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Impact of Corporate Social Responsibility Dimensions on Firm Value: Some Evidence from Hong Kong and China

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Abstract: There has been significant interest and debate on the impact that a firm's investments in corporate social responsibility (CSR) practices and initiatives have on its market value. In this paper, we target an area that is relatively under-researched: the relevance of CSR practices and initiatives for firms in the emerging economic region of mainland China and Hong Kong, where market development and the institutional environment lag that of developed economies. Using independent CSR assessment data on a sample of large mainland Chinese and Hong Kong firms listed on the Hong Kong Stock Exchange, we evaluate the impact of six CSR dimensions on the firms' adjusted stock market value over a three-year period. We found support for the influence of only two of the six dimensions considered, namely, the CSR practices and initiatives focused on community investment through philanthropy and, to a lesser extent, the CSR practices and initiatives focused on enhancing workplace quality, to be significant predictors of firm value. This suggests that social and people-centric dimensions of CSR are more relevant than technical and process-centric dimensions of CSR for mainland Chinese and Hong Kong firms. Furthermore, we found support for the hypothesis that the impact of CSR practices and initiatives on firm value follows an inverted U-shaped relationship over time, suggesting that the effect of these initiatives on firm value steadily increases during the initial years after their adoption to reach a maximum and then gradually fades away in subsequent years. To this end, this study advances our knowledge of the specific CSR dimensions that contribute to firm value and their relevance for Chinese and Hong Kong firms.

Keywords: corporate social responsibility; financial performance; stock market value; linear mixed modeling method; China; Hong Kong

1. Introduction

Corporate social responsibility (CSR) has gained significant prominence in the business world over the past few decades. Its growing importance can be seen by the fact that CSR reporting in sustainability among S&P 500 companies has risen dramatically from just 20% in 2011 to 82% in 2016 [1]. More than ever before, many companies are investing ambitiously in CSR programs and are aiming to integrate CSR into all aspects of their businesses.

Given the importance and ubiquity of CSR, a question that has prompted great interest from both academic researchers and market practitioners is whether such investments in CSR activities create value for the firm's shareholders or lower firm value due to their focus on other stakeholders. Despite voluminous empirical studies over the past four decades see [2–4] for reviews, there remains

considerable debate and inconclusiveness about this question. While a number of meta-analytic reviews suggest that there is a positive (albeit small) link between the implementation of CSR practices and firm value [3], doubts continue to persist due to the impact of positive publication bias [5]; sample size and methodological deficiencies used in studies that have investigated this link [6,7]; the moderating effect of environmental factors such as the maturity of institutional systems and the efficiency of market mechanisms present in different countries [7] and the variability in the institutional usage of CSR (instrumental, political and isomorphic) by firms [8].

Recognizing the apparent futility of investigating this direct effect, researchers have suggested a new research agenda focusing on a more nuanced analysis of this link. This entails understanding the precise causal mechanisms that link CSR investments to firm performance [4,9], assessing the impact of contextual factors such as country contexts on this link [7,10], segregating the CSR construct into more specific dimensions [10], and designing studies that overcome some of the research methodological and data analysis flaws present in existing studies [4,6,11]. For instance, Williams and Siegel [11] caution against models that exclude important strategic variables such as R&D intensity while attempting to explain firm performance as such models would suggest upwardly biased estimates of the financial impact of CSR.

In this study, we empirically investigate the relationship between CSR dimensions and firm value and test the relative significance of different dimensions on firm value. We address these questions through a study that adopts the aforementioned new research agenda. We explain and hypothesize the link between these CSR dimensions and firm value from both a theoretical and empirical lens. Our study involves companies from the mainland China and Hong Kong region, a regional context on which the literature is in a relatively nascent form [8]. We use independent assessments of CSR dimensions based on major international CSR indices, such as the Dow Jones corporate sustainability index and FTSE4Good index, to develop a segregated view of CSR. Firm value is measured as the adjusted stock market value of a firm taken over three years, and we use an appropriate multivariate statistical analysis method (linear mixed model) to analyze the link between the investigated CSR dimensions and firm value.

Our results show that of the six core CSR dimensions considered, only two are significantly associated with firm value. These dimensions relate to CSR practices focused on community investment, and, to a lesser extent, workplace quality. The other four dimensions, CSR strategy and reporting, stakeholder engagement, environmental performance and supply chain engagement, are observed to be statistically insignificant in their association with firm value. Also, none of the dimensions displayed a significant negative relation with firm value. Furthermore, there was support for the hypothesis that the effect of CSR practices on firm value follows an inverted U-shaped relationship over time, suggesting that the rate of impact of CSR initiatives on firm value increases steadily to a maximum in the initial years after their adoption and gradually fades away in subsequent years.

This study makes a number of theoretical and practical contributions. CSR, as a concept, is yet to gain a firm foothold in emerging economies with weak institutional systems, standards and appeal processes [7,10]. A significant gap continues to exist in market development and institutional environment between developed and developing economies. Our work sheds greater light on the relative merits of particular CSR dimensions over others in their ability to boost firm value in the context of mainland Chinese and Hong Kong firms. It also guides managers in the prioritization of their efforts in developing socially and environmentally responsible practices that lead to greater market value for their firms and investors in this region.

This paper is structured as follows: In the next section, we provide a review of the literature on the link between firms' investment in CSR and firm performance, followed by the development of hypotheses to be tested. The third section expounds the research methodology for our study, which includes the data sources, the measures used and the details of the performed data analyses. In section four, the results of the study are presented, followed by a discussion of their theoretical and practical

implications. The paper concludes with a summary of the study's findings along with a discussion of their limitations.

2. Literature Review

2.1. Link between CSR and Firm Performance

Over the past 40 years, over 200 published studies have empirically investigated the relationship between corporate social responsibility and financial performance, leading some to conclude that this relationship is one of the most elaborately researched areas in the field of business and management [12]. However, the results have been equivocal in terms of the magnitude and sign of the relationships that are supported. While some researchers have found a positive association between the two constructs [13,14], others have identified a negative association [15] or no relationship [16] between the constructs. McWilliams and Siegel [11] warn of important theoretical and empirical limitations plaguing existing studies and highlight the risk posed by the omission of variables that are important determinants of profitability such as R&D investment to the accuracy of results. They show that when the model is properly specified to include R&D intensity, CSR has a neutral impact on financial performance. To make better sense of this confusion, a number of systematic reviews using meta-analytic approaches have been carried out [7,17]. These reviews generally endorse the argument that there is a statistically significant positive relationship between the two constructs though the magnitude of the observed link remains small. In addition, they propose that the relationship between the two constructs is likely to be more complex, and it is yet to be understood whether the relationship is truly causal [17,18].

Based on the outcomes of these meta-analytic studies, some researchers claim that CSR is a worthwhile investment as it enables firms to “do well by doing good” [4] and that it is in line with firms' pursuit of economic advantage [7]. Theoretically, claims have been made in support of instrumental stakeholder theory and the rejection of the neo-classical economic viewpoint [4,7]. Other researchers have used meta-analytic studies to urge caution in interpreting this effect. For example, Rost and Ehrmann [5] show that there is significant publication bias towards studies that show a positive link between CSR and firm performance. Quazi and Richardson [6] demonstrate that the sample size and methodological approaches used in studies that have investigated this link significantly influence the size of the effect and its direction. Similarly, Wang et al. [7] show that measurement strategies for the two constructs explain some variations in their relationship. Wang et al. [7] also show that the moderating effect of environmental factors such as the institutional systems and efficiency of market mechanisms present in different countries influence the link between CSR and firm performance, with this relationship being stronger for firms in developed countries than for firms in developing countries. Furthermore, Vishwanathan [8] reveals that of the three different ways (instrumental, political and isomorphic) in which firms use CSR, instrumental and isomorphic use (strategic and legitimizing) result in positive performance outcomes, while political use is associated with negative outcomes. This suggests that institutional contingencies shape the CSR-performance relationship. Overall, the meta-analytic studies, while clarifying some aspects of the relationship, highlight the need for further research to shed greater clarity.

This research agenda is not suggesting that more of the same type of primary empirical studies that have been done in the past need to be conducted. Rather, it emphasizes the need to pursue a more nuanced analysis of the link. This can be achieved in a number of ways. First, there is a need to understand the mechanisms that link CSR practices to firm performance [9]. Vishwanathan et al. [9] find that firms benefit financially when CSR is used to improve their reputations, co-opt critical stakeholders, mitigate firm risk, and jumpstart innovation. These four factors fully mediate the CSR-performance link. Second, there is a need to better understand the specific context in which the relationship is positive vis-à-vis the contexts where it is not [7,10]. Mishra and Suar [10] demonstrate the relevance and importance of the country-level context while exploring the link between the two

constructs through their study in India where institutional environment significantly differs from that of developed economies. Third, there is a need to segregate CSR into individual practice level measures deviating from the current practice of its evaluation in aggregate form [10]. While the earlier approach of evaluating CSR in aggregate form helps in developing an understanding of the effects at a macro-level, the revised approach of segregating CSR into its individual dimensions aims to provide a more detailed and nuanced understanding of the effects at a micro-level. Finally, there is a need to overcome research methodological and data analysis flaws observed in earlier studies [4,6]. Margolis et al. [4] state that future studies should meet four criteria: (1) data about CSR should consist of behavioral measures such as those obtained from third party audits with an assessment process that is clear and open to validation; (2) the study should control for industry, risk and size; (3) CSR practice and firm performance should be assessed at different time periods, and the direction of causality must be articulated and assessed both theoretically and empirically; and (4) the causal link between the two constructs should be articulated and tested. In this study, we take up the challenges posed by this emerging research agenda.

In the following sub-section, we propose a series of hypotheses that link individual CSR dimensions to firm performance. The CSR dimensions are in disaggregated form, thereby enabling a more detailed understanding of how each of these dimensions impacts firm value. Multiple theoretical and empirical perspectives are used to justify these links. Contextually, our study is based in mainland China and Hong Kong. Since the 1978 openness policy, this region has attracted a lot of foreign direct investment owing to its abundant cheap high-quality labor and has emerged as a large and important economic zone where firms produce goods and services in vast quantities for consumption worldwide. The firms in this region operate in an institutional environment that differs significantly to the environment in developed economies. Only more recently (since 2006), after the Chinese government had issued a number of CSR reporting guidelines in its 11th Five-Year Plan for large firms to propagate the idea that China should pursue a more “harmonious society”, have more Chinese firms started to issue CSR reports. In 2009, in the sample covered by our study, we still observe significant variation across the firms in the amount of information disclosed on specific CSR activities. These differences are factored into our development of hypotheses. Finally, the methodological issues outlined above have been addressed by: (i) using independent assessment of CSR practices based on some well-known sustainability indices; (ii) controlling for size and industry characteristics; (iii) using three years of performance measures after the introduction of CSR practices, enabling causality to be established through this temporal precedence.

2.2. Theoretical Foundation and Development of Hypotheses

In this study, we use dimensions of CSR that have been developed through the synthesis of the evaluation criteria of some of the major CSR indices, including: FTSE4Good Index Series, the Dow Jones corporate sustainability assessment questionnaire, the Social Responsibility Index questionnaire of the Johannesburg stock exchange, the Corporate Giving Standard, and the Global Reporting Initiative (GRI). This synthesis was carried out by CSR Asia (a consulting firm) and Oxfam Hong Kong (a non-government organization), who presented their findings in a report entitled “Corporate Social Responsibility Survey of Hang Seng Index Constituent Companies 2009” [19], henceforth referred to in this paper as the “CSR Asia—Oxfam HK Report”. The report examines the extent to which various firms show their commitment towards a total of 15 different CSR policies/practices, which are listed in Table 1. These policies/practices are consistent with those identified in other studies [20,21]. In the CSR Asia—Oxfam HK report, these policies/practices are combined into six core CSR dimensions: CSR strategy and reporting; stakeholder engagement; workplace quality; environmental performance; supply chains; and community investment. In the following sub-sections, we review the six CSR dimensions with respect to relevant literature in order to generate testable hypotheses.

Table 1. CSR policies and practices. This table lists the 15 different CSR policies/practices that are examined in the CSR Asia–Oxfam HK Report for the 42 firms who took part in the study.

1. GRI Reporting
2. Standalone CSR Report
3. Human Rights in Code of Conduct
4. UN Global Compact
5. Carbon Disclosure Project
6. Measurement of Greenhouse Gas Emissions
7. Environmental Reduction Targets
8. Stakeholder Engagement with Suppliers
9. Stakeholder Engagement with Trade Unions
10. Equal Opportunities Policy for All Employees
11. Overtime Compensating System
12. Ethical Purchasing Policy
13. Monitoring Suppliers
14. Alignment to UN Millennium Development goals and/or National Development Goals
15. Measurement of Community Investment Impact

2.3. CSR Strategy and Reporting (Existence of Good Corporate Governance Mechanisms for Effective Compliance) and Firm Value

The “CSR Strategy and Reporting” dimension in the CSR Asia–Oxfam HK Report captures the level of commitment firms have towards their CSR initiatives such as UN Global Compact, Carbon Disclosure Project, Climate Change Forum. This is in terms of board-level responsibility for CSR; the existence, coverage, and extent of their codes of conduct; and the presence of good corporate governance mechanisms to monitor their effective compliance, including sustainability reporting in accordance with the Global Reporting Initiative (GRI) guidelines.

At the time of the release of the CSR Asia-Oxfam HK report, sustainability reporting within China was just beginning to gain momentum [22]. Indeed, three of China’s four largest banks published separate CSR reports in 2007, while leading firms within the energy, natural resources, and communication sectors had just begun to publish similar reports [23]. In January 2008, the Chinese Government released guidelines for the implementation of CSR measures by state-owned enterprises [19].

The CSR Asia-Oxfam HK report indicates that regardless of the scope of their individual codes of conduct, more than 75 per cent of firms have some form of monitoring mechanisms in place for ensuring compliance. In our sample, more mainland China companies were signatories of the UN Global Compact than firms in Hong Kong and the Chinese firms’ participation in the Carbon Disclosure Project were similar to that of Hong Kong counterparts. In 2009, a surge in membership in local climate change initiatives was observable in Hong Kong based companies.

Companies that have good corporate governance are generally expected to increase value for their shareholders as good corporate governance aims to ensure firm’s sustainability through good business practices that promote transparency and accountability. Well-designed corporate governance mechanisms are typically designed to align the agents’ incentives with those of principals. Firms report their CSR initiatives to stakeholders, among other reasons, to establish their legitimacy as they seek license from society to operate [24]. As legitimacy theory suggests, a firm’s commitment to CSR practices helps it to convince various stakeholders of its genuine interest in the common good and gain both internal and external legitimacy.

In developed economies, the issuance of CSR reports has been identified as an important determinant of the extent to which investments in CSR would positively impact firm value [25]. CSR reporting is typically used as a mechanism through which firms share information to stakeholders about their approach to environmental, community, employee and consumer related issues. However, relatively little is known about the potential impact that similar reporting may have on firm value in emerging economic regions such as mainland China and Hong Kong. Measuring this effect is important for the region because the results will provide meaningful guidance for firms aiming to invest in similar practices. As Marquis and Qian argue [26], in the context of China, firms are aiming to gain goodwill with government agencies and regulators by issuing CSR reports, thereby achieving

greater access to resources. This trend is well supported by a report from ChinaCSR.com [22] which states that “companies are proactively reaching out to engage Government, consumers, investors, and suppliers in multifaceted initiatives to bolster legal compliance, create better brand equity, strengthen financial oversight, and ensure sound manufacturing principles”. This sentiment is reiterated by [27] (p. 35), who suggests that “legitimate status is a sine qua non for easy access to resources, unrestricted access to markets, and long term survival”.

Garay and Gonzalez [28] conclude, based on their study of firms in Venezuela, that in the case of developing economies with relatively low investor protection, good corporate governance practices and policies could be used as an efficient mechanism for firms that want to distinguish themselves to attract investors. Their results are consistent with the theoretical model presented by La Porta et al. [29], where the positive effects of good corporate governance practices on firm value are explained by the higher confidence of their investors and the willingness of these investors to provide capital to the firm at a lower cost, which is in turn reflected in higher valuation. Similarly, McWilliams and Siegel [30] stress the importance of communicating a firm’s CSR initiatives to its stakeholders to promote greater awareness of these practices.

In a similar vein, we posit that firms in mainland China and Hong Kong that have good corporate governance structures and mechanisms and communicate their CSR practices through sustainability reporting will be better placed to gain goodwill with government agencies and will possibly have greater access to resources, thereby achieving superior financial performance and higher firm value. To test this proposition, we hypothesize that:

Hypothesis 1 (H1). *For firms in the emerging economic region of mainland China and Hong Kong, firm value is positively related to the extent to which CSR compliance related corporate governance mechanisms are present and communicated.*

2.4. Stakeholder Engagement and Firm Value

In a seminal paper on stakeholder theory [31] (p. 53), Freeman defines a stakeholder as “any group or individual who can affect or is affected by the achievement of an organization’s purpose.” Consistent with this definition, “stakeholder engagement”, the second core CSR dimension explored in the CSR Asia–Oxfam HK Report, captures the level of CSR-related engagement that firms have with their five key stakeholder groups: shareholders, customers, employees, suppliers and community groups/NGOs. The engagement involves meaningful and structured dialogue to facilitate the exchange of views, feedback, and information between a firm and its stakeholders about its CSR initiatives. The majority of the companies in our sample use various methods to respond to stakeholder concerns, including external CSR reports, focus groups, briefings, public meetings and internal reports. The leading companies show their commitment to engage on a regular basis with a wide range of stakeholders on many CSR-related issues as a basis for their reporting. Emphasizing the importance of transparency and communication with various key stakeholders, this CSR dimension deviates from the neoclassical economic perspective, which primarily focuses on the creation of value for shareholders, and is more consistent with the stakeholder theory perspective, which suggests that the needs of shareholders cannot be met without satisfying the needs of other diverse constituencies [32].

Browne and Nuttall [33] elaborate on what effective stakeholder engagement involves: “That means learning, on an individual and institutional level, what they want, when they want it, how much they are prepared to compromise, how your activities affect their goals, and what resources and influence they can bring to bear.” Bronn and Bronn [34] (p. 291) suggest that “Organizations are undergoing dramatic changes as stakeholder groups exert an ever-increasing influence on the place and responsibilities of organizations in society. Important drivers in this process include the environmental movement, the search for total quality management, and the concept of sustainable development, ethics, and organizational learning.” There is a growing recognition among business leaders of the importance their key stakeholders place on corporate behaviors that are socially, environmentally and

ethically responsible. Newer technologies are also enabling greater engagement of firms with a wide range of their stakeholders. For instance, through crowdsourcing platforms such as My Starbucks Idea, firms are tapping into the collective creativity of their customers and clients to come up with new products and enhancements to their services [35].

In today's business environment, frequent and transparent engagement of a firm with its stakeholders is no longer optional, but rather a necessity, to gain the approval of its key stakeholders. To maintain legitimacy and build a reputation in the marketplace, firms need to be more transparent about their CSR initiatives with their stakeholders [13,30,31]. As stakeholder theory would suggest, poor stakeholder engagement and lack of transparency can prove to be costly, especially in the event of failed corporate practices. The case of BP after the Gulf of Mexico spill demonstrates the point where their lack of transparency and poor effective stakeholder management caused them to lose billions of dollars of value. Conversely, transparent communication between the firm and its stakeholders provides insurance-like protection for firms in the midst of negative events and helps to preserve their value. For instance, Shiu and Yang [36] argue that Mattel's long history of CSR involvement and responsible recall action may have resulted in their stock experiencing only a modest (0.61%) lowering in value when it announced the largest product safety recall in the company's history to tackle extremely high levels of lead paint found in the affected toys.

Du et al. [37] emphasize that business returns to CSR are contingent on stakeholders' engagement in and awareness of a firm's CSR activities. Servaes and Tamayo [38] demonstrate that CSR and firm value are positively related for firms with high customer awareness; for firms with low customer awareness, the relation is either negative or insignificant. Bhattacharya et al. [39] warn that lower awareness of a firm's CSR activities among its external stakeholders (e.g., consumers) or among internal stakeholders (e.g. employees) can act as a key stumbling block in a firm's quest to reap full benefits through its CSR activities. Greater stakeholder engagement will result in improved stakeholder relationships required for achieving their favorable responses to a firm's CSR activities, which in turn can lead to better reputation, improved human capital and better financial performance [25]. Henriques and Sadorsky [40] point out that firms failing to yield to pressures from environmental stakeholders, including governments, customers, and the wider community potentially suffer losses, while firms that systematically manage their relationships with these stakeholders achieve improvements in both their environmental and financial performance.

Baughn et al. [41] point out that economic, political and social factors influence the regulatory context, attitudes, shared know-how and expectations that underpin CSR initiatives. China showcases the transition from a state-planned to a market-oriented economy [42]. In the context of firms in an emerging economic region such as mainland China and Hong Kong, the expectations of different stakeholders may not have equal importance for a firm planning its investments in CSR. For instance, Yin and Zhang [43] point out that the expectations of and pressure from the community and local consumers was far less significant than the expectation of international buyers and the requirements imposed by the government.

The broader expectation is that firms in mainland China and Hong Kong that engage in meaningful and open interactions with their key stakeholders will achieve improved business outcomes and higher market value. Consequently, we hypothesize that:

Hypothesis 2 (H2). *For firms in the emerging economic region of mainland China and Hong Kong, firm value is positively associated with the degree of engagement a firm has with its stakeholder, including shareholders, customers, suppliers, employees and community groups.*

2.5. Workplace Quality and Firm Value

Researchers have identified current employees as a highly salient stakeholder group with high power and legitimacy to influence the firm, warranting perfect duty from the firm [44]. The third CSR dimension in the CSR Asia–Oxfam HK Report is 'workplace quality' which focuses primarily

on this salient stakeholder group and captures the extent to which the firm provides safe and healthy working conditions, training for continuous improvement, reasonable remuneration packages, flexible working hours, fair overtime compensation, paternity leave, alternative solutions to layoffs and equal opportunities for promotion without discrimination to its workforce. It also captures the existence of formal written policies on equal opportunity or diversity management as well as the mechanisms in place to deal with discrimination-related grievances.

Human resource management theories [45] suggest that job satisfaction can improve firm value. As employees are an important stakeholder group in any organization, their fair treatment and improved management of their health and safety are expected to be positively associated with their job satisfaction, thus leading to productivity improvements and increased competitive business advantage [46]. The theme that is central to the promotion of workplace health and safety practices is the following: “human performance is higher when people are physically and emotionally able to work and have a desire to work. Higher levels of human performance lead to higher levels of productivity, which in turn can lead to higher profits” [47] (p. 215). The other argument linking workplace quality and firm value is borrowed from the resource-based view (RBV) [48], which claims that a firm develops sustainable competitive advantage by building resources that are both valuable and hard for competitors to imitate or poach. Providing higher workplace quality not only improves the satisfaction of current employees but also aids in increasing the ability of an organization to retain its key employees, warding off the threat of them being poached by their competition. Also, Cacioppe et al. [49] (p. 681) argue that well-educated managers and professionals are likely to consider “the ethical and social responsibility reputations of companies when deciding whether to work for them, use their services, or buy shares in their companies.”

The rise of China as the “workshop of the world” can be seen as a byproduct of the increasing need of firms in the developed world aspiring to be more cost effective to relocate their production to industrial sites where the labor is inexpensive, abundant and well-disciplined [50]. Although regulatory authorities in China have formulated various policies and measures to ensure minimum standards of work conditions and health and safety for employees, compliance with these regulations has varied widely across firms. China’s historical poor reputation in labor standards is posing greater risks for companies hosted in China selling their products to ethically conscious global markets [51]. As a result, Chinese manufacturers, as the main suppliers for multinational companies around the world, are facing increasing pressures from global CSR campaigns to be more compliant. For instance, firms like Nike, learning from their earlier mistakes, have taken a more rigorous approach to assessing suppliers’ commitment to ensuring the fair treatment of employees and have developed stricter codes of conduct for their suppliers to facilitate the provision of a healthier work environment for their employees [52].

Based on these considerations, we contend that firms in mainland China and Hong Kong that have higher regard and standards of practice relating to workplace health and quality are likely to achieve greater retention of their high-quality workforce and greater approval from their customers. They will also be more sought after by the multinational firms that are seeking suppliers with greater compliance towards workplace health and quality standards. Overall, we expect these CSR initiatives directed at workplace health and quality to enhance the firms’ value through enhanced reputation effects and greater competitive advantage in the marketplace. Thus, we hypothesize that:

Hypothesis 3 (H3). *For firms in the emerging economic region of mainland China and Hong Kong, the value of a firm is positively associated with CSR practices aimed at achieving higher workplace quality for its employees.*

2.6. Environmental Performance and Firm Value

The next CSR dimension in the CSR Asia—Oxfam HK Report is “environmental performance”. This stands for a firm’s efforts to enhance its environmental performance through policies and practices such as tracking of greenhouse gas emission rates, improvement plans to reduce energy,

water and paper consumption, and greenhouse gas emissions, and implementation of material usage reduction programs.

Can a firm increase its firm value through improvements in its environmental performance? Although this question has received attention from many researchers, the response has been mixed. Debates have ensued on whether the popular eco-friendly initiatives such as low-cost water purification solutions and eco-friendly detergents at Unilever or the energy conservation and recycling initiatives at Wal-Mart are favorably rewarded by the market [53]. Proponents claim that corporate environment initiatives provide higher return and market value [54]. Jacobs et al. [55] find supporting evidence for this claim and conclude that announcements of philanthropic gifts for environmental causes, voluntary emission reductions, ISO 14001 certifications are associated with significant positive market reaction. Research has also found support for how the establishment of environmental policies can aid in lowering the use of energy and raw materials and emission rates [13,56,57]. Other benefits that have been highlighted include the capacity of environmentally friendly firms to differentiate themselves through the design of ecologically sustainable products that appeal to their customers and achieve a competitive edge [58]. Barnett and Salomon [59] suggest that good environmental performance provides firms better access to key resources, including better quality employees and expanded market opportunities. Skeptics, on the other hand, warn of the perceived high costs associated with improving environmental performance and the uncertain returns on those investments [60]. Friedman [61] argues that environmental expenses beyond those warranted for regulatory compliance are not in the best interests of shareholders and will lead to the erosion of firm value.

From the perspective of both institutional and legitimacy theory, it can be argued that getting accreditation in environmental programs such as ISO 14000 standards enables firms to achieve legitimacy by signaling to stakeholders their internal emphasis on environmental performance and pressing their supply chain partners to obtain similar accreditation. As a result, both individual firms and their supply networks can develop a competitive advantage in their resource acquisition processes.

In the context of China, with growing pressures being put on firms from many different sources, including governmental regulation, community participation and market demand, we expect more firms in mainland China and Hong Kong to pursue CSR initiatives to improve their environmental performance. In line with the above arguments, we hypothesize that:

Hypothesis 4 (H4). *For firms in the emerging economic region of mainland China and Hong Kong, firm value is positively associated with CSR initiatives aimed at achieving higher environmental performance.*

2.7. Supply Chain Engagement and Firm Value

Supply Chain Management (SCM) refers to “the management of upstream and downstream relationships with suppliers and customers to superior value at less cost to the supply chain as a whole” [62] (p. 18). Although the traditional focus of SCM has been to lower costs and improve service, the more recent emphasis has been towards the achievement of social, ethical and environmental compliance from suppliers through the development of meaningful governance mechanisms [63]. The CSR dimension described as “supply chain” in the CSR Asia—Oxfam HK Report captures the extent to which a firm extends its traditional corporate governance process to its supply chain partners. It highlights the level of engagement a firm has with its suppliers to achieve higher levels of CSR compliance through the enforcement of stricter codes of conduct that cover operations and demand compliance with an extensive set of labor, health and safety, and environmental standards. It also tracks the existence of governance mechanisms for tracking compliance with ethical sourcing/purchasing policies, greenhouse management programs, supplier engagement in educational programs on labor rights, CSR reporting, and joint creation of sustainable products.

Firms have been increasingly pressured by stakeholders to undertake greater responsibilities for environmental and social sustainability violations at each stage of their supply chains [64]. Roberts [65] (p. 163) states that “firms have had their reputations affected by negative publicity about issues related

to their supply chains, from luxury jewelers being accused of supporting wars in Africa through their use of ‘conflict diamonds’, to chocolate companies being targeted for ignoring the use of slave labor in the production of the cocoa they source for their products”. In response, firms have directed more resources towards the incorporation of socially and environmentally responsible practices into their supply chains and the creation of governance mechanisms to monitor and assess the compliance of their suppliers with these requirements. For instance, IKEA, learning from its mistakes in the past, has committed to reaching full compliance of its suppliers through the validation of their work practices by its own auditors and other independent teams [66]. Hence, ethical sourcing and codes of conduct serve as forms of assurance that products meet required environmental and social standards and are critical to the legitimacy and reputation-building of a firm [65].

From a stakeholder theory perspective, studies have shown that through greater engagement with suppliers, firms can improve their achievement of social and environmental goals, resulting in positive operational and financial performance [67]. Gimenez and Sierra [68] show that supplier assessment and collaboration with suppliers have a positive and synergistic effect on a firm’s environmental performance. Pagell et al. [69] also found evidence to suggest that the ability to form collaborative relationships with suppliers to improve sustainability is a valuable asset in ensuring the profitability of a firm’s supply chain.

Drawing on these arguments, we hypothesize that:

Hypothesis 5 (H5). *For firms in the emerging economic region of mainland China and Hong Kong, firm value is positively associated with the extent to which a firm develops governance mechanisms to engage with and monitor its supply chain partners for the achievement of higher-level CSR compliance.*

2.8. Community Investment (Corporate Philanthropy) and Firm Value

The last CSR dimension that the CSR Asia—Oxfam HK Report explores is ‘community investment’. This cluster captures the extent to which a firm engages with the wider community through philanthropic giving to charities, disaster relief funds, etc. Firms are measured by their total corporate giving, which includes both direct cash and non-cash (i.e., employee volunteering programs) contributions.

Globally, more and more firms are devoting considerable effort and resources in support of community involvement projects. For instance, within hours of the 2001 World Trade Center attacks in New York, many major corporations such as GE, Microsoft, Pfizer and Daimler Chrysler each pledged \$10 million to help the victims [70]. Altman [71] proposes that many firms are reorienting their corporate community relations to fit broader strategic goals. Community investments are often targeted at suitable recipients, based on their potential to enhance the competitiveness and reputation of the firms [72]. Godfrey [73], consistent with the arguments of Gardberg and Fombrun [74] and Porter and Kramer [72], shows that corporate philanthropy can generate positive value for a firm through the enhancement of its reputational capital. In addition to the above legitimacy-related reputational perspective on community investment, studies propose that strategic community investments targeting the needs of the “bottom of the pyramid” can catalyze firm growth [75].

Empirical findings linking community investments and firm value have largely been inconclusive. Wood and Jones [76] find evidence for the positive link between community investments and financial returns. Waddock and Graves [77] suggest that good community relations can help a firm obtain a competitive advantage through tax benefits, a decreased regulatory burden, and improvement in the quality of local labor. Patten [78], through his study investigating the market reaction to corporate press releases announcing donations to the relief effort following the December 2004 Tsunami in Southeast Asia, finds support for Godfrey’s earlier assertion that philanthropic giving has a positive impact on firm value. Others, however, find no positive relationship between community investments and firm value [79]. Although research on the effect of community investments on firm value has been inconclusive, we expect those firms with improved community relations to have a higher firm value through enhanced reputation and greater legitimacy.

Based on these considerations, we hypothesize that:

Hypothesis 6 (H6). *For firms in the emerging economic region of mainland China and Hong Kong, firm value is positively related to the extent to which a firm is engaged with its community through philanthropic giving, including both direct cash and non-cash contributions.*

2.9. Temporal Effect of CSR Investments on Firm Value

It is generally acknowledged that investments in CSR require some incubation time before their impact on firms' financial performance become observable. Consequently, event studies that evaluate the impact of an event in a short time window are not well suited to capture the effects of investments in CSR on firm value. To combat this limitation, as suggested by Jiang et al. [80], we used the cross-sectional valuation approach in our study to analyze the temporal effect of CSR investments on firm value.

The impact of CSR investments on firm value is likely to take a few years to be observable, as it requires the practices to become embedded in the overall culture of the firm. However, in the absence of further investment, improvement, or consolidation of these CSR practices, diminishing returns are likely to set in. The initial increase followed by a decline suggests the existence of an inverted U-shaped relationship between the rate at which CSR investments impact firm value with respect to time. We, therefore, hypothesize that:

Hypothesis 7 (H7). *For firms in the emerging economic region of mainland China and Hong Kong, the effect of CSR initiatives on firm value will steadily increase during the initial years, but will decline after reaching a maximum if the initiatives are not sustained.*

3. Research Method

3.1. Data Collection Process

In this study, we use publicly available secondary data published in the CSR Asia-Oxfam HK Report. CSR Asia is an independent firm that provides information, training, research and consultancy services on sustainable business practices in Asia, while Oxfam HK is the Hong Kong based branch of a large non-government organization. This paper is based on the report entitled "Corporate Social Responsibility Survey of Hang Seng Index Constituent Companies 2009" [19]. Although there are updated reports published by CSR Asia-Oxfam in subsequent years, as the frameworks are different each year, we have not used data from these later reports in our current study.

For the evaluation exercise, the study partners selected companies that are listed in the Hang Seng Index, comprising some of the largest, best-performing companies operating in mainland China and Hong Kong. Based on international guidelines for best practice from recognized CSR indices such as the FTSE4Good Index Series, the Dow Jones Corporate Sustainability Assessment Questionnaire, the Social Responsibility Index questionnaire of the Johannesburg Stock Exchange, and the Corporate Giving Standard and the Global Reporting Initiative, the CSR Asia—Oxfam Hong Kong identified six core CSR dimensions, namely, CSR strategy and reporting, stakeholder engagement, workplace quality, environmental performance, supply chain and community investment.

The data collection was carried out in two steps. First, the CSR Asia—Oxfam HK research team sent questionnaires to the chairpersons of the companies. In addition, respondents were requested to provide supporting evidence, details and examples of relevant policies and practices, and to nominate suitable managers who could assist with further information. These managers were contacted and asked to add any related comments or examples relevant to CSR initiatives within their firms. In instances where evidence was not provided, the researchers interviewed the managers for more details. With the results from the questionnaires and additional evidence, an independent researcher from the research team verified the evidence and scores were determined. A total of 42 firms completed the questionnaire and took part in the study.

In the second step, the research team gave scores to these companies based on their responses and quality of evidence provided to support affirmative responses. Each core dimension was given equal weighting, with the performance on each of the CSR practices being measured numerically, using a scoring system of zero to three. A score of zero was given when there was no CSR practice put in place. If there were partial efforts, a score of one was given. If the firms had implemented acceptable levels of CSR practices, a score of two was given. The maximum score of three was given only to firms who provided evidence of exceeding the norm for CSR implementation. An overall score was derived from the total number of questions and the rated scores using an additive index approach similar to that used in several other studies in the management area [81]. Each firm's score ranged from zero to 135, which was translated to a percentage score, determining its relative rank. The report provides complete and transparent details of the methodology used, results of the scoring process, and the ranking outcomes.

3.2. CSR and Firm Value

For this study, the independent variables were the six CSR core dimensions identified in the report for the 42 companies for 2009. There are several reasons for the selection of this dataset. First, the six CSR core dimensions used in this study were in segregated form. Second, these dimensions had high internal and external validity because they were an integrated set based on the evaluation criteria of several well-known indices. Third, the researchers had no association with the evaluated companies, thus allowing an objective perspective when rating the companies. Fourth, each company was rated on multiple attributes pertaining to their CSR practices, and the same set of criteria was uniformly applied across firms from different industries. Finally, the survey placed greater focus on the investigation of the actual implementation of CSR practices as opposed to the proclamations made by the companies.

Investments in CSR are made with a strategic intent and their effect on the bottom line may take several years to be observable. Bharadwaj et al. [82] and Konar and Cohen [18] suggest that standard accounting measures of performance, such as return on assets, lack in their ability to evaluate the future profit potential of such practices. To overcome the limitations of these standard accounting measures, consistent with earlier research [80], we chose firm market value, adjusted for firm size, as the dependent variable, as it provides an unbiased estimate of future cash flows attributable to the firm's tangible and intangible assets. As suggested in Jiang et al. [80], book value is a good adjustment factor for firm size. Hence, the market value to book value (MV-BV) ratio, also referred to as Tobin's Q, is used in our study. We consider the MV-BV ratio for three consecutive years (2009, 2010 and 2011). Market value for each year was calculated by multiplying the stock price (obtained from Reuters) by the number of ordinary shares (published in the annual report) for each company, on 31 March of that year, which is the last day of the financial year in Hong Kong. Book value, on the other hand, refers to the owner's equity as published in the annual report.

It is possible that the industry in which a firm operates influences the prevalence of CSR practices and outcomes desired. As the dataset consisted of firms from a range of industries, to control for industry effects, similar to earlier studies [83,84], we used capital intensity values of firms to serve as proxies for their respective industries similar to other studies we use capital intensity values of firms as proxies for their respective industries. The capital intensity value for each firm is obtained by dividing its fixed costs by its total costs, both obtained from the firm's annual reports. High capital intensity values are typically associated with the manufacturing industry, while low values are usually associated with service industries.

3.3. Data Analysis

The predictor, control, and dependent variables are classified into two groups: one with variables that are specific to the respective year of data collection, and the other with variables that are germane to the companies involved and consistent across the three years of the study. As a result, we develop a

two-level model in the form suggested by West et al. [85], as shown in Table 2. The Level 1 factors are time (three intervals), time-squared (to test for the inverted U-shape relationship), capital intensity, and firm value. The Level 2 factors are the six core CSR dimensions. We convert this classification framework of variables into a multi-level statistical model and test it using the linear mixed model (LMM) method.

Table 2. Two-level data model for variables under study. This table provides the details of the level 1 and level 2 factors in our two-level model.

Level of Data	Type of Variable	Variable Label	Hypothesis
Level 1: Repeated measures	Dependent variable:	• Market value to book value ratio	-
	Within-subject factors:	• Capital intensity	Control
		• Time • Time-squared	- H7
Level 2: Unit of analysis	Subject variable (random factor)	• Company	-
	Subject level covariates:	• CSR strategy and reporting	H1
		• Stakeholder engagement	H2
		• Workplace quality	H3
		• Environmental performance	H4
		• Supply chain	H5
		• Community investment	H6

The LMM method is used in this study for various reasons. First, the LMM method is suitable for observations that are not independent, i.e., data in our study are longitudinal in form, with three years of relevant information available for each firm studied. The LMM method correctly models correlated errors, while other procedures from the general linear model family (such as t-tests, analysis of variance, and regression) fail to do so. Second, the LMM method enables us to include the modeling of random effects, in addition to the usual fixed effects. This involves treating a categorical predictor not as a complete set, but as a random sample of all values, thus enabling inferences to be made over a wider population than is possible through general linear model based methods. In this study, we are interested in modeling the random effect of firms to the wider population of organizations to evaluate its applicability. Third, the LMM method's ability to handle predictor variables at multiple levels makes it ideal for our study dealing with predictor variables at two levels. The specific process of performing LMM analysis is based on procedures specified by Kenny et al. [86], West et al. [85] and Heck et al. [87]. We use the IBM SPSS V20 software package, specifically the MIXED function. Mean centered values for all the independent and control values are included in the model.

The LMM equation for this study is as follows:

$$\text{Market value to book value ratio} = \beta_0 + \beta_1 \times \text{Capital intensity} + \beta_2 \times \text{Time} + \beta_3 \times \text{Time}^2 + \beta_4 \times \text{CSR strategy and reporting} + \beta_5 \times \text{Stakeholder engagement} + \beta_6 \times \text{Workplace quality} + \beta_7 \times \text{Environment performance} + \beta_8 \times \text{Supply chain} + \beta_9 \times \text{Community investment} + v_0 + \varepsilon$$

β_0 to β_9 represent the fixed effects associated with the intercept and the independent and control variables; v_0 is the random effect variance associated with the intercept for the company variable, and ε is the residual variance associated with the company variable.

4. Results

Table 3 provides descriptive statistics (mean and standard deviation) and the correlation matrix for the CSR dimensions in 2009, market value to book value ratios, and capital intensity for the years 2009, 2010 and 2011. The high correlation between capital intensity levels in 2009, 2010 and 2011 is consistent with our expectations that capital structure of firms tends to vary little from year to year.

Table 3. Descriptive statistics and correlation matrix. This table provides the descriptive statistics (mean and standard deviation) and the correlation matrix for the CSR dimensions in 2009, market value to book value ratios, and capital intensity for the years 2009, 2010 and 2011.

Construct	Mean	S.D.	Construct Correlations														
			1	2	3	4	5	6	7	8	9	10	11	12	13		
1. Total score percentage 2009	48.64	16.99	1														
2. CSR strategy and reporting 2009	12.00	3.45	0.776 **	1													
3. Stakeholder engagement 2009	16.74	3.53	0.684 **	0.558 **	1												
4. Workplace quality 2009	14.48	6.96	0.858 **	0.583 **	0.384 *	1											
5. Environmental performance 2009	12.52	6.50	0.870 **	0.704 **	0.672 **	0.656 **	1										
6. Supply chain 2009	5.86	5.40	0.786 **	0.445 **	0.368 *	0.691 **	0.479 **	1									
7. Community investment 2009	4.10	2.67	0.766 **	0.546 **	0.489 **	0.540 **	0.606 **	0.680 **	1								
8. Capital intensity 2009	56.07	256.86	−0.202	−0.015	−0.310 *	−0.100	−0.127	−0.214	−0.287	1							
9. Capital intensity 2010	62.69	288.32	−0.202	−0.015	−0.310 *	−0.101	−0.127	−0.213	−0.287	1.000 **	1						
10. Capital intensity 2011	63.70	290.46	−0.202	−0.013	−0.310 *	−0.098	−0.127	−0.216	−0.291	1.000 **	0.999 **	1					
11. Market value to book value ratio 2009	1.73	2.33	0.307 *	0.325 *	0.245	0.303	0.251	0.113	0.370 *	−0.011	−0.011	−0.010	1				
12. Market value to book value ratio 2010	2.25	3.59	0.160	0.208	0.186	0.158	0.153	−0.028	0.244	0.000	0.000	0.002	0.921 **	1			
13. Market value to book value ratio 2011	2.28	4.30	0.172	0.190	0.194	0.160	0.177	−0.010	0.245	0.034	0.034	0.035	0.883 **	0.981 **	1		

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

As the additive index method [81,88,89] is used to measure the six CSR dimensions, conventional psychometric methods for assessing the reliability and validity of these constructs using item-level measures is not possible. Nonetheless, we assess the validity and reliability of the six dimensions of CSR as measures of the higher-level CSR construct using conventional exploratory factor analysis and Cronbach's alpha coefficient methods respectively. Factor analysis results show that only one significant high-level factor (CSR) is extractable, with the Eigenvalue of 3.81 and accounting for 64% of the variance in the construct. All six dimensions loaded significantly on the CSR construct. The Cronbach's alpha coefficient for the CSR construct is 0.884, which is above the conventionally acceptable threshold level of 0.7, further suggesting that the six dimensions are reliable measures of the CSR construct. Furthermore, examination of the correlation coefficients between the six CSR dimensions (Table 3) shows that none are above 0.9, suggesting that the items do not have multi-collinearity issues. Together, these psychometric test results suggest that the six dimensions are valid and reliable indicators of the CSR construct.

Data Analysis Results

There were four models considered in our LMM analysis. The results are presented in Table 4. Overall, the model fit indices (-2LL, AIC, AICC, CAIX and BIC) for Model 3 are consistently smaller than those for Model 2, which in turn are smaller in comparison to those for Model 1. Model 4 has six additional fixed effect parameters, resulting in a slight inflation in fit indices relative to earlier models. These positive overall results enable the closer exploration of each model.

Table 4. Linear mixed model (LMM) analysis results. This table shows effects of six CSR dimensions on financial performance of firms.

Variables	Model 1: Baseline	Model 2: Control Variables Only	Model 3: Level 1 Factors Only	Model 4: Fully Specified
Estimation method	REML			
Fixed-Effect Parameter	Dependent Variable: Market value to book value ratio			
β_0 (Intercept)	2.087 *** (0.515)	1.450 *** (0.295)	1.730 *** (0.366)	1.730 *** (0.366)
Estimate (S.E.)				
Level 1				
Control variable				
β_1 (Capital intensity)		-0.017 (0.058)	-0.019 (0.056)	-0.035 (0.058)
Independent variables				
β_2 (Time)			0.766 *** (0.280)	0.766 *** (0.280)
β_3 (Time-squared)			-0.247 ** (0.102)	-0.247 ** (0.102)
Level 2				
Independent variables				
β_4 (CSR strategy and reporting)				0.130 (0.119)
β_5 (Stakeholder engagement)				0.051 (0.111)
β_6 (Workplace quality)				0.120 * (0.066)
β_7 (Environmental performance)				-0.108 (0.077)
β_8 (Supply chain)				-0.130 (0.083)
β_9 (Community investment)				0.344 ** (0.162)
Covariance Structure				
Repeated effect (Level 1):	None	First order auto-regressive	First order auto-regressive	First order auto-regressive
Random effect (Level 2):	Variance components	Unstructured	Unstructured	Unstructured
Estimate (S.E.)				
Covariance Parameter				
σ^2 (Company)	10.568 *** (2.465)	-	-	-
σ^2 (residual variance)	1.758 *** (0.271)	-	-	-
Repeated effect: σ^2 (AR1 Diagonal)	-	1.774 (2.450)	1.935 (2.638)	1.607 (2.029)
Rho correlation coeff.	-	0.756 ** (0.304)	0.796 *** (0.255)	0.759 *** (0.275)
Random effect: Intercept	-	3.904 (2.905)	3.678 (3.041)	3.122 (2.428)
Slope	-	1.205 *** (0.373)	1.192 *** (0.361)	1.195 *** (0.359)
Intercept-slope covar.	-	2.169 *** (0.555)	2.094 *** (0.542)	1.931 *** (0.506)

Table 4. Cont.

Variables	Model 1: Baseline	Model 2: Control Variables Only	Model 3: Level 1 Factors Only	Model 4: Fully Specified
<i>Model fit</i>				
-2 ML log-likelihood	550.9	462.4	459.1	464.5
AIC	554.9	472.4	469.1	474.5
AICC	555.0	473.0	469.6	475.0
CAIC	562.5	491.5	488.1	493.2
BIC	560.5	486.5	483.1	488.2

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Model 1 investigates whether the outcome variable (MV-BV ratio) varies across firms. It is the specification of the null model that acts as the baseline model and is an important first step in the analysis of a multi-level model [87]. It does not include any independent or predictor variables. The focus is on testing the random effect of the grouping variable, which is the variable “firm” in this study. The covariance structure of the random effect was modeled simply as ‘variance components’, which determines the variance of the random factor’s intercept. Results show that the intercept (or the grand mean for MV-BV ratio) is 2.087 ($p = 0.000$), indicating that firms have a MV-BV ratio of 2.087 without considering the impact of any of the factors that could influence this measure. The null model partitions the variance in the outcome variable into its within- and between-groups components [87]. Results further show that for Model 1, the within-company variance (residual variance) is 1.758 and the between-company variance (intercept variance) is 10.568. The intra-class correlation coefficient is 0.857 ($10.568 / (10.568 + 1.758)$), indicating that 85.7 percent of the variance in MV-BV ratio lies between companies. This proportion is well above the five percent threshold level [87] (p. 6) that warrants a multilevel model to explore the impact of CSR dimensions (which are Level 2 factors) on the outcome variable (which is at Level 1) [87] (p. 79). Furthermore, given the high proportion of variance that is attributable to between-company factors, the random effect of Level 2 factors is modeled using less restrictive covariance structures in subsequent models. Specifically, the random effect of Level 2 factors is modeled as an ‘unstructured’ covariance structure, allowing for heterogeneous variances and correlations. Also, since the study covers three time periods, and because there is a strong possibility of time dependency in MV-BV ratios for companies, the first-order autoregressive (AR1) structure with homogenous variances is used to model the impact of time as a repeated measure in the models.

Model 2 tests the effect of the control variable, namely, capital intensity. The results show that the intercept value, representing the average MV-BV ratio adjusted for the control factor, is +1.450 ($p = 0.000$). While this differs significantly from zero, it is lower than the value observed in Model 1. This reduction is attributable to both the control variable and the different covariance structure used to incorporate the random effects. The control factor, capital intensity (represented in natural logarithmic values), is not significantly related to the MV-BV ratio. As for the repeated effect of time, results show that the first order autoregressive variance is insignificant ($\sigma^2 = 1.774$; $p = 0.469$). The rho correlation coefficient, however, is significant (0.756; $p = 0.013$), suggesting that the MV-BV ratios of companies, in successive years, are strongly inter-correlated. The random effect of time when modeled at Level 2 as unstructured covariance structure, shows that the intercept is not significantly different from zero ($\sigma^2 = 3.904$; $p = 0.179$), but the slopes of the regression lines for the companies are significantly different from one another ($\sigma^2 = 1.205$; $p = 0.001$). The covariance between the intercept and slope is significant, suggesting that it is necessary to analyze both the intercept and slope of the relationships between time and the MV-BV ratio of companies, to fully understand their relationship as well as the impact of other fixed Level 1 and 2 factors.

Model 3 investigates the impact of time on the MV-BV ratio of companies. It answers the question: How does the MV-BV ratio of companies change over time? Results show that the MV-BV ratio does vary linearly over time ($\beta_1 = 0.766$; $p = 0.008$). Furthermore, the time-squared term is significant ($\beta_2 = -0.247$; $p = 0.020$). Together, these results show that there is an inverse U-shaped relationship

between time and the MV-BV ratio. The ratio increases with time; however, this increase plateaus after some time, and the ratio decreases back to normal. The random effect of time is the same as that in Model 2. Also, the model intercept ($\beta_0 = 1.730$; $p = 0.000$) is significant. Similar to Model 2, the control factor is insignificantly related to the MV-BV ratio ($\beta_1 = -0.019$; $p = 0.740$). As for random and repeated effects of time, the results are similar to those observed in Model 2.

Finally, Model 4, following West et al.'s [85] recommendations, is the fully specified model that analyzes the effect of all the Level 1 and 2 independent and control variables. Results show that the model intercept and impact of control and Level 1 independent variables are very similar to those in Model 3. As for the fixed effects of Level 2 factors, only two out of the six core CSR dimensions are significantly related to the MV-BV ratio. These are CSR practices pertaining to community investment ($\beta_9 = 0.344$; $p = 0.040$), and to a lesser extent, workplace quality ($\beta_6 = 0.120$; $p = 0.078$). All other factors at Level 2 are insignificant predictors of the MV-BV ratio. Also, the random and repeated effects of time are similar to those in Models 2 and 3.

5. Discussion

5.1. Outcomes for Individual Hypotheses

Hypothesis 1, which predicts that in the context of firms in the emerging economic region of mainland China and Hong Kong, firm value is positively related to the extent that corporate governance mechanisms are present to ensure effective CSR compliance, is not supported ($\beta_4 = 0.130$; $p > 0.05$). This lack of support could be due to several factors. First, it could be that the firms in the study may not have had credible corporate governance mechanisms that were rated highly by the stock market. Second, even if the firms did develop credible corporate governance mechanisms, these mechanisms may not have been viewed by the market as being important. The fact that the impact of this factor is insignificant, but not negative, may also suggest that these corporate governance mechanisms may be a key requirement for all firms to comply with, and hence may not offer any differentiating ability to any particular firm.

Hypothesis 2 predicts in the context of firms in the emerging economic region of mainland China and Hong Kong that the firm value is a positively associated with the degree of engagement a firm has with its stakeholders, including shareholders, customers, suppliers, employees and community groups. This prediction is also not supported ($\beta_5 = 0.051$; $p > 0.05$). This lack of a significant relationship may be attributable to the fact that although firms are propagating details of their CSR efforts in their annual reports, the authenticity of these efforts may be questionable. In addition, these firms may be reporting their CSR practices relating to their levels and types of stakeholder engagement largely to comply with regulations warranted by organizations such as the GRI. This suggests that firms, although not genuinely committed to improving stakeholder engagement, may be pursuing stakeholder engagement goals to avoid bad publicity and legal implications [77,90]. Overall, the view of many firms would appear to be one of neutralizing this issue of stakeholder engagement instead of being proactive about it.

Hypothesis 3, proposing a positive link between CSR practices aimed at improving workplace safety, quality and wellbeing of its employees with firm value, is supported, although this relationship is significant at the more conservative p -value level ($\beta_6 = 0.120$; $p < 0.1$). Our results are consistent with earlier findings that suggest a positive link between CSR practices that deal with positive workplace practices and the level of care that firms provide to their employees, and firm performance [47,91].

Hypothesis 4 predicts a positive relationship between CSR practices enhancing firm's environmental performance and firm value. However, our study does not support this hypothesis ($\beta_7 = -0.108$; $p > 0.05$). Our results support the notion that the market regards investments in environmental programs, such as the tracking of carbon emission rates, reduction of the consumption of energy and water, management of waste and reduction of material usage, as costs rather than potentially beneficial programs. This outcome suggests that firms may be failing to effectively

communicate the positive effects of their environmental initiatives to their investors. Another explanation for this result may be that the industries included in our database may not have had high failure costs associated with the absence of environmental sustainability practices. In such industries, our results suggest that investments in environmental management programs do not create sufficient value, hence presenting managers and owners of those firms with a significant challenge in the justification of their investment initiatives. However, caution should be exercised in interpreting this result as considerable progress has been experienced in China in recent years in the improvement of environmental practices due to the issuance of new regulations by the Chinese government [92].

Hypothesis 5 predicts a positive relationship between firm value and the extent to which a firm develops governance mechanisms to engage with and monitor its supply chain partners for the achievement of higher level CSR compliance. Our results do not support this hypothesis ($\beta_8 = -0.120$; $p > 0.05$). This finding indicates that practices such as the establishment of a supplier code of conduct, the creation of ethical purchasing policies, and the monitoring of suppliers' carbon emission rates in the supply chain are regarded neither positively nor negatively by the market. This once again presents challenges to managers in justifying investments in these CSR practices in their supply chains without jeopardizing the interests of other stakeholders.

Hypothesis 6 predicts a positive relationship between corporate philanthropy and the market value of firms and is supported by our results ($\beta_9 = 0.344$; $p = 0.040$). Our results suggest that the stock market does indeed value corporate philanthropic initiatives as a vital component of a firm's CSR agenda, a factor that is heavily influenced by societal perceptions of philanthropic engagement.

Hypothesis 7 predicts that the effect of investments in CSR dimensions on market value of firms will increase initially but decline over time and is supported by our results ($\beta_3 = -0.247$; $p < 0.05$). These results illustrate the presence of a temporal effect, in that it takes some time for the effect of CSR dimensions on firm value to become observable, with these effects fading over time.

5.2. Theoretical and Practical Implications

This study makes a number of theoretical and practical contributions. First, this study is contextually based in Asia, and more specifically in the mainland China and Hong Kong region. There is only a handful of studies e.g., [93,94] that provide insights into the CSR initiatives of firms from this region. This study, therefore, addresses the need, identified by several researchers, for studies to be conducted to account for the idiosyncratic geographical and cultural differences between Asia and the rest of the world [95]. The possibility of ethnocentric bias in applying findings from other parts of the world to the Asian business context is high [95]. Specific to the findings of this study, a key takeaway for firms in the mainland China and Hong Kong region is that those who focus their CSR efforts on employee well-being and community issues are likely to experience a positive effect on their firm value than those who do not. Human resource and community engagement dimensions have not been a strong focus of many firms in Asia, particularly in China, as the region has experienced economic growth in recent decades [96]. Instead, the focus has mostly been on volume, scale, and efficiency of production. This study highlights the need for improved focus on employee and community welfare. To this end, we posit that managers in firms based in mainland China and Hong Kong region aspiring to enhance their firm values should focus their CSR initiatives on improving their community engagement and employee well-being as these targeted initiatives are shown to have significant positive effect on firm value.

Second, in this study, we treat CSR as a complex and multi-dimensional construct. We partition the concept into six separate dimensions instead of a single, aggregate metric. The study has been able to offer a more nuanced level of insight into the specific dimensions of CSR that firms need to focus their efforts on. Such insights would not have been possible had an aggregate measure of CSR been used. Furthermore, the complex and multi-dimensional nature of CSR was examined through multiple theoretical perspectives. Past studies have commonly approached CSR from a single theoretical perspective, which is limiting and insular in the insights that are produced. While recent

theoretical pieces have identified dozens of potential organizational theories that can be used to study the motives for investments in CSR [97,98], it is the combination of these overlapping theories that enables us to provide a strong and integrated understanding behind the motivation for investments in CSR dimensions.

Third, the results of the study identify social and people-centric dimensions, such as community investment (engagement with community through corporate philanthropy) and workplace quality, as better determinants of firm value than system- and process-centric dimensions focusing on CSR strategy and reporting (existence of good corporate governance mechanisms for effective compliance), stakeholder engagement, environmental performance, and supply chain engagement. This conclusion suggests that social and relational aspects of CSR play a more significant role than technical and procedural aspects. Research, however, shows that most firms prefer technical and procedural aspects, such as registration to relevant standards and inclusion in CSR indices, because of their greater tangibility and relative implementational ease [99]. The results of our study suggest that firms should devote a greater focus to the challenging social and relational dimensions of CSR, a point also emphasized by other researchers [100]. From a practical perspective, shareholders and investors should support firms that focus on social and people-centric CSR dimensions such as community engagement and workplace quality. While investors have to deal with the confusion induced by a complex range of market signals when making decisions, this study sheds some light on the two specific CSR dimensions that significantly contribute toward firm value. In considering the implications of our results, it should be noted that social and environmental disclosure is relatively new among Chinese and Asian firms. Prior to 2005, very few Chinese firms disclosed social and environmental information in their annual reports. From a regulatory perspective, prior to 2008, there were no legislative requirements in China for companies to prepare and publish sustainability reports. Hence, the firms which pursued this approach ahead of the requirements may not see as much benefit as one would expect to see in a developed economy.

Fourth, while our results suggest that only two of the six CSR dimensions are significantly related to firm value, it could be that the relationships between the remaining four dimensions of CSR and firm value may be more complex than that which has been captured in this study. In this study, only the direct relationships have been tested. It could be that the technical and social aspects are related in a more complex nomological manner. Some of the factors could be structural in form, while others could be infrastructural. There is the possibility that the relationships could be interdependent, or that some factors could be mediators or moderators. The role and value of these factors could be different if they were modeled in other ways.

Finally, a temporal, inverted U-shaped effect has been found between time and the impact of CSR investments on firm value. The results indicate that it takes some time for the CSR initiatives to make an impact on firm value, an impact that dissipates in subsequent years. As has been suggested by some researchers [101], firms should be patient and take a longer-term perspective when implementing their CSR initiatives as opposed to a myopic short-term focus. Also, as the benefits of CSR initiatives are likely to fade away over time, firms need to ensure that their CSR practices are reinforced and further cultivated so that the benefits are sustained.

6. Conclusions

In this study, using independent CSR assessment data on a sample of large mainland China and Hong Kong firms, we empirically investigate how CSR initiatives impact firm value. The results of our study reveal that of the six core CSR dimensions considered, CSR practices and initiatives focusing on community engagement, and to a slightly lesser extent, those focusing on workplace quality, are found to both directly and positively impact firm value. These two dimensions relate to social and people-centric aspects that have often been neglected by firms in mainland China and Hong Kong in recent decades. This study suggests that managers in this region should prioritize their efforts towards CSR initiatives that are directed at improving internal stakeholders' wellbeing through

the enhancement of workplace quality and external stakeholders' wellbeing through the conduit of corporate philanthropy. This does not mean that the other CSR dimensions that we have considered are less important, for they could be contributing to firm value in more complex yet unexplored ways.

There are a few limitations of the study that must be acknowledged. The first limitation relates to the use of market value as the single measure of firm performance. While this is better than other typically used accounting measures, such as ROA, it does not necessarily capture the full complexity of firm performance. Furthermore, market value computes the overall value of the firm, which in some situations may be inflated or deflated by particular units in a business. Therefore, the use of firm value may not necessarily provide an accurate representation of the returns on investments. A future research opportunity would be to take a more holistic view of firm performance by using multiple criteria that go beyond financial measures [102]. Also, firm performance could be extended to include performance on environmental and ethical dimensions. This could provide useful insights into the impact of CSR dimensions on a firm's overall business performance.

The second limitation relates to the independent variables included in this study. The statistically significant intercepts in all four linear mixed models suggest that there are variances that are unaccounted for, and these could be dealt with by including other independent variables. In future studies, there exists an opportunity to explore an expanded range of such variables.

The third limitation relates to the nature of data that has been used that could have impacted the outcomes of this study. First, the limited sample size of 42 companies listed on the Hang Seng Index could affect the reliability of the statistical models. Second, the inclusion of firms located exclusively in China (mainland and Hong Kong), could have influenced the results, due to possible cultural, social, political and economic differences in the understanding and implementation of CSR dimensions in this region. Further studies in other Asian countries, as well as multi-regional studies, are required to improve the generalizability of this research. Third, the study was predominantly limited to large, financially successful firms. Consequently, economic aspects of CSR dimensions were implicitly taken for granted by virtue of the size and level of success of these firms. The generalizability of the dimensions identified in this study needs to be tested across smaller, as well as less financially successful firms. Fourth, the inverted U-shaped relationship between the impact of CSR practices and initiatives on firm value and time that we found support for, warrants further investigation to confirm whether the firms in this region were pursuing CSR initiatives as a one-time investment, resulting in diminishing returns over time. Finally, the impact of industry type needs to be better analyzed and understood. In the current study, we used capital intensity as a control variable to incorporate potential industry effects. However, this generic measure does not capture the subtle differences that exist between industries. Different industries implement varying suites of CSR practices, due to varying legal regulations and expectations of stakeholders. Industry-specific studies would, to this end, provide a more comprehensive understanding of the benefits of CSR practices to firms spanning different industries.

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