ROE has been winsorized to exclude the 1% smallest and largest observations.

4. Results

4.1 Excess Returns and CSR Dimensions

Tables 3 and 4 show the results in which we examine the association between a firm's excess returns with CSR ratings across different categories and control variables. In Table 3, COMM and ENV show a negative association with the firm's excess returns, while EMP and GOV show a positive association. However, none is statistically significant at any conventional level.

We next explore whether the aggregate CSR categories may have confounding effects because their sub-categories may introduce conflicts that affect excess returns. For example, news related to philanthropy can positively affect firm's stock returns, whereas news related to reducing environmental costs may negatively affect the firm's stock returns due to rising production costs. We apply the sub-categories in the analysis. In Table 4, only two sub-categories under COMM show statistical



significance at the 0.1 level. COMMsub1 is positively and significantly associated with the firm's stock returns. This indicates that the market recognizes efforts made in Community Development & Philanthropy. COMMsub3 is negatively and significantly associated with the firm's stock returns. This indicates that investors are concerned about the impact of the responsibility a company assumes for the development, design, and management of its products and services. Surprisingly, none of the other CSR components show statistically significant results at any conventional level. In general, the results are consistent with the literature that finds few significant relations between CSR dimensions and stock returns.

[Insert Table 3 around here.] [Insert Table 4 around here.]

4.2 Book-to-Market and CSR Dimensions

Book-to-market (BM) ratio, defined as the ratio of book value to market value, is used to proxy for firm's growth opportunity and bankruptcy risk. High BM is mainly seen as a high bankruptcy risk for equity investors. In the finance literature, high BM firms are often regarded as "value firms". Low BM, on the other hand, largely reflects the success of managers in overseeing strong operating performance and growth in net assets of the firm. Firms with low BM are often regarded as "growth firms". Tables 5 and 6 show the results in which we examine the association between BM ratio and CSR dimensions. No single major CSR category shows statistical significance when tested. EMP has a negative and significant association with BM at the 0.05 level in model (5). This is also confirmed in model (2) and (5) of Table 6. This result indicates that growth firms allocate more resources to issues related to workplace policies and practices covering fair and non-discriminatory treatment of employees, and to diversity policies. The results are consistent with Hypothesis 1. In addition, COMMsub3 is positively and significantly associated with BM. This indicates that value firms allocate more resources to the firm's capacity to reduce environmental costs, create new market opportunities through new sustainable technologies or processes, and produce or market goods and services that enhance the health and quality of life for consumers. Under the ENV category, ENVsub3 shows a positive and significant association with BM. This means that value firms put effort into managing how efficiently resources are used in manufacturing and delivering products and services, including those of a company's suppliers.

> [Insert Table 5 around here.] [Insert Table 6 around here.]

4.3 Tobin's q and CSR Dimensions

Tobin's q, defined as the ratio of the sum of market equity value and liabilities to its corresponding total asset book value, is used to proxy for the firm's value creation. Tables 7 and 8 show the results in which we examine the association between Tobin's q and CSR dimensions. Again, no single major CSR category shows statistical significance when tested. However, COMM shows a negative and significant association with Tobin's q at the 0.05 level and EMP shows a positive and significant association with Tobin's q at the 0.01 level. When we investigate further in Table 8, none of the sub-categories under COMM is significant. The negative sign is consistent with that in Table 7, which indicates that the negative impact dominates the association with Tobin's q. In other words, efforts or resources spent on human rights, supply chain, product quality and safety, community development, and philanthropy have a negative impact on the firm's creation of market value. Conversely, positive impacts dominate the association with Tobin's q. This indicates that efforts related to activities or concepts, such as diversity, labor rights, and benefits, have a positive impact on the firm's creation of the firm's creation of market value. The results support Hypothesis 1 that CSR sustainability ratings in employment are positively related to firm financial performance in emerging economies, such as Taiwan.

There are two contradictory impacts of ENV on Tobin's q. ENVsub2 shows a positive and significant association at the 0.1 level, while ENVsub3 shows a negative and significant association with Tobin's q at the 0.05 level. The former covers "a company's policies and intention to reduce the environmental impact of a company and its value stream to levels that are healthy for the company and for the environment, now and in the future." The data includes the company's environmental reporting performance, adherence to environmental reporting standards such as the Global Reporting Initiative, and compliance with investor, regulatory and stakeholders' requests for transparency. This indicates that transparency is beneficial to a firm's market value. The latter covers "how efficiently resources are used in manufacturing and delivering products and services, including those of a company's suppliers. This subcategory includes environmental performance relative to production size and is monitored by



the production-related Eco Intensity Ratios (EIRs) for water and energy defined as resource consumption per produced or released unit." This indicates that firms need to be more cautious when consuming resources during the production process, which may reduce produc competitiveness and the firm's market value. Surprisingly, the majority of sub-categories under GOV show a negative association with Tobin's q. However, none of the sub-categories under GOV is statistically significant.

[Insert Table 7 around here.]

[Insert Table 8 around here.]

5. Conclusions

Do firms that implement CSR dimensions see any benefits to the bottom line? In this study, we use the data provided by CSRHub to examine the relationship between CSR dimensions and stock returns, book-to-market ratios, and Tobin's q for firms listed in Taiwan.

The results in this study have three implications. First, from the perspective of stock returns, we observe two opposite effects under the COMM categories: Community Development and Philanthropy is positive while the Product subcategory is negative for stock returns. However, these effects disappear when all sub-categories are considered together. Thus, no single CSR sub-category has a significant association with stock returns. Second, from the perspective of BM, two sub-categories: Product, and Resource Management, tend to be valued by high BM firms, the value firms, while growth firms tend to value Diversity and Labor Rights. Last, from the perspective of Tobin's q, two sub-categories under EMP show consistent and positive effects on Tobin's q, while the opposite effect is seen in two sub-categories under ENV. Therefore, firms that allocate resources to diversity, labor rights, treatment of unions, compensation, benefits, training, health, and worker safety experience benefits for the firm's value creation. The results indicate that CSR polices/practices in employment can have signaling effects in differentiating firm quality in emerging Asian economies, at least in a more developed Asian emerging market such as Taiwan, and that investors value these attributes and provide premiums to these firms.

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Table 1 Sample Industry Distribution

This study analyzes the effect of CSR dimensions on the financial performance of firms in Taiwan. We use monthly ratings obtained from the CSRHub over the period from 01/2009 to 07/2014. Table presents industry distribution of our sample in Taiwan.

Industry	Frequency	Percent	Cumulative	Cumulative
			frequency	percentage
Architectural, Engineering	1	1.20	1	1.20
Audio & Video Equipment Manufacturing	3	3.61	4	4.82
Banking	4	4.82	8	9.64
Brokerage & Capital Markets	1	1.20	9	10.84
Business Support Services	1	1.20	10	12.05
Chemicals, Plastics & Rubber	9	10.84	19	22.89
Communications Equipment Manufacturing	1	1.20	20	24.10
Computers & Peripherals	10	12.05	30	36.14
Conglomerates	2	2.41	32	38.55
Construction Materials	1	1.20	33	39.76
Containers & Packaging Manufacturing	2	2.41	35	42.17
Diversified Financial Services	4	4.82	39	46.99
Electrical Equipment Manufacturing	3	3.61	42	50.60
Electronic Equipment & Instrument	5	6.02	47	56.63
Food Products	2	2.41	49	59.04
Hardware Manufacturing	2	2.41	51	61.45
Leisure Equipment Manufacturing	1	1.20	52	62.65
Manufacturing	2	2.41	54	65.06
Mechanical Component Manufacturing	1	1.20	55	66.27
Motor Vehicle Manufacturing	1	1.20	56	67.47
Office Machinery Manufacturing	1	1.20	57	68.67
Passenger Airlines	1	1.20	58	69.88
Residential Building Construct	1	1.20	59	71.08
Semiconductor & Other Electronic	15	18.07	74	89.16
Supermarket, Food & Beverage	1	1.20	75	90.36
Telecommunications	1	1.20	76	91.57
Textiles & Apparel	2	2.41	78	93.98
Water Transportation	3	3.61	81	97.59
Wholesale Trade	1	1.20	82	98.80
Wireless Telecommunications	1	1.20	83	100.00



Table 2: Sample Characteristic Description

We use monthly ratings obtained from CSRHub over the period from 01/2009 to 07/2014. Table presents data description for ratings. The ratings under each major category as well as sub-category are provided. There are 875 firm-month observations.

Variable	Ν	Mean	Minimum	Maximum
СОММ	875	49.04	25	69
EMP	875	50.93	26	72
ENV	875	50.32	23	72
GOV	875	43.13	26	69
COMMsub1	875	45.99	16	70
COMMsub2	875	46.63	22	75
COMMsub3	875	54.53	12	77
EMPsub1	875	48.67	15	70
EMPsub2	875	53.27	23	74
EMPsub3	875	50.83	23	77
ENVsub1	875	49.78	18	75
ENVsub2	875	49.60	18	78
ENVsub3	875	51.56	19	77
GOVsub1	875	35.15	14	60
GOVsub2	875	52.29	22	82
GOVsub3	875	41.87	13	74



Table 3: Panel Data Analysis-The Effects of CSR ratings on Stock Returns (Major Categories)

Table presents results in which we use panel data analysis to examine the association between firm's returns and CSR major category ratings along with control variables. The regression is as follows. $R_{i,t} - RF_t = \beta_0 + \beta_1 CSRRating_{i,t-1} + \beta_2 Beta_{i,t} + \beta_3 X_{i,t} + \varepsilon_{i,t}$,

where $R_{i,t}$ is the monthly return of stock *i* in month *t* and RF_t is the return on one-month T-bills in month *t*. *CSRRating*_{*i*,*t*-1} is the vector containing the (lagged) ratings of four major categories / twelve sub-major categories at end of month *t*-1 : community (COMM) / COMMsub1-COMMsub3, employee (EMP) / EMPsub1-EMPsub3, environment (ENV) / ENVsub1-ENVsub3, and governance (GOV) / GOVsub1-GOVsub3. *Beta*_{*i*,*t*} is a stock's post-ranking beta estimated using the traditional method of Black (1972). $X_{i,t}$ is a vector of control variables including the natural logarithm of firm *i*'s market capitalization at the end of month *t* (SIZE), the logarithm of the book-to-market ratio of stock *i* at the end of month *t* (BM), a firm's simple average of returns during the past 12 months (AveRet), the one-month lagged monthly average of daily share turnover in firm *i* (TurnOver), and the natural log of a company's age measured at the end of month *t* (Age). $\varepsilon_{i,t}$ is the error term for firm *i* in month *t*. ***, ** and *, indicate significance at the 1%, 5%, and 10% levels, respectively.

	Mode	l (1)	Mode	1 (2)	Mode	1 (3)	Mode	l (4)	Mode	el (5)
	coefficient	t-stat.								
Intercept	2.44***	9.23	2.39***	9.16	2.40***	9.22	2.41***	9.23	2.50***	9.36
COMM	-0.04	-0.91							-0.10	-1.46
EMP			0.01	0.19					0.03	0.60
ENV					-0.02	-0.46			-0.02	-0.37
GOV							0.06	1.14	0.11	1.56
BETA	-0.14***	-4.19	-0.14***	-4.31	-0.14***	-4.22	-0.14***	-4.43	-0.14***	-4.30
SIZE	-0.12***	-8.45	-0.12***	-8.37	-0.12***	-8.41	-0.12***	-8.39	-0.12***	-8.51
BM	-0.06***	-3.98	-0.05***	-3.89	-0.06***	-3.93	-0.05***	-3.84	-0.06***	-3.96
AveRet	0.07	0.67	0.07	0.70	0.07	0.68	0.07	0.69	0.07	0.66
TurnOver	-0.01	-0.93	-0.01	-0.97	-0.01	-0.98	-0.01	-1.02	-0.01	-0.94
Age	-0.04	-1.18	-0.04	-1.11	-0.03	-1.10	-0.05	-1.43	-0.06*	-1.70
Year fixed	Ye	S	Ye	s	Ye	es	Ye	s	Ye	es
Industry fixed	Ye	s	Ye	s	Ye	es	Ye	s	Ye	es
N Cross-sections	83	}	8	3	8	3	8	3	8	3



Table 4: Panel Data Analysis-The Effects of CSR ratings on Stock Returns (Sub-categories)

Table presents results in which we use panel data analysis to examine the association between firm's returns and CSR sub-categories ratings along with control variables. Equation and all variables are as previously defined as in Table 3. ***, ** and *, indicate significance at the 1%, 5%, and 10% levels, respectively.

		Mode	el (1)	Mode	l (2)	Mode	el (3)	Mode	l (4)	Mode	l (5)
		coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	coefficient t-stat		coefficient	t-stat.
Intercept		2.52***	8.96	2.43***	9.08	2.48***	9.19	2.43***	8.91	2.61***	8.92
COMMsu	b1	0.09*	1.82							0.06	0.84
COMMsu	b2	-0.03	-0.84							-0.06	-1.33
COMMsu	b3	-0.08*	-1.80							-0.08	-1.64
EMPsub1				-0.02	-0.36					-0.03	-0.62
EMPsub2				0.02	0.48					0.06	1.07
EMPsub3				0.01	0.28					0.01	0.11
ENVsub1						0.01	0.19			0.03	0.69
ENVsub2						-0.02	-0.52			0.01	0.11
ENVsub3						0.00	0.04			-0.02	-0.39
GOVsub1								0.08	1.30	0.09	1.29
GOVsub2								0.03	0.78	0.03	0.42
GOVsub3								-0.06	-1.28	-0.02	-0.32
BETA		-0.14***	-3.92	-0.15***	-4.49	-0.14***	-4.32	-0.13***	-4.06	-0.15***	-4.09
SIZE		-0.12***	-8.03	-0.12***	-8.24	-0.12***	-8.33	-0.12***	-8.17	-0.12***	-7.86
BM		-0.05***	-3.40	-0.05***	-3.79	-0.06***	-3.95	-0.05***	-3.78	-0.05***	-3.31
AveRet		0.11	1.01	0.07	0.70	0.07	0.72	0.06	0.55	0.09	0.85
TurnOver		-0.01	-0.87	-0.01	-1.03	-0.01	-0.98	-0.01	-1.13	-0.01	-0.95
Age		-0.05	-1.53	-0.04	-1.20	-0.04	-1.26	-0.05	-1.53	-0.07**	-2.03
Year	fixed	Ye	es	Ye	es	Ye	es	Ye	S	Ye	S
Industry	fixed	Ye	es	Ye	es	Y	es	Ye	S	Ye	S
N Cross-se	ections	8.	3	8	3	8	33	8	3	8	3



Table 5: Panel Data Analysis-The Effects of CSR ratings on Book-to-Market Ratios (Major Categories)

Table 5 presents results in which we use panel data analysis to examine the association between book-to-market ratios and CSR major category ratings along with control variables. The regression is as follows. $BM_{i,t} = \beta_0 + \beta_1 CSRRating_{i,t-1} + \beta_2 X_{i,t} + \varepsilon_{i,t}$,

where $BM_{i,t}$ is the logarithm of the book-to-market ratio of firm *i* at the end of month *t*. $CSRRating_{i,t-1}$ is the vector containing the (lagged) ratings of four major categories / twelve sub-major categories at end of month *t*-1 : community (COMM) / COMMsub1-COMMsub3, employee (EMP) / EMPsub1-EMPsub3, environment (ENV) / ENVsub1-ENVsub3, and governance (GOV) / GOVsub1-GOVsub3. $X_{i,t}$ is the vector of control variables including: the logarithm of return on equity at the end of month *t* (ROE) and the logarithm of age as measured at the end of month *t* (Age). ROE has been winsorized to exclude the 1% smallest and largest observations. ***, ** and *, indicate significance at the 1%, 5%, and 10% levels, respectively.

_	Mode	l (1)	Model	l (2)	Mode	l (3)	Model	l (4)	Mode	1 (5)
	coefficient	t-stat.								
Intercept	10.42***	7.31	10.43***	7.33	10.28***	7.16	10.40***	7.31	10.20***	7.10
COMM	-0.01	-0.05							0.13	0.56
EMP			-0.19	-1.24					-0.43**	-2.02
ENV					0.10	0.69			0.13	0.73
GOV							0.12	0.61	0.27	1.14
ROE	-2.61***	-9.10	-2.60***	-9.09	-2.59***	-9.03	-2.61***	-9.11	-2.58***	-8.97
Age	0.27**	2.22	0.28**	2.32	0.28**	2.26	0.26**	2.13	0.29**	2.28
Year fixed	Ye	S	Ye	S	Ye	S	Ye	S	Ye	es
Industry fixed	Ye	S	Ye	S	Ye	S	Ye	S	Ye	es
N Cross-sections	83	3	8.	3	8.	3	8.	3	8	3



Table 6: Panel Data Analysis-The Effects of CSR ratings on Book-to-Market Ratios (Sub-categories)

Table 6 presents results in which we use panel data analysis to examine the association between book-to-market ratios and CSR sub-categories ratings along with control variables. Equation and all variables are as previously defined as in Table 5. ***, ** and *, indicate significance at the 1%, 5%, and 10% levels, respectively.

		Mode	l (1)	Mode	el (2)	Mode	el (3)	Mode	l (4)	Mode	l (5)
		coefficient	t-stat.								
Intercept		10.47***	7.30	10.24***	7.18	10.45***	7.25	10.39***	7.25	10.14***	6.98
COMMsu	b1	-0.05	-0.39							-0.05	-0.26
COMMsu	b2	-0.19	-1.49							-0.16	-1.11
COMMsu	b3	0.24*	1.70							0.33**	2.08
EMPsub1				0.17	0.98					0.05	0.30
EMPsub2				-0.27*	-1.77					-0.40**	-2.19
EMPsub3				-0.03	-0.18					-0.14	-0.78
ENVsub1						-0.04	-0.32			-0.14	-1.01
ENVsub2						-0.21	-1.43			-0.18	-1.08
ENVsub3						0.34**	2.57			0.54***	3.06
GOVsub1								0.13	0.61	0.19	0.84
GOVsub2								-0.08	-0.53	-0.21	-1.16
GOVsub3								0.06	0.39	0.22	1.12
ROE		-2.62***	-9.13	-2.57***	-8.94	-2.60***	-9.04	-2.60***	-9.06	-2.54***	-8.83
Age		0.26**	2.09	0.28**	2.31	0.25**	2.02	0.26**	2.06	0.25**	1.96
Year	fixed	Yes									
Industry	fixed	Yes									
N Cross-se	ections	83		83		83		83		83	



Table 7: Panel Data Analysis-The Effects of CSR ratings on Tobin's q (Major Categories)

Table presents results in which we use panel data analysis to examine the association between Tobin's q and CSR major category ratings along with control variables. The regression is as follows. $TobinQ_{i,t} = \beta_0 + \beta_1 CSRRating_{i,t-1} + \beta_2 X_{i,t} + \varepsilon_{i,t}$,

where $Tobin Q_{i,t}$ is the logarithm of the ratio of the sum of market equity value and liabilities to its corresponding total asset book value for firm *i* at the end of month *t*. All other variables are as previously defined in Table 5. ***, ** and *, indicate significance at the 1%, 5%, and 10% levels, respectively.

	Model (1)		Model (2)		Model (3)		Model (4)		Model (5)	
	coefficient	t-stat.								
Intercept	-6.22***	-7.03	-6.27***	-7.12	-6.21***	-6.97	-6.25***	-7.07	-6.10***	-6.87
COMM	-0.07	-0.63							-0.33**	-2.29
EMP			0.19**	2.03					0.45***	3.44
ENV					-0.03	-0.31			-0.02	-0.19
GOV							-0.02	-0.13	-0.14	-0.97
ROE	1.50***	8.43	1.49***	8.40	1.49***	8.36	1.49***	8.42	1.49***	8.38
Age	-0.08	-1.09	-0.09	-1.19	-0.08	-1.05	-0.08	-1.02	-0.11	-1.47
Year fixed	Ye	es	Ye	es	Ye	es	Y	es	Y	es
Industry fixed	Ye	es	Ye	es	Ye	es	Y	es	Y	es
N Cross-sections	83	3	8	3	8	3	8	33	5	33



Table 8: Panel Data Analysis- The Effects of CSR ratings on Tobin's q (Sub-categories)

Table presents results in which we use panel data analysis to examine the association between Tobin's q and CSR sub-categories ratings along with control variables. Equation and all variables are as previously defined as in Table 7. ***, ** and *, indicate significance at the 1%, 5%, and 10% levels, respectively.

		Mode	1(1)	Mode	Model (2)		Model (3)		Model (4)		Model (5)	
		coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	
Intercept		-6.29***	-7.06	-6.22***	-7.03	-6.26***	-7.01	-6.25***	-7.03	-6.00***	-6.65	
COMMsu	ıb1	-0.05	-0.62							-0.08	-0.73	
COMMsu	ıb2	0.05	0.56							-0.06	-0.70	
COMMsu	ıb3	-0.05	-0.61							-0.15	-1.55	
EMPsub1				0.01	0.13					0.04	0.40	
EMPsub2				0.11	1.17					0.24**	2.15	
EMPsub3				0.06	0.58					0.19*	1.72	
ENVsub1						-0.01	-0.09			0.03	0.39	
ENVsub2						0.20**	2.22			0.19*	1.87	
ENVsub3						-0.20***	-2.41			-0.22**	-2.02	
GOVsub1								0.11	0.83	0.10	0.74	
GOVsub2								-0.11	-1.14	-0.08	-0.72	
GOVsub3								0.02	0.20	-0.15	-1.25	
ROE		1.51***	8.45	1.48***	8.32	1.48***	8.32	1.50***	8.44	1.46***	8.19	
Age		-0.07	-0.94	-0.09	-1.19	-0.06	-0.85	-0.09	-1.09	-0.11	-1.38	
Year	fixed	Ye	s	Ye	es	Ye	es	Ye	s	Ye	S	
Industry	fixed	Ye	s	Ye	es	Ye	es	Ye	s	Ye	S	
N Cross-se	ections	83	3	8	3	8	33	8	3	8	3	



Appendix: List of Firms

rr · · · ·			
Company	Exchange	IPO Year	Industry
Taiwan Cement Corp.	TSE	1962	Cement
Tatung Co., Ltd	TSE	1962	Electric & Machinery
Chang Hwa Commercial Bank, Ltd.	TSE	1962	Financial
Nankang Rubber Tire Corp., Ltd.	TSE	1963	Rubber
Formosa Plastics Corp.	TSE	1964	Plastics
Nan Ya Plastics Corp.	TSE	1967	Plastics
	-~-		Electric Appliance &
Walsin Lihwa Corp.	TSE	1972	Cable
Taiwan Glass Ind Co., Ltd.	TSE	1973	Glass & Ceramics
Teco Electric & Machinery Co., Ltd.	TSE	1973	Electric & Machinery
China Steel Corp.	TSE	1974	Iron & Steel
Yulon Motor Co., Ltd.	TSE	1976	Automobile
Ruentex Industries Limited	TSE	1977	Trading & Cons.
LCY Chemical Corp.	TSE	1977	Chemical
TSRC Corporation	TSE	1982	Rubber
United Microelectronics Corp.	TSE	1985	Semiconductor
Oriental Union Chemical Corp.	TSE	1987	Chemical
Uni-President Enterprises Corp	TSE	1987	Foods
Tung Ho Steel Enterprises Corp.	TSE	1988	Iron & Steel
Tainan Spinning Co. I td	TSE	1989	Textiles
Pou Chen Corporation	TSE	1990	Others
II-Ming Marine Transport Corp.	TSE	1000	Shipping & Trans
Hon Hai Precision Ind. Co., I td	TSE	1990	Other Electronic
China Detrochemical Development	ISE	1991	Other Electronic
Cinna Petrochennical Development	TCE	1001	Diagting
Corp.	ISE	1991	Plastics
Compai Electronics, Inc.	ISE	1992	Computer & Peripherals
Yang Ming Marine Transport Corp.	ISE	1992	Shipping & Trans.
Ruentex Development Co., Ltd.	ISE	1992	Others
Siliconware Precision Ind. Co., Ltd.	TSE	1993	Semiconductor
CICICorporation	TSE	1993	Others
Eternal Materials Co., Ltd.	TSE	1994	Chemical
Standard Foods Corporation	TSE	1994	Foods
Giant Manufacturing Co., Ltd.	TSE	1994	Others
Macronix International Co., Ltd.	TSE	1995	Semiconductor
Winbond Electronics Corp.	TSE	1995	Semiconductor
Synnex Technology International			
Corp.	TSE	1995	Elec. Products Dist.
KGI Securities Co., Ltd.	TSE	1995	Financial
Wan Hai Lines Ltd.	TSE	1996	Shipping & Trans.
Qisda Corp.	TSE	1996	Computer & Peripherals
Acer Inc.	TSE	1996	Computer & Peripherals
Asustek Computer Inc.	TSE	1996	Computer & Peripherals
President Chain Store Corp.	TSE	1997	Trading & Cons.
Taiwan Business Bank	TSE	1998	Financial
Taiwan Fertilizer Co., Ltd.	TSE	1998	Chemical
Vanguard International Semiconductor			
Corp.	OTC	1998	Semiconductor
Realtek Semiconductor Corp.	TSE	<u>199</u> 8	Semiconductor

Wintek Corporation	TSE	1998	Optoelectronic
Chicony Electronics Co., Ltd.	TSE	1999	Computer & Peripherals
Quanta Computer Inc.	TSE	1999	Computer & Peripherals
Everlight Electronics Co., Ltd.	TSE	1999	Optoelectronic
Taiwan Semiconductor Co., Ltd.	OTC	2000	Semiconductor
Sino-American Silicon Products Inc.	OTC	2001	Semiconductor
Transcend Information, Inc.	TSE	2001	Semiconductor
Mediatek Incorporation	TSE	2001	Semiconductor
Catcher Technology Co., Ltd.	TSE	2001	Other Electronic
Chunghwa Picture Tubes Ltd.	TSE	2001	Optoelectronic
EVA Airways Corporation	TSE	2001	Shipping & Trans.
Simplo Technology Co., Ltd.	OTC	2001	Computer & Peripherals
Cathay Financial Holding Co., Ltd.	TSE	2001	Financial
Yuanta Financial Holding Co., Ltd.	TSE	2002	Financial
Taishin Financial Holding Co., Ltd.	TSE	2002	Financial
Shin Kong Financial Holding Co., Ltd.	TSE	2002	Financial
Sinopac Financial Holdings Co., Ltd.	TSE	2002	Financial
Novatek Microelectronics Corp.	TSE	2002	Semiconductor
Unimicron Technology Corp.	TSE	2002	Elec. Parts & Comp.
Tripod Technology Corp.	TSE	2002	Elec. Parts & Comp.
Taiwan Mobile Co., Ltd.	TSE	2002	Comm. & Internet
First Financial Holding Co., Ltd.	TSE	2003	Financial
Wistron Corp.	TSE	2003	Computer & Peripherals
Richtek Technology Corp.	TSE	2003	Semiconductor
E Ink Holdings Inc.	OTC	2004	Optoelectronic
Powertech Technology Inc.	TSE	2004	Semiconductor
Phison Electronics Corp.	OTC	2004	Computer & Peripherals
Far EasTone Telecommunications Co.,			
Ltd.	TSE	2005	Comm. & Internet
WPG Holdings Limited	TSE	2005	Elec. Products Dist.
Inotera Memories, Inc.	TSE	2006	Semiconductor
Nan Ya Printed Circuit Board Corp.	TSE	2006	Elec. Parts & Comp.
PixArt Imaging Inc.	OTC	2006	Semiconductor
Radiant Opto-Electronics Corp.	TSE	2007	Optoelectronic
Young Fast Optoelectronics Co., Ltd.	TSE	2009	Optoelectronic
Pegatron Corporation	TSE	2010	Computer & Peripherals
TPK Holding Co., Ltd.	TSE	2010	Optoelectronic
MStar Semiconductor Inc. (Cayman)	TSE	2010	Semiconductor
Zhen Ding Technology Holding			
Limited	TSE	2011	Elec. Parts & Comp.
Hermes Microvision, Inc.	OTC	2012	Semiconductor



Supply Chain Finance and Impacts of Consumer's Sustainability Awareness

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Abstract

There has been growing consumer awareness of corporate social responsibility across the globe. In 2015, Cone Communications and Ebiguity jointly conducted a survey of 9,709 consumers in nine of the largest countries in the world by GDP to learn about their perceptions and behaviors related to Corporate social responsibility (CSR). The survey indicates that the majority of consumers have strong accountability to address social and environmental issues and are primed for participation in CSR efforts with the understanding that corporate should do more than just making a profit (CONE-Communication/Ebiquity, 2015). Besides, organizations such as PUMA and Levi Strauss have discovered how firms environmental sustainability performance and their working condition can link to their finance rates. In 2016, Frank Waechter, senior head of treasury and insurance at PUMA, said that how the company had set up a new type of SCF (supply chain finance) one where the finance rates offered to suppliers are directly linked to their sustainability and ethical practices. Simply put, the better a supplier is at ensuring it is environmentally-friendly and takes seriously its responsibility towards its workers by providing fair wages and safe working conditions, the better the rate they will be offered in supply chain finance. PUMA, like Levi Strauss, has a dedicated compliance team in place to visit and monitor suppliers around the world through regular audits. How effective initiatives like this are in practice may in the end come down to companies ability to monitor their increasingly complex global supply chains.



Female executive and its impact on enterprises performance

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Abstract

For a long time, corporate executives tend to be predominantly male, with a very small number of women. With rapid economic growth and social development, the proportion of female executives in corporate management executives has been greatly improved. In China, the proportion of women in senior management is only 8%, compared with 15% in the US and 17% in Europe. With the rise and rapid development of cultural and creative industries, cultural media enterprises have also entered a period of rapid development, and the contribution to economic growth and social impact have been greatly improved.

At the same time, in recent years, with strong government promotion of entrepreneurship and innovation, cultural and creative industries in China have developed vigorously, and the competition among enterprises is becoming increasingly fierce. Enterprise managers begin to improve all aspects of the business process, in order to further improve the efficiency and efficiency of the enterprises. Cultural and creative enterprises, because of their creative and creative ability of talent and the unique requirements of talent, to provide unique products and services for the market, and other industrial enterprises are very different. Therefore, r women's participation in top management of cultural and creative enterprises has an impact on the performance of enterprises and how the extent of their impact is worthy of attention and research.

With Equal educational opportunities and employment opportunities are being promoted, more and more women are entering into the labour market and developing at a high speed in their career development in different industry including creative industry.

More and more women can not only achieve high performance results in the workplace, but also be able to enter the high level and the board of directors, and directly participate in the strategic decision-making and senior management of the enterprise.

The impact of women on corporate performance has attracted academic attention. Krishnan, Parson (2008), based on the corporate data study of Forbes 500 enterprises, found that the high proportion of female executives in enterprises is better than the low proportion of female executives. The research of Mahadeo (2012), Lindstaedt (2011), Campbell and MinguezVer (2008), Smith and so on also proved the positive influence of female executives on enterprise performance. More studies will further focus on the causes and influencing factors of the relationship between female executives and corporate performance. Dezso (2008), Smith (2006) and other indicators were analyzed by Tobin Q value, stock price and ROI respectively, and the positive correlation between them was found. In addition, Dezso, Smith and others, by analyzing the different positions, educational background and family background of female executives, analyzed the impact of female executive traits on business management.

Scholars also analyze the impact of women's participation in top management team on enterprise performance through empirical research on enterprises based on Chinese case. Ren Ting page and Wang Zheng (2010), through the data of private listed companies in China in 2008, examine the impact of women's participation in the two variables of human capital and social capital on the performance of the executive team, and propose that women participate in the management team of the enterprise, which can be enough with the social capital and manpower of the female executives. Increase the capital and increase the performance of the enterprise. Zhang Na (2013), Wang Mingjie



(2010), and other 973 listed companies in Shanghai and Shenzhen in 2009 as samples to conduct empirical research, found that female directors have a significant positive effect on corporate performance. Huang Xiantao (2014), through panel data of listed companies from 2009 to 2012 in Shanghai and Shenzhen Stock market, uses regression and tendency fractional matching method to find that the performance of the firm with women as chairman of the board is significantly higher than that of other non female chairman's companies. And a high proportion of female executives have higher performance than other companies.

Larkin and others (2012) found that gender has a significant impact on organizational decision-making through the study of. It can be seen that female executives in the top management of high performance companies may achieve better performance in terms of business performance. Seto-Pamies and others (2013) come to the same conclusion through empirical research on samples from different countries and industry companies, and further point out that the participation of female executives can better affect the strategy of the enterprise to develop sustainable development.

However, in the existing research, the research on the influence of corporate executives' gender pluralism on enterprise performance is not enough. It is even more scarce to evaluate the impact of higher level gender diversification on enterprise performance through DEA.

In this study, EBM (Epsilon-Based Measure) DEA is used to solve the problem that radial DEA neglects non-radial slacks and non-radial DEA (such as SBM) neglecting the same ratio of radial when evaluating the efficiency value, and the efficiency is more accurately evaluated. In addition, this method can find the alternative between male and female in top management. This study takes 50 Chinese listed companies from cultural media industry as samples to explore the impact of cultural media companies on female executives and corporate performance.

It is found that enterprises with more female executive members could perform better than those without female executives. The increase in the number and proportion of women's participation in top management helps to achieve gender diversity in the management of enterprises, thereby enhancing the value of enterprises.

This study proposed the following managerial suggestions:

- 1. In order to ensure that a certain number of female executives can participate in enterprise management will help enterprise development and enterprise decision-making. Female executives, age, educational background, employment time, employment background, management experience, family background and other characteristics may have a positive impact on enterprise performance through participation in enterprise management decision-making behavior. Further, female executives are highly involved in core business management and important management decision-making positions, which will greatly enhance the overall value of the company.
- 2. More enterprise management training development projects based on gender balance should be promoted and encouraged. Whether women executives are highly involved in management decisions depends on the managerial experience, qualifications and skills of female managers. It is necessary for enterprises to provide equal or even more opportunities for education, training, development and promotion for female managers, especially female executives. The development project of enterprise management training is the advanced experience and achievement from the developed western countries. In practical application, we should be more inclined to female employees, encourage more women employees to participate in training and study, learn management knowledge, master management skills, improve management ability, increase the opportunity and increase of women's contribution ability. Women's promotion and development channel, thus training more competent female executives and enhancing them to participate in the strategic management and decision-making of enterprises, will have a more important impact on the long-term sustainable development.
- 3. There is still a shortage of female executives in Chinese cultural and media enterprises. The study shows that about 30% of the women in the sample companies had a significant impact on the corporate behavior and results of corporate social responsibility, while about 70% of the companies had a weaker influence. It shows that female employee's career development is not enough, and it also has the "glass ceiling" effect which impact more competent and experienced women to participate in senior management.

Keywords: gender diversification ;female executive; enterprises performance; EBM (Epsilon-Based Measure) DEA;



HOW DO SOCIALLY CONTROVERSIAL COMPANIES DO DURING A STRESSFUL TIME? EVIDENCE FROM THE GREAT RECESSION

Pattanaporn Chatjuthamard, Patcharawalai Wongboonsin, Kritika Kongsompong, Pornsit Jiraporn

Socially controversial businesses

- Socially controversial businesses include those related to alcohol, gambling, tobacco, firearms etc.
- Although a few prior studies have examined controversial businesses, research on controversial businesses is substantially more scant than research on CSR.
- This paper fills this void in the literature.
- In particular, this study investigates how socially controversial businesses fared during the latest financial crisis, i.e. the Great Recession.
- Prior studies that investigate controversial firms include Fabozzi, Ma, and Oliphant (2008), Hong and Kacperczyk (2009), Kim and Venkatchalam (2011), and Fauver and McDonald (2014).

- How should controversial businesses fare during a financial crisis?
- One view is that controversial businesses suffer a negative perception by investors and by the society at large, even during normal times. Because these controversial businesses are already at a disadvantage even during normal times, a financial crisis, which imposes a severe negative shock on all firms in the economy, should exacerbate the performance of these controversial firms.
- This view predicts that socially controversial firms fare worse during a crisis than otherwise similar, but noncontroversial, firms do.

- By contrast, the opposite view is that controversial firms fare better during a crisis.
- The demand for controversial products is not so sensitive to an economic shock. For instance, tobacco and alcohol are addictive in nature, making their consumption relatively more stable even during a crisis. In fact, during an economic crisis, consumers may be depressed and thus consume tobacco and alcohol even more.
- This view thus predicts that controversial firms exhibit better performance during a crisis than otherwise similar, but noncontroversial, firms do.





- A binary variable is created, equal to one if the firm is involved in controversial businesses and zero otherwise. This binary variable is labelled "Controversial".
- The Great Recession took place between 2008 and 2009. So, we construct a binary variable, equal to one for 2008 and 2009 and zero otherwise (Lins, Servaes, and Tamayo, 2017; Amiraslani, Lins, Servaes, and Tamayo, 2017; Jiraporn and Jenwittayaroje, 2017). This dichotomous variable is labelled "Great Recession".
- We also create an interaction term between Controversial and Great Recession. Our focus is on the coefficient of the interaction term, which reveals the effect of controversial businesses on firm value during the Great Recession.

Tobin's q = a + b(Great Recession × Controversial)+ c(Controversial)+d(Great Recession) + Controls + Firm Fixed Effects



Table 1: Descriptive statistics SG&A is selling, general, and administrative expenses. Controversial is a binary variable, equal to one if the firm is involved in controversial businesses and zero otherwise. Great Recession is a binary variable, equal to one for 2008 and 2009 and zero otherwise.

	Mean	Median	Std. Dev.	25th	75th
Controversial (1= Controversial)	0.100	-	-	-	-
Great Recession (1= Great Recession)	0.238	-	-	-	-
Tobin's q	1.874	1.399	1.451	0.959	2.228
Peters and Taylor's (2017) q	1.561	0.903	2.413	0.533	1.670
ROA	0.190	0.047	0.151	0.008	0.088
EBIT/Total Assets	0.070	0.085	0.144	0.041	0.138
Total Assets	6157	1158	25380	371	3997
Total Debt/Total Assets	0.223	0.199	0.219	0.027	0.400
Capital Expenditures/Total Assets	0.057	0.038	0.061	0.020	0.070
Advertising Expense/Total Assets	0.014	0.000	0.045	0.000	0.007
R&D Expense/Total Assets	0.045	0.003	0.120	0.000	0.052
Cash Holdings/Total Assets	0.187	0.097	0.214	0.029	0.271
Fixed Assets/Total Assets	0.524	0.428	0.406	0.210	0.767
Dividends/Total Assets	0.011	0.000	0.020	0.000	0.016
SG&A Expense/Total Assets	0.262	0.215	0.237	0.126	0.332

Table 2: How do controversial firms do during a financial crisis?

	(1)	(2)	(3)	(4)
		Peters and		
	Tobin's q	Taylor's (2017) q	ROA	EBIT/Total Assets
Great Recession × Controversial	0.200***	0.253**	0.019****	0.011**
	(3.650)	(2.397)	(2.961)	(2.189)
Controversial	0.067	0.062	0.008	0.004
	(1.219)	(0.588)	(1.181)	(0.901)
Great Recession	-0.538***	-0.656***	-0.038***	-0.014***
	(-29.424)	(-18.555)	(-17.910)	(-8.360)
.n(Total Assets)	-0.497***	-0.666****	0.013***	-0.006***
	(-24.566)	(-16.925)	(5.449)	(-3.296)
BIT/Total Assets	1.648***	2.005***		
	(22.744)	(14.003)		
Fotal Debt/Total Assets	-0.248***	-0.640****	-0.166***	-0.079***
	(-3.849)	(-5.133)	(-22.304)	(-13.733)
Capital Expenditures/Total Assets	1.854***	2.660***	0.103***	0.162***
	(9.065)	(6.736)	(4,354)	(8.916)
Advertising/Total Assets	-0.913**	0.062	0.020	0.008
	(-2.438)	(0.085)	(0.471)	(0.255)
R&D/Total Assets	2.707***	1.748***	-0.384***	-0.271***
	(14 750)	(4.897)	(-18.982)	(-17.442)
Cash Holdings/Total Assets	1511***	2.403***	0.026***	-0.007
	(17.361)	(14.213)	(2.604)	(-0.950)
Fixed Assets/Total Assets	-0.096*	-0.886***	_0.075***	-0.075***
	(-1789)	(-8.452)	(-12 202)	(-15.835)
Dividends/Total Assets	2 053***	-3 125***	0.720***	0.656***
Dividence Ford Floore	(3.514)	(-2.771)	(10.690)	(12.677)
Selling, General & Admin./Total Assets	0.395***	-1.377***	-0.070***	-0.004
	(3.621)	(-6.509)	(-5.600)	(-0.399)
Constant	4.924***	6.669***	0.029	0.170***
	(28.882)	(20.091)	(1.488)	(11.366)
Diservations	16,227	16,150	16,227	16,227
		0.417	0.640	0,772



Table 3: Random-effects regression analysis

	(1)	(2)	(3)	(4)
		Peters and		
	Tobin's q	Taylor's (2017) q	ROA	EBIT/Total Assets
Great Recession × Controversial	0.158***	0.183*	0.021***	0.012**
	(2.927)	(1.776)	(3.292)	(2.372)
Controversial	0.080*	0.106	0.003	0.004
	(1.715)	(1.188)	(0.555)	(0.818)
Great Recession	-0.590***	-0.734***	-0.042***	-0.021***
	(-34.719)	(-22.533)	(-21.281)	(-13.272)
Ln(Total Assets)	-0.255***	-0.304***	0.020***	0.012***
	(-22.248)	(-13.849)	(14.395)	(9.587)
EBIT/Total Assets	2.432***	3.827***		
	(29.453)	(24.111)		
Fotal Debt/Total Assets	0.006	-0.218**	-0.160***	-0.078***
	(0.104)	(-2.057)	(-24.924)	(-14.798)
Capital Expenditures/Total Assets	2.247***	2.913***	0.108***	0.159***
· ·	(11.979)	(8.104)	(4.976)	(9.117)
Advertising/Total Assets	-0.097	0.133	0.103***	0.089***
	(-0.336)	(0.240)	(3.021)	(3.139)
&D/Total Assets	1.575***	0.014	-0.348***	-0.283***
	(15.274)	(0.072)	(-29.368)	(-27.383)
Cash Holdings/Total Assets	1.858***	2.790****	-0.039***	-0.070***
-	(26.525)	(20.709)	(-4.782)	(-10.263)
Fixed Assets/Total Assets	-0.015	-0.794***	-0.051***	-0.046***
	(-0.376)	(-9.978)	(-10.555)	(-11.493)
Dividends/Total Assets	3.405***	-0.897	0.873***	0.825***
	(6.375)	(-0.876)	(14.181)	(16.683)
Selling, General & Admin/Total Assets	0.658***	-0.387***	-0.071***	-0.024***
	(10.780)	(-3.307)	(-9.858)	(-3.796)
Constant	2.863***	3.337****	-0.039	0.036
	(6.436)	(3.933)	(-0.728)	(0.678)
ndustry Fixed Effects	Yes	Yes	Yes	Yes
Deservations	16,227	16,150	16,227	16,227

 Table 5: Instrumental-variable analysis using as instrument controversial activities in the earliest year before the crisis

	(1)	(2)	(3)	(4)	(5)
	First-Stage	Second-Stage	Second-Stage	Second-Stage	Second-Stage
			Peters and		EBIT/Total
	Controversial	Tobin's q	Taylor's (2017) q	ROA	Assets
Controversial (Earliest Year)	0.744***				
	(26.906)				
Great Recession × Controversial (Instrumented)		0.274***	0.259**	0.022***	0.015**
		(3.884)	(2.205)	(2.779)	(2.087)
Controversial (Instrumented)		-0.054	-0.004	-0.015**	-0.020***
		(-0.670)	(-0.027)	(-2.378)	(-2.964)
Great Recession	0.001	-0.638***	-0.786***	-0.037***	-0.018***
	(0.222)	(-25.004)	(-18.807)	(-11.503)	(-6.483)
Ln(Total Assets)	0.003	-0.072***	-0.075**	0.014***	0.013***
	(1.203)	(-4.310)	(-2.255)	(7.702)	(7.148)
EBIT/Total Assets	0.000	3.402***	4.793***		
	(0.022)	(10.415)	(10.249)		
Total Debt/Total Assets	0.011	0.226**	0.017	-0.136***	-0.078***
	(0.832)	(2.484)	(0.093)	(-8.841)	(-5.209)
Capital Expenditures/Total Assets	0.014	3.837***	4.852***	0.210***	0.211***
	(0.371)	(10.516)	(6.167)	(6.370)	(5.656)
Advertising/Total Assets	-0.018	0.482	1.043	0.017	0.046
	(-0.445)	(0.747)	(0.950)	(0.235)	(0.537)
R&D/Total Assets	0.003	3.385***	0.536	-0.671***	-0.619***
	(0.230)	(4,260)	(1.012)	(-5.661)	(-6.245)
Cash Holdings/Total Assets	0.001	2.344***	3.716***	-0.041	-0.110***
	(0.034)	(13.377)	(11.022)	(-1.513)	(4634)
Fixed Assets/Total Assets	.0.002	.0 350***	.1 207***	.0.031+++	.0.038***
	(-0.228)	(-5.099)	(.6 396)	(-5.608)	(6632)
Dividende (Total Assets	0.001	8 105***	7 108***	1 736***	1 390+++
STREET TO BE TAKEN	(0.020)	(6.665)	(3.078)	(14.112)	(14 307)
Solling General & Admin (Total Access	-0.014*	(0.000)	.0.56(***	0.006	0.040
Anny, Ociente & Automics Fold 700005	(-1.856)	(4.384)	(.7.889)	(0.23/0	(1.572)
Press and a second s	(*1.6.00)	(4.354)	(*2.007)	0.027	(1.3/2)
UISLAN	-0.025	(5.661)	(4.435)	-0.027	0.015
Industry Final Effects	(*1.087)	(3.001)	(40400)	(*1.430)	(0.394)
nuusiny rixeu raiteus	165	105	165	105	105
AUX	10,22/	15,770	15,094	15,770	15,770
najustea k-squarea	0.668	0.426	0.255	0.3/1	0.422



	(1)	(2)	(3)	(4)	(5)
			Peters and		
	Controversial	Tobin's q	Taylor's (2017) q	ROA	EBIT/Total Assets
Proportion of Controversial Firms	0 568***				
in the Same 3-digit Zip code	(54,509)				
	(*****)				
Great Recession × Controversial (Instrumented)		0.875***	0.824**	0.059***	0.058***
		(5.016)	(2.446)	(2.877)	(3.705)
Controversial (Instrumented)		-0.013	0.224	0.024	0.008
		(-0.105)	(0.921)	(1.601)	(0.699)
Great Recession	0.001	-0.574***	-0.669***	-0.042***	-0.018***
	(0.318)	(-23.845)	(-14.361)	(-14.845)	(-8.386)
Ln(Total Assets)	0.015***	-0.531***	-0.705***	0.012***	-0.006***
	(5.090)	(-26.523)	(-18.115)	(5.334)	(-3.439)
EBIT/Total Assets	0.013	2.547***	3.706***		
	(0.937)	(26.349)	(19.739)		
Fotal Debt/Total Assets	0.002	-0.179***	-0.514***	-0.166***	-0.079***
	(0.249)	(-2.786)	(-4.139)	(-22.330)	(-13.722)
Capital Expenditures/Total Assets	0.043	1.762***	2.416***	0.102***	0.162***
	(1.447)	(8.652)	(6.145)	(4.312)	(8.889)
Advertising/Total Assets	-0.029	-0.098	1.000	0.020	0.008
	(-0.539)	(-0.266)	(1.399)	(0.467)	(0.236)
R&D/Total Assets	0.014	2.093***	1.123***	-0.384***	-0.271***
	(0.535)	(11.949)	(3.313)	(-18.988)	(-17.462)
Cash Holdings/Total Assets	0.031**	1.490***	2.390***	0.026**	-0.008
	(2.421)	(17.228)	(14.231)	(2.543)	(-1.053)
Fixed Assets/Total Assets	0.003	-0.042	-0.793***	-0.076***	-0.075***
	(0.425)	(-0.792)	(-7.604)	(-12.277)	(-15.850)
Dividends/Total Assets	-0.169**	1.710***	-3.933***	0.723***	0.657***
	(-1.999)	(2.943)	(-3.509)	(10.725)	(12.697)
Selling, General & Admin/Total Assets	0.007	-0.001	-1.812***	-0.070***	-0.003
	(0.423)	(-0.006)	(-8.727)	(-5.576)	(-0.343)
Constant	-0.075***	5.190***	6.870***	0.030	0.172***
	(-3.056)	(30.912)	(21.044)	(1.515)	(11.456)
Observations	16,227	16,227	16,150	16,227	16,227
Adjusted R-squared	0.860	0.719	0.622	0.648	0.772

Table 6: Instrumental-variable analysis using geographic identification based on zip code

Conclusions

- Based on a large sample of firms, the empirical results show that controversial firms exhibit higher firm value as well as stronger accounting performance during the crisis.
- This is consistent with the notion that the demand for controversial products is inelastic, changing very little in spite of a financial crisis, when the demand for most products drop precipitously.
- Several robustness checks are performed including random-effects regressions, GMM dynamic panel data analysis, and instrumentalvariable analysis. All of the robustness checks yield consistent results, suggesting that endogeneity does not pose a serious problem.