Asia Pacific Management Review xxx (2018) 1–11

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Asia Pacific Management Review

journal homepage: www.elsevier.com/locate/apmrv

Financial performance and corporate social responsibility: Empirical evidence from Taiwan

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ARTICLE INFO

Article history:
Received 5 May 2017
Received in revised form
19 June 2018
Accepted 1 July 2018
Available online xxx

JEL classification:
G14
D21
L21

Keywords:
Corporate social responsibility
Financial performance
CSRHub
Asia
Taiwan

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.

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1. Introduction

The literature suggests that there are significant differences in corporate social responsibility (CSR, hereafter) initiatives across Western and Eastern countries (Baughn, Bodie, and McIntosh, 2007; Hah & Freeman, 2014; Welford, 2005; Wokutch, 1990; Yang & Rivers, 2009). 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 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 accouns 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 & 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,

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Peer review under responsibility of College of Management, National Cheng Kung University.

https://doi.org/10.1016/j.apmrv.2018.07.001

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including electronics and information & communication products). Taiwan's main exports partners include the USA, Europe, Japan, ASEAN countries, and China & Hong Kong.[1] 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 in2015.[2] 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 mixed.[3] 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 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 & 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 (2002), 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

[1] Information available at https://tradingeconomics.com/taiwan/exports.

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

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

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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, & 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 (2016) 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 (Baughn, Bodie, and McIntosh, 2007; Hah & Freeman, 2014; Welford, 2005; Wokutch, 1990; Yang & Rivers, 2009). 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 & Pavelin, 2005). However, in Asian countries there has always been a stronger tendency to address social issues through governmental policies (Crane et al., 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.

3. 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

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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 quality 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 subcategories 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 subcategories 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 website.[4]

[4] https://www.csrhub.com/content/csrhub-data-schema/.

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 subcategory are provided. The ratings range from 12 to 82. There are 875 firm-month observations.

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 et al. (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 et al. (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 et al. (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 et al. (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:

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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 frequency	Cumulative percentage Percent
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

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

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 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.

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

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

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	N	Mean	Minimum	Maximum
COMM	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

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corresponding total asset book value. The regression is as follows.

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

where $TobinQ_{i,t}$ 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*. $CSRRating_{i,t-1}$ 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.

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.

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

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. $R_{i,t} - RF_t = \beta_0 + \beta_1 CSRRating_{i,t-1} + \beta_2 Beta_{i,t} + \beta_3 X_{i,t} + \epsilon_{i,t}$, 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). $\epsilon_{i,t}$ is the error term for firm i in month *t*. ***,** and*, indicate significance at the 1%, 5%, and 10% levels, respectively.

	Model (1)		Model (2)		Model (3)		Model (4)		Model (5)	
	coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	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	Yes		Yes		Yes		Yes		Yes	
Industry fixed	Yes		Yes		Yes		Yes		Yes	
N Cross-sections	83		83		83		83		83	

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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.

	Model (1)		Model (2)		Model (3)		Model (4)		Model (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
COMMsub1	0.09*	1.82							0.06	0.84
COMMsub2	−0.03	−0.84							−0.06	−1.33
COMMsub3	−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 effects	Yes		Yes		Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes		Yes		Yes	
N Cross-sections	83		83		83		83		83	

Table 5
Panel Data Analysis-The Effects of CSR Rtings 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.

	Model (1)		Model (2)		Model (3)		Model (4)		Model (5)	
	coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	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	Yes		Yes		Yes		Yes		Yes	
Industry fixed	Yes		Yes		Yes		Yes		Yes	
N Cross-sections	83		83		83		83		83	

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 under the EMP category. EMPsub2 and EMPsub3 are both positively and significantly associated 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 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

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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.

	Model (1)		Model (2)		Model (3)		Model (4)		Model (5)	
	coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.
Intercept	10.47***	7.30	10.24***	7.18	10.45***	7.25	10.39***	7.25	10.14***	6.98
COMMsub1	−0.05	−0.39							−0.05	−0.26
COMMsub2	−0.19	−1.49							−0.16	−1.11
COMMsub3	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 effects	Yes		Yes		Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes		Yes		Yes	
N Cross-sections	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 $TobinQ_{i,t}$ 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.	coefficient	t-stat.	coefficient	t-stat.	coefficient	t-stat.	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	Yes		Yes		Yes		Yes		Yes	
Industry fixed	Yes		Yes		Yes		Yes		Yes	
N Cross-sections	83		83		83		83		83	

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.

	Model (1)		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
COMMsub1	−0.05	−0.62							−0.08	−0.73
COMMsub2	0.05	0.56							−0.06	−0.70
COMMsub3	−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 effects	Yes		Yes		Yes		Yes		Yes	
Industry fixed effects	Yes		Yes		Yes		Yes		Yes	
N Cross-sections	83		83		83		83		83	

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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.

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.

Acknowledgements

Funding: The author gratefully acknowledges the financial support from the Ministry of Science and Technology, Taiwan (105-2420-H-003-002-MY2).

Appendix. List of Firms

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
Walsin Lihwa Corp.	TSE	1972	Electric Appliance & 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 Enterprise Corp.	TSE	1988	Iron & Steel
Tainan Spinning Co., Ltd.	TSE	1989	Textiles
Pou Chen Corporation	TSE	1990	Others
U-Ming Marine Transport Corp.	TSE	1990	Shipping & Trans.
Hon Hai Precision Ind. Co., Ltd.	TSE	1991	Other Electronic
China Petrochemical Development Corp.	TSE	1991	Plastics
Compal Electronics, Inc.	TSE	1992	Computer & Peripherals
Yang Ming Marine Transport Corp.	TSE	1992	Shipping & Trans.
Ruentex Development Co., Ltd.	TSE	1992	Others
Siliconware Precision Ind. Co., Ltd.	TSE	1993	Semiconductor
CTCI Corporation	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

(*continued on next page*)

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(*continued*)

Company	Exchange	IPO Year	Industry
Realtek Semiconductor Corp.	TSE	1998	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

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