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# The consequences of corporate social responsibility disclosure

Lan Phuong Nguyen

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# THESE DE DOCTORAT DE

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L'UNIVERSITE DE RENNES 1  
COMUE UNIVERSITE BRETAGNE LOIRE

ECOLE DOCTORALE N° 597  
*Sciences Economiques et Sciences De Gestion*  
Spécialité : « Sciences de Gestion »

Par

**Lan Phuong NGUYEN**

**Three essays about the consequences of corporate social responsibility disclosure**

Thèse présentée et soutenue à Rennes, le 3 juin 2019

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**Rapporteurs avant soutenance :**

Florence Depoers, Professeur à l'Université Paris Nanterre

Isabelle Martinez, Professeur à l'Université de Toulouse 3

Florence Depoers, Professeur à l'Université Paris Nanterre  
Michel Magnan, Professeur à Concordia

Isabelle Martinez, Professeur à l'Université de Toulouse  
Lionel Touchais, Professeur à l'Université Paris Nanterre,  
Directeur de thèse

Jean-Laurent Viviani, Professeur à l'Université de  
Rennes 1, Directeur de thèse

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---

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# ABBREVIATIONS

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<b>CSR</b>	Corporate Social <b>R</b> esponsibility
<b>CSRD</b>	Corporate Social <b>R</b> esponsibility <b>D</b> isclosure
<b>CSP</b>	Corporate Social Responsibility <b>P</b> erformance
<b>ESG</b>	<b>E</b> nvironmental, <b>S</b> ocial, and <b>G</b> overnance
<b>CGQ</b>	Corporate <b>G</b> overnance <b>Q</b> uality
<b>CFP</b>	Corporate <b>F</b> inancial <b>P</b> erformance

# PREFACE

---

In this thesis, we conduct three empirical essays examining the relationship between corporate social responsibility disclosure (hereafter, CSRD) and firm performance and firm systematic risk under the lens of contingency theory. Particularly, we consider the influence of differences in the quality of corporate governance on the link between CSRD and firm performance as well as the impacts of differences in financial reporting quality on the nexus between CSRD and information asymmetry. In doing so, we can give more insights to explain why companies need to disclose CSR information and what they should do to get benefit associated with CSR disclosure. This research will contribute to the growing literature on the capital market consequences of CSR activities with regarding to contingency factors.

In chapter 2, we focus on the true nature in the association between CSRD and corporate social responsibility performance (CSP). We found that they are positively related to each other and further this relation runs from both sides. This just says that the superior CSR performance are more forthcoming in CSR disclosure channels as well as the increase of reporting CSR information would lead to the improvement in CSR performance for fear of negative actions from stakeholders as firms perform badly. However, we didn't find evidence that CSRD precedes CSP or vice versa, so this relationship is not causal. These finding highlights the interaction between CSRD and CSP in the research on CSR activities. Two variables should be used simultaneously, any missing would cause the bias that can be a reason for the mixed relationship between CSRD and firm performance. This link will be controlled in our next studies.

In chapter 3, we study whether the relationship between CSRD and financial performance is non-linear as well as whether this nexus is influenced by the quality of corporate governance. They are two explanations for the mixed relationship between CSRD and financial performance. Our empirical results confirm that there is a significant U-shaped relation between CSRD and financial performance as well as a significant positive association between CSRD and corporate governance quality. Furthermore, the results also show the role of corporate governance quality as a moderator variable which alter this relation. These findings are consistent with stakeholder theory, shareholder theory, agency theory, and

signaling theory in which reporting CSR may lead to the increase of valuable internal resource but also a signal of poor performance in other operations.

In chapter 4, we exploit the essence of the association between CSR and financial report quality, complementary or substitute, and then investigate whether such association affects to the nexus of CSR and information asymmetry. We found a negative relationship between CSR disclosure and information asymmetry (bid-ask spread). However, this negative relationship disappears in firms with high financial reporting quality. It means that financial and CSR disclosure act as substitutes to each other in reducing information asymmetry. This study promotes the contingent role of financial reporting quality in the link between CSR and firm systematic risk.

# PRÉFACE

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Dans cette thèse, nous proposons trois essais empiriques examinant la relation entre la divulgation de l'information sur responsabilité sociale des entreprises (ci-après, CSRD) et la performance de l'entreprise ou le risque systématique de l'entreprise au regard de la théorie de la contingence. Nous considérons en particulier l'influence des différences de qualité de la gouvernance d'entreprise sur le lien entre CSRD et la performance des entreprises, ainsi que l'impact des différences de qualité de l'information financière sur le lien entre le CSRD et l'asymétrie de l'information. Ce faisant, nous pouvons approfondir les raisons pour lesquelles les entreprises doivent divulguer des informations en matière de RSE et ce qu'elles devraient faire pour tirer parti des avantages liés à leur divulgation. Cette recherche contribuera à la littérature croissante sur les conséquences des activités de RSE sur les marchés financiers et sur les facteurs de contingence capables d'influencer cette relation.

Au chapitre 2, nous mettons l'accent sur la nature de l'association entre la CSRD et la performance en matière de responsabilité sociale des entreprises (CSP). Nous avons constaté qu'ils sont positivement liés et que cette relation va dans les deux sens. Cela indique simplement que les performances supérieures en matière de RSE sont mises en valeur par une divulgation de l'information RSE plus importante et que l'augmentation du nombre d'informations communiquées en matière de RSE entraînerait une amélioration de la performance en matière de RSE, de peur que des réactions négatives de la part des parties prenantes ne se produisent. Cependant, nous n'avons trouvé aucune preuve que CSRD précède CSP ou vice-versa, ces relations ne sont donc pas causales. Ces résultats mettent en évidence l'interaction entre le CSRD et le CSP dans la recherche sur les activités de RSE. Les deux variables doivent être utilisées simultanément. Si l'une des deux dimensions est manquante, cela peut entraîner un biais qui peut expliquer la difficulté à obtenir une relation robuste entre le CSRD et la performance des entreprises. Ce lien sera contrôlé dans nos prochaines études.

Dans le chapitre 3, nous étudions si la relation entre la CSRD et la performance financière est non linéaire et si ce lien est influencé par la qualité de la gouvernance des entreprises. Ce sont deux explications possible à la difficulté de mettre en relation une relation entre CSRD et

performance financière. Nos résultats empiriques confirment qu'il existe une relation en forme de U significative entre CSRD et la performance financière, ainsi qu'une association positive significative entre la CSRD et la qualité de la gouvernance. En outre, les résultats montrent également le rôle de la qualité de la gouvernance en tant que variable modératrice qui modifie cette relation. Ces résultats sont cohérents avec la théorie des parties prenantes, la théorie de l'actionnaire acteur central, la théorie de l'agence et la théorie de la signalisation, selon lesquelles le reporting RSE peut entraîner une meilleure utilisation des ressources interne, mais également être un signe de mauvaise performance dans les autres opérations.

Dans le chapitre 4, nous étudions l'association entre la CSRD et la qualité des informations financières des entreprises. Ces deux types d'information sont-elles complémentaires ou substituables pour les investisseurs ? Puis nous examinons si une telle association affecte le lien entre la CSRD et l'asymétrie de l'information. Nous avons constaté une relation négative entre la divulgation de la RSE et l'asymétrie d'information (écart de prix acheteur-vendeur). Cependant, cette relation négative disparaît dans les entreprises où la qualité de l'information financière est élevée. Cela signifie alors qu'il y a substitution entre la divulgation d'information financière et d'information RSE. Cette étude met en avant le rôle éventuel de la qualité de l'information financière dans le lien entre CSRD et le risque systématique des entreprises.



# CHAPTER 1



# CHAPTER 1

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## INTRODUCTION

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One of the most remarkable trends of the past twenty years has been the rise of Corporate Social Responsibility (CSR) and the increasing importance of CSR disclosure at all levels (worldwide, nation, and organization). This raises many questions about what CSR disclosure is, why it should be done, when and how it should be used in academic and practice. As a contribution to this stream of research, we consider the link between CSR disclosure and firm performance under the contingency perspective to explain why, when or how to implement CSR disclosure at the organization level so that managers can maximize the benefit of CSR reporting. In this chapter, we firstly review the literature on CSR disclosure, in particular we provide the definition and the history of CSR reporting. Then, in section 1.2, we introduce firm performance evaluation system which includes financial and nonfinancial indicators, and the potential linkage between firm performance and disclosure in business. We also present the overall on corporate information environment. Section 1.3 presents a multi-theoretical framework that can be used in CSR study. In section 1.4, we presents the influence of CSR disclosure on firm's CSR performance, financial performance, and information quality. Finally, section 1.5 introduces the three empirical chapters presented in the remainder of this dissertation.

## 1.1 Corporate social responsibility disclosure

An overall definition and characteristics of corporate social responsibility disclosure will be presented in the following parts.

### 1.1.1 What is CSR disclosure?

CSR disclosure may be defined as any information on firm performance, standards or activities following to the umbrella of corporate social responsibility, that company made effort to report publicly. According to the European Commission<sup>1</sup>, corporate social responsibility is defined as “ the responsibility of enterprises for their impacts on society [and] to integrate social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy”. Thus, companies seek to improve the communications between the enterprise and the broader society within which they report in CSR documents. As Gray et al. (1995c) said, CSR reporting is “the notification process of social and environmental impacts caused by company economic activity to certain interest group and the company as a whole”. Through CSR disclosure, companies attempt to portray their effort in reducing the negative impact of their activities on society and environment.

CSR disclosure looks beyond the financial facts and figures that are interests of investors. It describes firm’s relationships with a wider range of stakeholders from employees, customers, suppliers to community, government and the environment. The content of CSR report is therefore multi-dimensional that not only contains the environmental and ecological issues as in the 1970s but further is a broad term considered synonymous with triple bottom lines including the economic and social issues additionally, according to Global Reporting Initiative (2011)<sup>2</sup>. The economic theme here mostly presents corporate governance issues, so then CSR report is also a tool for managers to manage the socially responsible activities strategically, to detect future risk and opportunities, and to keep the right long-term business venture.

CSR reporting are often represented within or alongside firm’s annual financial reports or in a stand-alone report that goes by many names such as sustainability report, corporate social

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<sup>1</sup> See European Commission (2011) A Renewed EU strategy 2011-2014 for Corporate Social Responsibility, Brussels, p.6.

<sup>2</sup> The GRI was initially created in 1997 by the United Nation Environmental Program jointly with the Coalition for Responsible Economics. It was published in 2002 with the purpose of developing a standardized, worldwide structure for sustainability reporting.

responsibility report, social report or environmental report, corporate accountability reports, and community affairs reports; some others appear on company websites. The formation of CSR report also varies across types of company, industry, and country. Some companies follow to the GRI's comprehensive guidelines to establish their CSR reports. Some only reports one or two stories, for example, their development of energy product or their progress in climate change. Some CSR reports are short in general but some are long in detailed. The reason for the variety in the form and content of CSR reports is the fact that CSR disclosure is mostly voluntary. In some countries, CSR disclosure may be legally required such as China, Hong Kong, India, Malaysia, Brazil, South Africa and Denmark. However, their disclosure regulations are "soft", firms have many get-out clause that enables them not to make disclosure provided that they justify their position (Ioannou and Serafeim 2016).

There are many factors that can affect to a firm's CSR disclosure. The most common ones include firm size, the type of firm, and the type of industry that firm belongs. First, large firms tend to CSR reports as an additional form of communication due to a wide range of stakeholders whereas small and medium firms, especially, local firms, tend to less publish CSR reports because they can control the contact with their stakeholders personally by more direct means than impersonal forms like CSR reports (Wensen et al. 2011). Second, the publicly traded firms and government firms tend to publish CSR reports more than the cooperatives and family firms. Perhaps, the absence of investors who would need to be convinced through disclosure in the type of cooperatives is a reason. And, the owners of family firms are mostly the managers, so they might have other ways to communicate rather than through reports. Finally, the type of industry is a common determinant of CSR disclosure. According to the KPMG data published in 2017, industries with high environmental and social impacts such as the mining, chemicals, oil and gas industries have the highest CSR reporting rate; more than 80% of companies in those industries report CSR information. CorporateRegister.com reported that the banking sector and industry support services are two sectors that have a largest number of CSR reports.

The main question is that why firms should produce voluntary CSR reporting beyond those that required by laws. The KPMG survey showed that the strengthening firm's position of goodwill and brands as well as ethical issues are two common reasons. In academic research, three possible explanations are a sense of "social contract", to improve firm legitimacy, and to enhance firm financial valuation (Mathews 1997). According to Gray et al. (1996), legitimacy

relates to the notion of a ‘social contract’ that limits the activities of an organization within the boundaries set by the society. By acting in a socially acceptable manner, a company is accepted as a legitimate organ where it can use social resources to ensure their long-live existence but in turn it must contribute to the social development and protection through CSR engagement. In the meanwhile, there are also several reasons that firms do not report their CSR performance such as the lack of transparency in standards of CSR reporting across national and international level, the potential growth in cost as implementing CSR reporting. Many scholars have questioned about the main purposes of CSR disclosure: to improve their sustainable development or to purely presentation reasons or even to cover up their bad performance in other activities. For example, Holder-Webb et al. (2009) showed that only portions of information that improve firm’s image were selected to publish; or Brammer and Pavelin (2006) said that CSR disclosure might be used to change the stakeholders’ perception on future financial performance rather than to reduce the social and environmental damage. Thus, CSR disclosure may be good and harm relatively to firms’ actual aims.

Whatever the form, content, or purposes of CSR reports, the main aim of CSR disclosure is to communicate everything about company’s social impact. This is distinguished with the term of CSR performance in the literature. Two terms, CSRD and CSR performance, rely on the notion of CSR. Until now, there is no unified and precise definition of CSR (Wood 2010, Scherer and Palazzo 2007). According to the World Business Council for Sustainable Development (WBCSD), CSR is defined as “a company commitment to contribute for sustainable economic development by working with employees and local communities and the general public to improve the quality of life in ways that benefit both to the company itself and development”. The United States Social Investment Forum (SIF) defines the social responsibility investment as “investment practices that consider environmental, social and corporate governance criteria to generate long-term competitive financial returns and positive societal impact”. According to McWilliams and Siegel (2001), CSR is an acting program that involves the voluntary activities go beyond legal constraints and commits to bear the cost of more ethical behavior in a variety of practices: for example improving employment conditions and/or banning child labor in countries that do not respect human rights, protecting the environment and investing in abatement equipment to reduce the carbon footprint, developing partnerships with NGOs, or providing funds to charity, and so on (European Commission, 2001). Thus, the concept of CSR refers to a business policy or program that contributes to the

sustainability development by delivering the economic, social and environmental benefits for itself and all stakeholder. Thereby, CSR performance may be regarded as the assessment of the CSR program and corporate citizenship over time. This definition is differentiated with the term of CSRD which refers to the firm's effort to report their relationship with stakeholders and society through economic, social and environmental reports. Their measurement is therefore different as well. We highlight this issue to avoid any misunderstandings about the term of CSRD in this study.

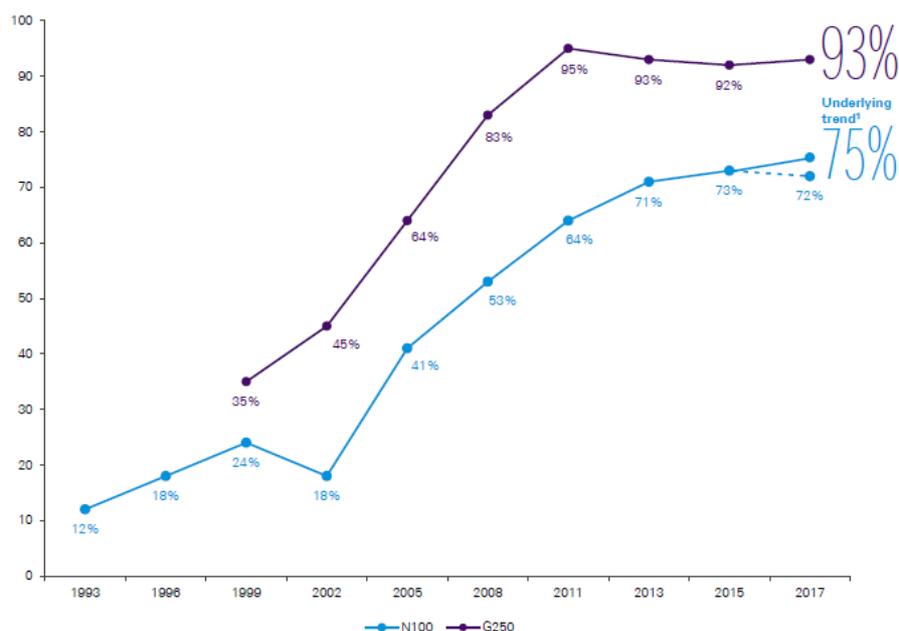
### **1.1.2 Historical trend, practices and regulations**

Since the 1970s when corporate social responsibility disclosure (hereafter, CSRD) under the name "social reports" were sometimes introduced to supplement conventional financial reports, it has currently become more mainstream when there is a dramatically increase in the number of socially responsible companies, and the official laws and/or international guidance on sustainability reporting in the world. Over more than twenty years, the number of socially responsible companies has increased rapidly. According to a KPMG<sup>3</sup> study, no less than 75 percent of surveyed companies in the world published CSR report in 2017, a 63 percentage point increase relative to 1993<sup>4</sup>. Besides, almost 93 percent of the world top companies (G250) report publicly on social and environmental data, a remarkable increase from a 1993 KPMG report which found only 13 percent of these companies issuing CSR information. This practice shows that the world's largest companies now issue CSR report as a matter of course, they believe CSR information is relevant for their investors. Moreover, this upward trend in CSR reporting not only exists in any specific continent but in all over the world. In the KPMG survey 2017, top ten countries with the highest rate in CSR reporting lies on from Asia (India, Malaysia, Taiwan), Africa (South Africa) to Europe (UK, Denmark, France, Norway, Sweden) and America (US) where three developing countries (India, South Africa, and Malaysia) have the highest CSR reporting rates in the world.

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<sup>3</sup> KPMG is a global network of professional firms providing Audit, Tax, and Advisory services, issuing regular survey of CSR reporting of over 100 largest companies in 34 countries. Their survey has been provided since 1993.

<sup>4</sup> Source: KPMG Survey of Corporate Responsibility Reporting 2017.

**Figure 1.1: Growth in global CSR reporting rates since 1993**

Source: KPMG Survey of Corporate Responsibility Reporting 2017

This upward trend has been also presented in the launch of many CSR reporting frameworks at international level. Global Reporting Initiative (GRI) published Sustainability Reporting Guidelines, as an attempt to codify best reporting practice. In 2000, the United Nations launched Global Compact's ten principles in the areas of human rights, labor, the environment and anti-corruption enjoy universal consensus. The principles are derived from the Universal Declaration of Human Rights; the International Labor Organization's Declaration on Fundamental Principles and Rights at Work; the Rio Declaration on Environment and Development; and the United Nations Convention against Corruption. The UN Global Compact asks companies to embrace, support and enact, within their sphere of influence, a set of core values in the areas of human rights, labor standards, the environment and anti-corruption ([www.globalcompact.org](http://www.globalcompact.org)). In 2006, The UN Global Compact and the GRI have united in a strategic alliance aimed at undertaking advocacy and other partnership efforts to encourage companies and corporate responsibility organizations to support the synergistic platforms of the Compact and the GRI. In 2010 the standard ISO 26000 was launched. It provides guidance, rather than requirements on how businesses and organizations can operate in a socially responsible way. This means acting in an ethical and transparent way that contributes to the health and welfare of society. It cannot be certified to unlike some other

well-known ISO standards. Instead, it helps clarify what social responsibility is ([www.iso.org](http://www.iso.org)).

Moreover, a number of governments and stock exchanges around the world strongly encourage CSR reporting. In 2003, France became the first country to mandate CSR disclosure for major publicly companies with a substantial number of social and environmental indicators. In 2008, the Swedish governance announced a requirement that all companies with state ownership must report according to GRI guidelines. In 2007, Malaysia started to require publicly listed companies to initiate CSR program and disclose them. In 2008, Denmark informed that the largest companies would be required to initiate CSR reporting or explain why they do not do so. Reporting on some specific environmental issues has been required in some countries such as Japan, the United States. The United Kingdom now also requires companies to include a general discussion on CSR issues that might be material to the future prospects of firm in the shareholder reports.

Those are the facts to show that CSR reporting is a global phenomenon nowadays. The growing emphasis on CSR reporting has questioned why CSR reporting is in the trend. According to KPMG, government, regulators, and stock markets are three key factors that drive the CSR reporting in the world. Indeed, most of top ten countries with the highest CSR reporting rates has the reporting legislation introduced by governments (i.e., France, Indonesia, and South Africa) and by stock exchanges (i.e., Brazil, Malaysia and Singapore). Those countries with developed stock markets such as the United Kingdom, the United States, and Japan have seen substantial growth in national rates of CSR disclosure. The launch of the EU Non-Financial Reporting Directive in 2014, which requires large companies in the EU to disclose social, environmental and diversity information in their annual reports from 2018 onwards, has helped to boost reporting rates in some EU countries. In particular, there has been strong growth in CSR reporting from 2015 to 2017 across some EU countries such as Finland, Ireland, Greece and the Czech Republic. Clearly, a mix of new regulation, stock exchange requirements and investor pressure have been instrumental in increasing CSR reporting.

## **1.2 Firm performance**

Firm performance is a broad concept of organization's effectiveness that need to cover all facets of firm operation and strategy (Neely et al. 2001, Neely and Adams 2000, Richard et al. 2009). Thereby, it embraces all types of stakeholders and regarded as an essential initiative to

control and implement long-term strategies. As a result, performance measurement is critical for effective management of any firm. A business improvement or a firm's success cannot be conducted or explained without measuring the outcomes over time. As Bititci et al. (1997) said, firm performance management is a process where an organization manages its performance to match its corporate and functional strategies and objectives.

During a long history of literature on firm performance, researchers have made much effort to determine measures of performance. Nevertheless, no specific measure of performance is able to fully cover for all aspects of firm performance (Snow and Hrebiniak 1980, Ibrahim et al. 2010). In addition, although firm performance has been assessed using a diversity of measures, there is no universal guideline regarding the appropriate choice. According to Dess and Robinson Jr (1984), performance could be measured either objectively or subjectively, where objective measurements in general depend on profit and financial data such as return on assets, market share, sales, and other financial ratios; and subjective measurements rely on managerial assessments including innovation, learning, and customer satisfaction (Gentry and Shen 2010, Subramanian and Nilakanta 1996). Several researchers used both to demonstrate firm performance in order to improve the reliability of their conclusions. In this work, we simply call such objective and subjective measurements as financial performance measures and non-financial performance measures, respectively.

### **1.2.1 Financial performance**

Financial performance generally refers to the degree to which financial objective being or has been achieved. It is used to measure firm's overall financial healthy over a certain period of time, enables firm to compare its performance over different time periods or with other companies within or across industry in an aggregate basic. To indicate financial performance, researchers generally use either accounting-based measures of profitability such as return on assets (ROA), return on sales (ROS), return on equity (ROE) (Waddock and Graves 1997, Van der Laan Smith et al. 2005, Céspedes et al. 2010) or marker-based measures such as Tobin's Q and market return (Zeitun and Gang Tian 2007, Hult et al. 2008); or both methods combined (McGuire et al. 1988b).

Theoretically, the accounting-based measures reflects the past or short-term financial performance. Two measures could be used as the basis for firms' performance assessment: profitability and growth. Profit measures such as ROA, ROS present the efficiency of the firm's operation whereas growth measures such as sales growth show how open a firm is to

new markets, or expansion in existing markets. However, financial performance measures have been criticized to be subject to managerial manipulation and distortion due to the depreciation policies, differences in method of consolidating accounts, inventory valuation and treatment of revenue and expenditure items (Chakravarthy 1986). Wernerfelt and Montgomery (1988) suggested that they are highly affected by industrial characteristics, weakly influenced by market characteristics, and not at all affected by firm characteristics (Wernerfelt and Montgomery, 1988). The introduction of market-based indicators is to overcome the drawbacks of accounting indicators. Conceptually, the market-based measures reflect the future or long-term financial performance. It reflects the expectation of shareholders on firm's future performance or long-term performance relying on previous and current performance. Lindenberg and Ross (1981) said that they can present "a viewing window into the firm through the market's valuation of the securities issued by the firm and the changes in these values over time." Tobin's Q and market return are two widely-used indicators.

### **1.2.2 Non-financial performance**

The definition and measurement of nonfinancial performance will be introduced in the following parts.

#### **1.2.2.1 What is nonfinancial performance?**

Non-financial performance evaluates the achievement of organizational objectives relative to intangible assets and long-term goals which financial performance measures cannot capture, for example, intellectual capital, customer loyalty, progress relative to customer requirements, competitors, or non-financial objectives that may be important in achieving profitability, competitive strength and longer-term strategic goals.

Many scholars have promoted the use of nonfinancial performance measures by analyzing the weakness of financial measures and the strength of nonfinancial measures in reflecting the organization's performance. For example, Kaplan and Norton (1992) said that the complexity of management requires to look at organizational performance on many aspects simultaneously, therefore senior executives should pursue a balanced use of both financial and operational measures. The organizational performance is not only presented through financial ratios but also the operational activities' effectiveness based on customer, internal business, innovation and growth perspectives. Chow and Van Der Stede (2006) provided evidence that

nonfinancial measures are “superior” to traditional financial measures in managing effectively. Ndlovu (2010) claimed that financial measures haven’t kept up with the changes in business environment even though they used to be drivers of organizational performance in the traditional performance evaluation system. Many critics of financial measures are as inflexible, late and infrequently produced (Manoochehri 1999) and backward-looking (Cumby and Conrod 2001). Especially, in the new economic circumstances where value creation is correlated to intangible and non-financial resources such as innovation, social capital, intellectual/human capital, financial measures inadequately capture the actual organizational performance. They failed to account for the organization’s strategy, customer requirements and overemphasis on cost reduction and profit maximization (Ghalayini and Noble 1996). Overall, the traditional financial measures have been criticized to be too aggregated, too late, and too backward-looking to expose the main causes of performance problems as well as to help managers to make timely correction actions or concentrate on strategic targets. Stemming from such obstacles of financial measures, nonfinancial measures have been developed to deal with performance aspects related to customer satisfaction, innovation and learning, product/service quality, employees’ quality (Manoochehri 1999).

The usefulness of nonfinancial measures cannot be disclaimed but the strengths of financial measures are neither. The authors say that different types of measures have different limitations: financial performance can be measured more accurately but it reflects the aggregate effect of multiple factors and then may be relatively uncontrollable. In the meanwhile, nonfinancial performance may be measured less precisely but it closely engages with components of operations that managers can control. Different performance measure types have different strengths and weakness, so they should be complementary to each other. Consequently, a new performance evaluation system including both financial and nonfinancial performance measures have been developed to evaluate the organization’s overall performance at both strategic and operational level.

#### 1.2.2.2 How to measure nonfinancial performance?

Non-financial performance is measured in many ways, there is no common denominator. On the basis of performance evaluation frameworks such as Balanced Scorecard -BSC (Kaplan and Norton, 1992), Business Excellence Model (European Foundation for Quality management-EFQM, 1992), Performance Prism Model –PPM (Neely et al. 2001), many researchers identified nonfinancial performance measures that can provide an actual state of

business to outside users so that they can make a proper evaluation on firm. For example, Hoque (2014) presented nonfinancial performance measures through thirteen items developed by Hoque and James (2000) following to the Balanced Scorecard's nonfinancial perspectives of Kaplan and Norton (1996): customer, internal business processes; and learning and growth. Customer perspective includes five indicators: market share, customer satisfactions survey, on time delivery, customer response time, and warranty repair cost. Internal business ones consist of four indicators: material and labor efficiency variance, process improvement and reengineering, new product introduction, and long-term relations with suppliers. Innovation and growth ones include four indicators: employee development and training, workplace relations, employee satisfaction, and employee health and safety. In (Lau 2011), nonfinancial measures are also selected based on the Balanced Scorecard-derived performance of Kaplan and Atkinson (1998), including three perspectives: customer, internal business, and innovation and growth. The measures of innovation and growth perspective were used to capture nonfinancial performance. There are five items: employee satisfaction rate, number of employees trained, employee turnover rate, number of innovations, and the adoption of new technology. Santos and Brito (2012) provided a multidimensional measurement model for firm performance using the subjective performance indicators. Basing on stakeholder theory, their model finalized six dimensions: profitability, growth, customer satisfaction, employee satisfaction, social performance, environmental performance; and a list of thirty-seven performance indicators that can capture the domain of business performance. Notably, the model was conceptualized with two second-order dimensions: financial performance represented by profitability and growth; and the strategic performance represented by customer satisfaction, employee satisfaction, social performance, environmental performance. In addition, investigating the circumstances of reporting nonfinancial performance measures in the Austrian companies' annual reports, (Mühlbacher et al. 2016) introduced top ten nonfinancial measures in descending order are employee diversity (e.g., gender), environmental improvements, growth, R&D, employee training, capacity/production, employee productivity, social improvement, employee accidents, pile of orders. A summary of nonfinancial performance dimensions and indicators, followed by a frequency analysis, will be presented in Table 1.1. Generally, nonfinancial performance indicators are composited in four key perspectives: employees, customers, society, and environment.

**Table 1.1: Nonfinancial performance dimensions and indicators**

<b>Dimensions</b>	<b>Indicators</b>
<b>Innovation</b>	% R&D expenses/revenues
	The adoption of new technology
	Number of innovations
	Innovation rate on the development Projects
<b>Internal business process efficiency</b>	Capacity/production
	Process productivity rate
	Internal Processes Total Costs
	Employee productivity
	Process improvement and reengineering;
	Product cycle time
	Long-term relations with suppliers
	Product/services quality
Process quality	
Service indicators	
<b>Customer satisfaction</b>	Mix of product and services
	Number of complaints
	Repurchase rate/ pile of orders
	New customer retention;
	New customer rate
	General customers' satisfaction
	Number of new products/services launched
	New product introduction
	Market coverage indicators
	Market share
	Customer loyalty rate
Trade partner satisfaction	
<b>Employee satisfaction</b>	General employees' satisfaction
<b>(1) Credibility (communication to employees)</b>	Employee retention
	Employee turnover rate
	Career plans
	Employee accidents
	Employee health and safety.
<b>(2) Respect (opportunities and benefit)</b>	Investments in employees development and training
	Number of employee trained
	People training expenses
<b>(3) Fairness (compensation, diversity)</b>	Wages and rewards policies
	Employee diversity (gender)
<b>(4) Pride/ Connection (teamwork, generosity/highness, celebra-tions)</b>	Organizational climate indicator
	Workplace relations

<b>Social performance</b>	Employment of minorities
	Number of social and cultural projects
	Number of lawsuits filed by employees
	Customers and regulatory agencies
<b>Environmental performance</b>	Number of projects to improve/recover the environment
	Level of pollutants emission
	Use of recyclable materials
	Recycling level and reuse of residuals
	Number of environmental lawsuits

Corporate social responsibility which “considers environmental, social, and corporate governance criteria to generate long-term competitive financial returns and positive societal impacts” (the United States Social Investment Forum, SIF) is likely to represent for nonfinancial performance because of the similarity in their components. CSR is a multidimensional measure including three main arenas: environmental, social, and governance; with multiple categories and elements within each dimension. Following to Lins et al. (2017), five domains of CSR performance are (1) community, (2) diversity, (3) employee relations, (4) environment, and (5) human rights. Interestingly, such dimensions are nearly similar to those of nonfinancial performance measures. In particular, social performance is related to community and human rights; environment performance is associated with environment category; employee satisfaction responds to diversity and employee relations; customer satisfaction addresses issues related to community. Measuring CSR performance therefore provides a future vision on firm development as well. It is the reason why we use CSP as a proxy of nonfinancial performance in this study.

**Table 1.2: A comparison between nonfinancial performance and CSR dimensions**

Kaplan and Norton (1996)’s BSC’s nonfinancial perspectives	Santos and Brito (2012)’s nonfinancial performance	Lins, Servaes and Tamayo (2017)’s CSP
<b>Innovation and Learning Perspective</b>	Social performance	Community
	Employee satisfaction	Diversity
		Employee relations
<b>Customer perspective</b>	Customer satisfaction	Human rights
<b>Innovation and learning</b>	Environmental performance	Environment

### 1.2.3 Information quality

Corporate information quality is a form of firm performance by some means. Within a company, the divergence of interests among agents and principals (i.e., Jensen and Meckling 1976, Shleifer and Vishny 1997, Miller 2002) leads to the agency problems that may increase the agency costs as information is imbalanced. In the context of asymmetric information, the principals cannot perfectly monitor or measure the behavior of agents, agents (managers) can impose additional direct costs on the firm such as consuming personal perquisites or by imposing opportunity costs such as shirking, and by imposing uncertainty in the value of the firm's shares since the existence but not the extent of these agency problems is known to the market (Jensen and Meckling 1976, Fama et al. 1983). In fact, the effect of information asymmetries on firm value and stock price has been concerned broadly in the finance literature. For example, Grossman and Hart (1980) and Myers and Majluf (1984) show theoretically that informational asymmetry can have an intensive impact on a firm's financing and investment decisions and on managerial incentive compensation contracts. Firm performance is therefore driven by information asymmetry, the improvement of information environment can enhance the effectiveness of business. A firm's information quality is represented by the degree of information asymmetry. Higher degree of asymmetric information is, lower quality of corporate information is. Then, what is information asymmetry?

In finance literature, Modigliani and Miller (1963) assume that investors have access to the same information about a firm's future prospects as its management—symmetric information. In practice, however, managers often have better information than outside stockholders and non-investing stakeholders. Thus, information asymmetry refers to the information differences and conflicting interests between managers and outside stakeholders. This information problem can result in the adverse selection and the moral hazard. Adverse selection is the case in which one party has some information that the others do not have while they are about to agree on a trade. Inversely, moral hazard is the case in which the information asymmetry occurs after an agreement is obtained between individuals, for example, shareholders (principles) hire managers (agents) to perform a given task. Yet, once the contract has been signed, managers can either take hide actions or obtain hide information that shareholders cannot observe or acquire. This is the principal-agent problem which occurs as information is asymmetric. In both cases, stock prices are distorted and do not achieve optimality in the

allocation of resources. To mitigate information problem, corporate disclosure is required mandatorily (i.e., financial reporting) or voluntarily (i.e., CSR reporting). CSR disclosure provides the additional information about non-financial activities which is able to reduce the information problems between managers and shareholders or outside stakeholders.

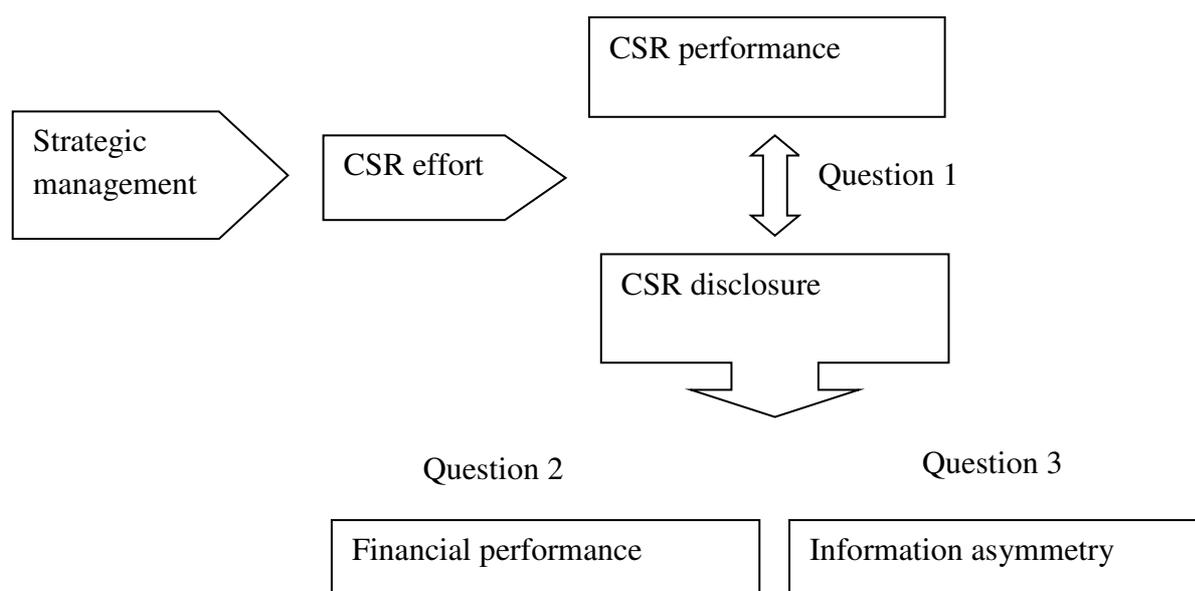
The degree of information asymmetry is not directly observable, we must rely on proxy variables. Measures of information asymmetry fall into three broad categories: measures based on analysts' forecasts (i.e., the accuracy of analysts' earnings forecast, the dispersion among analysts' forecasts), investment opportunity set measures (i.e., the market-to-book asset ratio, the market-to-book value of equity ratio), and market microstructure measures (i.e., bid-ask spread). Some empirical studies suggested that the opinions regarding firm's expected future earnings tend to be converged when information about firm increases. In these studies, they use measures proxies derived from consensus analysts' earnings forecasts to proxy for asymmetric information (Gilson et al. 1998, Krishnaswami and Subramaniam 2000). Another stream of research argued that firms that have a significant growth information asymmetry suffer an intense degree of information asymmetry. Therefore, these papers used a firm's investment opportunity set to proxy for information asymmetry (i.e., McLaughlin et al. 1998). Recently, scholars have begun to use market microstructure measures to proxy information asymmetry (i.e., Alford and Jones 1998). The use of market microstructure measures has been promoted in research. Clarke and Shastri (2000) prove that they are not only associated with firm characteristics that ex ante should be correlated to information asymmetry, but also able to detect the trends in other information asymmetry measures. Thus, bid-ask spread was the main measure of information asymmetry in our thesis.

#### **1.2.4 The linkage between corporate disclosure and firm performance in business**

A business runs on the basic of using resources to create the added value. Basing on the resource-based view (RBV) of the firm (Barney 1991, Wernerfelt 1984), resources can be tangible or intangible. Tangible resources include financial reserves and physical resources such as plant, equipment, and stocks of raw materials. Intangible resources consist of technology, reputation, and human resources (i.e., culture, training and expertise of employees, the commitment and loyalty). The value of output is created from expending tangible and intangible resources. If the part of value originated from tangible assets is determined at the cost that firm paid to have those assets, the part of value from intangible assets is fluctuated depending on firm's capability or competences and management's ability

to generate new resources throughout a process of operation and communication between managers and owners, employees, customers, other stakeholders. These new resources enable firms to create a sustainable competitive advantage as the resources cannot be easily acquired by competitors (Barney 1991) and then make a superior performance in the future. Thus, the communication within or between company and stakeholders is substantial to enhance firm performance. In particular, CSR reporting as a communication channel providing social and environmental information can improve the information quality and then affect the relationship between company and their stakeholders which potentially creates new resources, especially intangible assets such as know-how, corporate culture, and reputation, a source of competitive advantage under the RBV of the firm. Such assets in turn provide many benefits for firm such as reduced agency cost, retained valuable employees, increased customer loyalty, which are able to improve firm performance. However, if CSR performance are not as good as expected, firm can suffer an adverse effect from CSR reporting such as the fine of authority parties, the reduction in fame or reputation that directly affect to firm's intangible value, firm performance in other activities therefore suffers a loss. From this point of view, CSR adoption is a strategic choice and the linkage among CSR disclosure, CSR performance, information asymmetry, and firm performance should be significant in business process (shown in Figure 1.2). A review on the relationship between CSR and firm performance will be documented in section 1.4.

**Figure 1.2: Theoretical framework of research**



### **1.3 Theoretical framework in CSRD study**

The choice of an appropriate theory in CSRD study is critical because theory is a mental state of a framework (Gray 2010) that affects the way we perceive the meaning of CSRD, the determinants of CSRD, change over time and differences of CSRD across reporting environments. The prior studies reveal a synergy of potential theories in explaining for CSRD issues, for instance legitimacy theory, stakeholder theory, shareholder theory, institutional theory, agency theory, and signaling theory (Wangombe 2013, Omran et al. 2015). The fact is that “there is no universal theory applicable on corporate social responsibility disclosure for all situations or societies” (Omran et al. 2015). In addition, such various theories referred to above have many conceptual overlaps rather than being distinct (Gray et al. 1995b, Cormier et al. 1999, Holder-Webb et al. 2009, Reverte 2009, Chen and Roberts 2010). Hence, some scholars have argued for a theoretical lens that compasses different perspectives (Cormier et al. 2005, Azizul Islam et al. 2008, Martin et al. 2008). CSR disclosure is so multi-faceted that no single theoretical approach can individually explain it in its totality. It is indeed important to construct a multiple - theoretical framework with appropriate theories to explain the hypothesis.

#### **1.3.1 Legitimacy theory**

Legitimacy theory has been considerably used in CSR disclosure studies (i.e., Roberts 1992, Deegan et al. 2000, Deegan et al. 2002, Dentchev 2004, Chen et al. 2008, Khan et al. 2013). Perrow (1970) defines legitimacy as a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, value, beliefs and definitions. The theory is based on the notion of a “social contract”, which limits the activities of an organization within the boundaries set by the society (Gray et al. 1996). In essence, the organization will gain support from the stakeholders and continue in existence in so far as its activities give benefits. Particularly, legitimacy theory posits that organizations are expected to act in a socially acceptable manner so as to access resources, gain approval of their goals and place in the society, and guarantee continued existence (Guthrie et al. 1989). A business is active only if society accepts it as a legitimate organ. So the relation between a firm and society is a contract where the firm can exist and use social resources and in turn society will require its social developing and protecting contributions. If this social contract is violated, society (customers, suppliers, law makers, stakeholders...) will threaten the business by stopping their contracts with firms. Therefore, firms have to

continuously demonstrate their attempts to comply with society's expectations. So this implies the fact that companies made decision to legitimate each self.

Legitimacy is adopted to understand the extent to which corporate governance characteristics, such as managerial ownership, public ownership, foreign ownership, board independence, CEO duality and presence of audit committee influence organizational response to various stakeholder groups. The pressures exerted by external stakeholder groups and corporate governance mechanisms involving independent outsiders may allay some concerns relating to family influence on CSR disclosure practices (Khan et al. 2013). It is also frequently used in the CSR literature to explain the motivations for CSR disclosures. Chen et al. (2008) and Deegan et al. (2000), (Deegan et al. 2002) suggest that CSR disclosures can be employed by an organization to mitigate legitimacy threat and reduce the legitimacy gap. Roberts (1992) and Dentchev (2004) provides evidence that in the context of emerging economies, CSR disclosures are used by managers as a strategic tool to attain legitimacy.

In short, CSR disclosure can be used to achieve the legitimacy due to providing more insights about firm's CSR activities. The society will judge the company in a positive way, when CSR information is provided.

### **1.3.2 Stakeholder theory**

A company has a wider range of responsibilities to a vast range of stakeholders rather than simply exercises its duty to its shareholders. They can come from inside or outside of the business, e.g. customers, employees, stockholders, suppliers, non-profit groups, government, and the local community, among many others. The core idea of stakeholder theory is that organizations that manage their stakeholder relationships effectively will survive longer and perform better than organizations that don't (Freeman 1984). Stakeholder theory identifies the external pressures as the stakeholders affected by, or affecting the organization (Freeman, 1984) but only if they have power, legitimacy, urgency and salience over the organization (Mitchell et al. 1997), and also that some stakeholders are primary while others are secondary (Carroll 1979).

The stakeholder theory is used to analyze those groups to whom a firm should be responsible. Boatright (2000) affirms that corporations are operated or ought to be operated for the benefit of all those who have a stake in the firm. Hence, like shareholders invest their money in enterprises, employees invest their time and intellectual capital, customers invest their trust

and repeated business and communities provide infrastructure and education for future employees (Graves et al. 2001). Therefore, firms need to meet their demands to establish a strong and trusted relationship. What is the stakeholders' demand? It is that the firm can use their resources efficiently and sustainably. Whereas, CSR performance/ disclosure is one of a part of the sustainable development in an organization (a mechanism to build and enhance reputation and social trust). As a result, CSR disclosure is a good governance which balances the conflict demands of various stakeholders, foster and maintain a good relation with stakeholders (Corporate Governance Council of the Australian Stock Exchange; Adams and Zutshi 2004).

As concerning above, legitimacy theory views external pressures as the “relevant public”. There is an obvious overlap between “stakeholders” of Stakeholder theory and “relevant public” of Legitimacy theory such that the two theories “need not be seen as competitors for explanation but as sources of interpretation of different factors at different levels of resolution” (Gray et al. 1995b).

### **1.3.3 Shareholder theory**

Shareholder theory identifies shareholders as the primary stakeholders and that satisfying them involves pursuit of wealth maximization (Friedman 1970, Jensen 2001). Friedman (1970) stated the company is not a social institution that must conduct social activities. The company's goal is to maximize the economic benefits for shareholders (stockholders wealth maximization). However, the theory also acknowledges the need to consider other stakeholders to ensure sustainability (Carroll 1979, Smith 2003). In fact, companies that are only concerned with the interests of shareholders (stockholders) are generally difficult to obtain legitimacy of stakeholders. At the end, the business practices that do not prioritize stakeholders will have a negative impact for the company and will affect the company's image. Therefore, companies need to conduct business practices that prioritize stakeholders and CSR disclosure.

Comparatively, shareholder and stakeholder theories are very close but shareholder theory views stakeholders (other than shareholders) as a means towards an end, while stakeholder theory views them as an end in themselves.

### 1.3.4 Institutional theory

The concept of “institution” generally refers to accepted socio-economic beliefs, norms, and practices associated with different aspects of society, such as education, law, politics, religion, and work (Judge et al. 2008, Judge et al. 2010). Institutional theory from an economic standpoint can be directly linked to the concept of “economic efficiency” (Zattoni and Cuomo 2008, Aguilera and Cuervo-Cazurra 2004) or “instrumentality” (Aguilera et al. 2007)) in that it suggests that societal members primarily tend to seek to maximize their self-interests by competing for resources. In contrast, the sociological approach to institutional theory suggests that individuals, groups and corporations not only compete for economic resources (“economic efficiency”), but also seek social approval for the right to exist (“social legitimacy”) (Zattoni and Cuomo 2008).

The neo-institutional theory proposed by Scott (2004) places great emphasis on three levels of analysis: societal (global) institutions; governance structures; and actors. Briefly, and at the top of Scott’s model are societal and global institutions, which provide a platform, where what is considered to be possible, acceptable, and legitimate models and menus of social behavior are officially proposed and informally passed (Judge et al. 2008, Judge et al. 2010). Some papers found that neo-institutional theory has been successfully employed in predicting the diffusion and/or imposition of a number of corporate practices at the national level, such as the adoption of good corporate governance practices (Aguilera and Cuervo-Cazurra 2004, Yoshikawa et al. 2007, Zattoni and Cuomo 2008), international accounting standards (Judge et al. 2010), and corporate governance legitimacy (Aguilera and Jackson 2003, Judge et al. 2008). The current study also seeks to extend and apply neo-institutional theory to explain differences in CSR practices at the firm level with particular emphasis on its legitimation and efficiency implications.

Institutional theory involves an examination of how some of the organization’s social structures including schemas, rules, norms, and routines, become established as authoritative guidelines for organization behavior (Scott 2004). CSR reporting may develop as a myth incorporated in the organization structure on the notion that by so doing, the organization will gain legitimacy, resources, stability and enhance its survival prospects (Meyer and Rowan 1977, DIMMAGGIO and Powell 1983, Suchman 1995). As a result, firms with high level of CSR disclosure can be expected to get lower agency cost because of the executive compensation for good corporate governance (Berrone and Gomez-Mejia 2009) and hence

improve the ability of accessing to resources (Suchman 1995, Bansal 2005) as well as the financial performance.

### **1.3.5 Agency theory**

Agency theory looks at the conflicts of interest among the different stakeholders in an organization such as between shareholders and company managers or between shareholders and bond holders (Jensen and Meckling 1976). For example, shareholders desire to increase the earning per share, investor ratios or increase the company's CSR whereas managers want to obtain the firm's objectives, increase the wealth and size of company because of the positive association to their own perceiving or increase their personal wealth by paying themselves higher rewards. To eliminate the managers' behavior to their own self-interest and encourage them maximize shareholder wealth, shareholders have to pay compensation which is called "agency cost". The agency cost which primarily includes monitoring expenditures like audit cost; structuring expenditures like appointing outside members to the board of directors; and opportunity cost occurred as shareholder-imposed restrictions are severed to decrease the asymmetric information and so get a better quality of corporate governance. A voluntary disclosure is a tool to reduce the agency problem. In the disclosed information, the behavior of management is visible. The information asymmetry is also reduced by voluntary disclosures. The level of information asymmetry reflects the gap between information of the company hold by managers and stakeholders. After a disclosure, more information becomes available to stakeholders, this reduces the information asymmetry. CSR disclosure is an indicator of management skill (Alexander and Buchholz 1978, Bowman and Haire 1975) which can reduce the information asymmetry and hence decline the agency cost, suggesting a possible increase of firm performance (Cheng et al. 2014).

In recent researches, scholars found that if a company has good CSR policies, it will improve the corporate performance which will benefit directors and other stakeholders in turn. Conversely, companies engaged to bad CSR policies often damaged their corporate results which in turn are harmful on directors and stakeholders. Thus, agency theory is indeed a narrow form of stakeholder theory.

### **1.3.6 Signaling theory**

Signal theory focuses on the influence of information on changes in user behavior. Companies that optimists have a positive outlook will tend to deliver the news to the investors. Given

signal may also explain the advantages of the company compared to other companies. This theory is based on the assumption that the managers and owners of companies differ in the completeness of information access. Some information is often only owned by the manager, and the other party (the owner of the company) did not know of such information. For example, good quality companies would give a signal to the market, so the market is expected to differentiate good and bad quality. Signals provided by the company is the result of management actions that companies can provide guidance to investors about how to manage the company's management and investors' perception on the company's prospects. (Sayekti and Wondabio 2007) found that individual investors interested in social information reported in the annual report. CSR can be used as a source of positive information that may be a consideration for investors in making investment decisions.

### **1.3.7 Contingency approach**

Contingency approach in organization theory holds that the effectiveness of an organization, broadly defined as organizational adaption and survival, depends on the goodness of fit between its structure and environment (Katz and Kahn 1966, Thompson 2017). The organization and its managers are constrained by their environment in adopting certain structural designs. It also means that there is more than one way to achieve the effectiveness of an organization. Firm's actions or response that depends on the matching of contingency factors with internal organizational designs can be more appropriate to the environment, and then the effectiveness would be better than others. This idea leads to the "fit" between business strategy and its contingency factors in the design of an organization (Van de Ven 1979). When companies expand, their existing strategies and structures tend to lose fit and pulling their performance. In contrast, designs that fit lead to better financial performance (Schlevogt 2002).

CSR is a strategic action that aims to boost the relationship between company and its stakeholders to pursue a long-run and sustainable business. Its implementation contingents on firm's structure and/or the characteristics of industry or country that firms belong to. As a result, whether CSR can be good or harm to firm performance depends on whether this action fits to firm's actual situation and other organizational factors. Under the fact that there is little consensus relationship between CSR and firm performance, a stream of studies that examined the association between CSR engagement and firm performance under contingency

perspectives has gradually arisen. These studies have questioned the possible influence of mediating and moderating variables that are not captured in the models.

Empirically, many researchers provide evidence for the influence of moderators or mediators variables on the link between CSR and firm performance. For example, Cavaco and Crifo (2014) explained the mixed findings in the CSR–financial performance relationship by the existence of synergies (complementarity) and trade-offs (substitutability) between the different components of CSR. In other words, the relationship between CSR and financial performance is probably mediated by the interactions between the multiple dimensions of CSR. The authors found that social responsible activities related to employees (human resources dimension), customers and suppliers (business behavior dimension) are the complementary inputs of financial performance, indicating mutual benefits and less conflict between those stakeholders meanwhile those related to customers and suppliers and towards the environment are substitutable inputs of financial performance, suggesting more conflict between or over-investment towards those stakeholders. Barnett and Salomon (2012) provides evidence that the influence of CSR on corporate financial performance (hereafter, CFP) depends on the ability of firm to convert CSR into SIC. Similarly, Karaye et al. (2014) propose a framework that explains how and why CSR leads to CFP by promoting a potential mediator namely stakeholder influence capacity (SIC). They argued that CSR engagement with aimed to strengthen stakeholder relationship will create and accumulate SIC which later on get the rewards of stakeholders in the form of successful CFP. By using Baron and Kenny (1986) procedure, Saeidi et al. (2015) successfully showed that CSR is indirectly associated with firm performance though three mediators consisting of competitive advantage, reputation, and customer satisfaction. Based on the reviewed literature competitive advantage, reputation, and customer satisfaction are three outcomes of CSR which also positively affect to firm performance. The authors used them as mediators to show why and how CSR affect to firm performance. They suggest that CSR activities help to improve the level of customer satisfaction which later enhances firm's reputation and competitive advantage and hence promote firm performance.

In short, contingency approach is a promising basement to explain for the mixed relationship between CSR and firm performance. As Carroll and Shabana (2010) said, the regarding of mediating or situational variables would improve understanding of the relationship between CSR and firm performance.

#### **1.4 The link between CSR disclosure and Firm performance**

Given that CSR reporting became a mainstream in practice, academic attempts to explore the endogenous factors at the organizational level to explain why companies should engage in CSR disclosure. Companies would report CSR information for many purposes but the main aims of business is always all about economic benefits, management efficiency, and the prospects of development in the future. The relationship between CSRD and firm performance or capital market therefore is a long question in the empirical literature.

Firm performance is a broader concept that does not include only financial facet but all operation activities. The relationship between CSRD and firm performance will be unfolded if academic ignores non-financial performance. Whether CSRD is related to non-financial performance is a very new question. Currently, only a few studies connect CSR to non-financial performance through some new concepts such as social capital or intellectual capital. A study on the relationship between CSRD and CSR performance will be an initial step to consider that question. There are two opposite views regarding to this association. Voluntary disclosure (Verrecchia 1983) argues that firms with superior CSR performance would select a high level of disclosure to differentiate themselves from their counterparts, CSRD thus is positively related to CSR performance. Supporting this view, Brammer and Pavelin (2006) show that companies having poor environmental performance tend to select a low level of environmental disclosure. On the other hand, the social- political view such as legitimacy theory posits that firms with poor CSR performance would face to the political and social pressures and the threatened legitimacy, they therefore select a high level of disclosure to change the social perceptions. The relation between CSRD and CSR performance now is negative (Patten 2002). To the extent that the link between CSRD and CSR performance are either positive or negative, the association between CSRD and non-financial performance is still open.

At the beginning, the question whether CSRD can lead to superior firm financial performance is a crucial one. There are strong theoretical arguments indicating that CSRD should have impact on financial performance, however the predictions about this relation are opposite. One view suggests a positive relation between CSRD and financial performance, in which stakeholder theory (Freeman 1984) and its instruments aspects (Jones 1995) are the main explanations. In particular, this theory posits that CSRD can build and reinforce the trusting relationships between company and their various stakeholders such as employees, customers,

communities, and concerned citizens in many others, that are intangible assets important to firm's sustainable development and financial standing. Empirically, many scholars provide evidence for this positive relationship. The other view posits a negative impact of CSRD on financial performance. Milton Friedman is one of the most opponents of CSR engagement. Depending on his shareholder theory, practicing CSR reporting can force a fundamentally undemocratic taxation on shareholders and its implementation cost can outweigh any potential benefit relative to CSR disclosure. As a result, CSRD implementation may create a misallocation and misappropriation of firm resources (Friedman 1970). In addition, legitimacy theory (Gray et al. 1996) provides another explanation for the negative relation between CSRD and financial performance. The external pressure from society and other stakeholders can push company to disclose CSR to mitigate legitimacy gap or change the social perceptions rather than for sustainability aims. CSRD is then harm to financial outcomes as a bad signal for firm's poor performance in other activities. To the extent that the impact of CSRD on financial performance can be positive or negative, the question whether CSRD leads to a superior financial performance have not been resolved yet.

Besides the economic outcomes, the impact of CSRD on capital market such as stock liquidity, the cost of capital, and the information intermediation is an interest in the literature. Most of studies consider the link between CSR performance and capital market rather than CSRD. Regarding to disclosure, financial reporting was often connected to the cost of capital or the information intermediation more than CSRD. However, grounded on a broad view that firms with more information disclosure would have less information asymmetry, the relationship between CSRD and information quality is promising. Some empirical studies showed that CSR reporting can increase the stock liquidity, the accuracy of analysts' earnings forecast, and reduce the cost of equity due to the reduction of information asymmetry given by the implementation of CSRD. Dhaliwal et al. (2011, 2012, and 2014) are the examples. Moreover, CSR reporting now is a global trend as said by the KPMG: "non-financial is a new financial" in company's annual financial reports. The integration between financial and non-financial reporting has been enthusiastically adopted by many countries. The combination between CSRD and financial reporting in influencing information quality is therefore a gap in the literature on CSRD as well.

The little consensus theoretical arguments and findings on the link between CSRD and financial performance as well as the shortage of research in CSRD with information quality

and non-financial performance are the gaps we aim to fill up in this work. The acknowledgement on contingency theory motivate us to go deeper by looking for situational factors that may change or affect the relationship between CSRD and firm performance or information quality. Contingency approach suggests that managers make their decisions depending on the firm situation embracing internal factors (resources and organizational structure) and external factors (macro- and micro-environments). And, the performance obtained depends on the “fit” between managers’ decision and the firm situation. Grounded on this view, the impact of CSRD on firm performance or information quality should depend on some situational factors relative to managerial strategy or the effectiveness of corporate governance that can change or influence the direct relations among them. In our opinion, this perspective is plausible for CSRD study because CSR is a multiple-dimensional concept covering activities in triple bottom lines: economic, society, and environment. The aim of CSRD is also served for multiple subjects such as legitimacy, stakeholders’ demand, shareholders’ interest, managerial strategies so that firms can get better competitive advantages and positive societal impact. Therefore, our work is organized around the main research question as follows:

In which situation does CSRD lead to beneficial outcomes for the business entity?

Our main purpose is to seek for managerial factors that potentially explain or affect the relationship between CSRD and firm performance or information quality. In doing so, we can reveal the true nature of these links and explain for the mixing results in previous studies. Grounded on the previous studies, we recognize the interaction between CSRD and corporate governance quality in determining financial performance. In addition, the integration between financial reporting and CSR disclosure in annual reports promises an interchangeable effect between CSRD and information quality. Corporate governance quality and financial reporting quality are two situational factors that we suspect. From the main question, we raise the sub-questions as follows:

Research question 1: Does CSRD lead to CSP or vice versa?

Research question 2: Does corporate governance quality affect to the relationship between CSRD and financial performance?

Research question 3: Does financial reporting quality alter the effect of CSRD on information asymmetry?

## 1.5 Announce and presentation of the chapters

Our work is divided into four parts. This chapter presents an overall theoretical and empirical literatures on CSRD and firm performance, noting that firm risk is also an aspect of firm performance in finance. Any changes in systematic risk is able to influence on agency cost and financial performance as a result. In doing so, we build up the theoretical framework linking two areas and explain why CSRD should be important in business strategy and when it can lead to good outcomes for corporate performance. We then introduce three empirical studies with the aim to provide new evidence on how CSRD affect to firm performance and risks. Throughout this thesis, we use CSR disclosure ratings provided by Bloomberg ESG database and a number of other financial and nonfinancial control variables. The sample will vary across three studies due to the different requirements in terms of control variables and the available data on corporate governance and CSR disclosure.

Chapter 2 addresses the relationship between CSRD and CSR performance as a non-financial performance measure. We analyze a sample of 424 companies in 11 Western European countries over the 2007-2015 period. The choice of sample aims to ensure the sufficiency of CSR data to compute a self-construct CSR performance index. Using the Granger causality approach incorporated with fixed effect models, we document a positive association between CSRD and CSR performance which runs from both sides. However, it is not a causal relationship. This finding is consistent with the economic-based voluntary disclosure theory (Verrecchia 1983). Moreover, we found this positive relationship holds for two single dimensions of CSRD: social and environmental disclosure; but governance disclosure is exceptional. A negative causal relationship between governance disclosure and CSR performance potentially supports to the socio-political view. These results are confirmed by Dumitrescu and Hurlin (2012) test for causality in panel data and the effect of difficult time on CSRD adaption.

Chapter 3 entitled “The effect of Corporate Governance Quality on the link between CSR disclosure and financial performance” examines the relationship between CSRD and financial performance with regarding to the corporate governance quality. Corporate governance includes all fields of management from operating and control strategies to performance measurement and corporate disclosure. It emphasizes the transparency in operating system, so it may be positively related to CSRD and CSRD can be an extension of good corporate governance. Following Baron and Kenny’s (1986) Moderation/Mediation Regression

Analysis (MRA) approach, we use FEM and GMM to estimate the association between three aspects: CSRD, CGQ, and CFP. Using a worldwide sample of 2,092 companies over the 2007 and 2015 period, we find that CSRD is positively associated corporate governance quality and this interaction alters the relation between CSRD and financial performance in both strength and form. The true nature of this relation is U-shaped rather than in a direct way. The trade-off between cost and benefit relative to CSRD may explain for this result. The value-creating potential of CSR might occur as the benefits exceed the costs but vice versa for another case. Moreover, the relationship between each dimension of CSR (i.e, environmental, social, and corporate governance) and financial performance has the same patterns. The results affirm the moderation effect of corporate governance quality in the link between CSRD and financial performance.

Chapter 4 entitled “The effect of Financial Report Quality on the relation between CSR disclosure and information asymmetry: A Substitute between CSR disclosure and the quality of financial report” investigates the impact of CSRD on information asymmetry with concerning on financial reporting quality. CSRD and financial reporting are two channels of communication between company and their investors but each of them present a distinct aspect of firm’s activities. In literature, two scheme of research have been developed separately. There are a few academic evidence regarding to whether financial reporting can determine the level of CSRD or how they are interacted to each other in reducing information asymmetry. Using the Heckman’s 2-stage approach, we provide evidence that CSRD can improve information quality by reducing information asymmetry. Yet, this association disappears with a high level of financial reporting quality, suggesting a substitution between CSRD and firm-level financial reporting quality in affecting information asymmetry. There is no evidence for the substitute between CSRD and country-level financial reporting quality. The results boost the moderation effect of financial reporting quality in the link between CSRD and information quality.



# CHAPTER 2





## 2.1 Introduction

The question why firms should engage in social and environmental disclosure and what its impacts will be on the various stakeholder groups have been unsolved in the literature (Ullmann 1985). To answer it, many studies have been conducted to see the relationship between corporate social responsibility (CSR) reporting and firm performance where financial performance, market value or systematic risk have been often concerned. The absence of non-financial performance in literature motivates this study which will investigate the association between CSR disclosure and CSR performance as a term of non-financial performance.

The drawbacks of financial performance measures such as inflexible, late and infrequently produced (Manoochehri 1999), backward-looking (Cumby and Conrod 2001), overemphasizing on cost reduction and profit maximization and failure in capturing firm's strategy, customer requirements (Ghalayini and Noble 1996), have promoted the use of nonfinancial performance measures in the performance evaluation paradigm. A new performance evaluation system including both financial and nonfinancial performance measures have been developed to evaluate the organization's overall performance at both strategic and operational level (i.e., Venkatraman and Ramanujam 1986, Ndlovu 2010, Santos and Brito 2012). Nonfinancial measures have been developed to deal with performance aspects related to customer satisfaction, innovation and learning, product/service quality, employees' quality, environmental improvements, social improvement (Manoochehri 1999). Closely, those are the issues comprised in corporate social responsibility program. CSR activities based on the triple bottom line: economic, social, and environmental (Carroll 1999, McWilliams and Siegel 2001, Whetten and Mackey 2002) generally involves the voluntary activities that a firm go beyond legal constraints and commit to bear the cost of more ethical behavior in a variety of practices (McWilliams and Siegel 2001), for example, improving employment conditions and/or banning child labor in countries that do not respect human rights, protecting the environment and investing in abatement equipment to reduce the carbon footprint, developing partnerships with NGOs, or providing funds to charity, and so on (European Commission, 2001). CSR performance therefore can be considered as an overall measure of non-financial performance, and our study actually examines the relationship between CSR disclosure and CSR performance. What is the essence of this link? Does this relation run from both sides? These questions have been unsolved in social and environmental accounting.

Our explanations initially come from the economic-based and the social-political theories of voluntary disclosure which predict two opposite signs for the relationship between environmental reporting and environmental performance (Clarkson et al. 2008, Verrecchia 1983, Patten 2002). The economic-based theory of voluntary disclosure predicts a positive relation between the two. It says that firms doing good environmental performance will disclose more environmental information to convey their proactive environmental performance type so that they can differentiate themselves from the inferior firms and potentially increase firm valuation. The socio-political theories predict a negative association between the two. It suggests that social disclosure is a function of social and political pressures that firms face to. Particularly, due to the greater pressures from social and political parties, firms with poor environmental performance may tend to produce more voluntary disclosure to change the perceptions on their performance. From those perspectives, CSR performance may affect to CSR disclosure positively or negatively. The relationship between CSR disclosure and CSR performance can run from the inversed direction. As a measurable activity visibly to stakeholders, CSR reporting can improve CSR performance as a signal of good corporate governance, less engage in the future misconduct. Yet, it might be a cover-up to hide poor performance in other activities or for purely presentation purposes rather than for sustainability target. In general, the relationship between CSR disclosure and CSR performance would be positive or negative and might be “virtuous circle”.

In collaboration with social and environmental performance, we develop an aggregate measure of CSR performance, the total net CSR index (CSP). This index will be constructed based on five categories of CSR activities: (1) Human Rights, (2) Community, (3) Employee, (4) Diversity, (5) Environment. We rate firm’s CSR performance on both strengths and concerns, compute the strength/ concerns indices in each category and then measure the net CSR performance in each domain-year by subtracting the concerns indices from the strengths indices in each category. Total net CSR index is the sum of net CSR performance of five categories. Social disclosure and Environmental disclosure are proxy by Social disclosure score (Sscore) and Environmental Disclosure score (Escore) obtained from Bloomberg database. They are indices that reflect the degree of a company’s social/ environmental disclosure, ranging from 0.1 for companies that disclose minimum amount of social/environmental data to 100 for those that disclose every data point collected by Bloomberg. Note that in both CSR disclosure indices and CSR performance index, corporate

governance domain of CSR activities is excluded because the interest of this study focus on social and environmental issues. Following to Nelling and Webb (2009), the fixed effect models incorporated with the Ganger causality using both CSP and CSRD as dependent variables are applied to examine the relationship between the two as well as to see whether there is Granger-causality relationship between them. To robust the results, we also use the separated dimension: social disclosure and environmental disclosure to reexamine the tests. So, the different impact of each dimension can be observed. We also run the tests during the economic shock period such as the debt crisis to capture the particular patterns in the link between CSRD and CSP. Our sample is in panel data, so we use the Dumitrescu and Hurlin (2012) test for Granger causality to confirm whether the causality relation exists.

Our sample includes the “large” “public interest entities” from seventeen Western European countries including Norway, Finland, Netherlands, Belgium, Austria, Italy, Spain, Portugal, Ireland, Greece, France, Germany, Luxembourg, Switzerland, Sweden, Denmark, and the United Kingdom, which have at least ten entities and disclosed the social and environmental information continuously during the period between 2007 and 2015. This selection aims to ensure the stability of ESG disclosure across nations and the comparability in data. The final one includes 2,894 firm-year observations from 424 companies in eleven countries.

In brief, our main results are as follows. We found the positive relationship between CSR disclosure and CSR performance. This relation runs from both sides where the  $CSP \rightarrow CSRD$  is stronger in magnitude than the  $CSRD \rightarrow CSP$ . In other words, superior CSR performance are more forthcoming in CSR disclosure channels as predicted by the economic based voluntary disclosure theory. As well, the increase of reporting CSR information would force firms to improve the quality of CSR activities for fear of negative actions from stakeholders as firms perform badly. Besides, the causality relationship does not exist between CSRD and CSP. The results of the Dumitrescu and Hurlin (2012) test also show that neither  $CSP \rightarrow CSRD$  nor  $CSRD \rightarrow CSP$  exists the Granger-causality effect. Thus, the positive relationship between CSR disclosure and CSR performance is “virtuous circle” but not causality.

The chapter is organized as follows. Section 2.2 discusses the literature review and hypothesis development. Section 2.3 describes the sample, data and methodology. Section 2.4 displays the results. Section 2.5 presents the additional robustness tests. Section 2.6 is the conclusion.

## **2.2 Literature review and Hypotheses development**

In this section, we review the origin and definition of corporate social responsibility disclosure and social capital. Besides, a review of theories and empirical researches on the relationship between social and environmental disclosure and social and environmental performance are presented to develop our hypotheses.

### **2.2.1 Corporate social responsibility disclosure**

CSR reporting or CSR disclosure is the process of communicating the social and environmental impacts of economic activities of the organization to specific groups of stakeholders and society as a whole (Mathews 1995). Ernst and Ernst (1978) defined it as the amount of information related to firm's activities, programs and application of resources deemed to affect both the public in general and particular stakeholder groups like the environment, energy usage, employees, products, community services and fair business practices. In CSR reports, most companies focus on some categories such as environmental, employees and consumers issues and disregards community involvement issues. The historical development of sustainability reporting is charted by Hahn and Kühnen (2013). In the early 20th century, firms in UK and US focused on social values and conditions and safety for workers much more than environmental issues such as pollution (Hogner 1982, Maltby 2004). In the 1970s, "social reports" were sometimes introduced to supplement conventional financial reports with more attention to environmental issues including emission and waste. By the late 1990s, following to the Global Reporting Initiative (GRI) program, both environmental and social information began to be emerged to financial reports (Kolb, 2010). Recently, South Africa has produced fully integrated reports that incorporate economic, social and environmental information in a single document to provide a complete picture of the firm's activities (Adams and Simnett 2011). CSR disclosure has several roles such as assessing the impacts of CSR activities; measuring the effectiveness of CSR programs; reporting on CSR and external and internal information systems; allowing the comprehensive assessment of all corporate resources and sustainability impacts (Jenkins and Yakovleva 2006, Gray et al. 2001, Gray et al. 1996, Mathews 1997).

CSR disclosure may be compulsory or voluntary. Countries with mandatory sustainability reporting consist of China, Hong Kong, India, Malaysia, Brazil, South Africa and Denmark, currently. However, their disclosure regulations limit at a "complex and explain" basis where

firms are able to make disclosures or not provided that they justify their position (Ioannou and Serafeim 2016). Despite of which, the United Nations is recommending that all large firms be mandated to publish sustainability reports by 2030<sup>5</sup>. Beyond mandatory requirements, firms can either be pro-active-voluntarily going beyond minimal stakeholder expectation or re-active-responding to social pressures when they occur.

The main question is why firms should make voluntary CSR disclosure beyond that required by law. According to Mathew (1997), there are three possible motivations: making a sense of “social contract”, enhancing their legitimacy, and improving their financial valuation. Legitimacy relates to the notion of a ‘social contract’, which limits the activities of an organization within the boundaries set by the society (Gray et al. 1996). Organizations are expected to act in a socially acceptable manner so as to access resources, gain approval of their goals and place in the society, and guarantee continued existence (Guthrie and Parker 1989). Hahn and Kühnen (2013) provided a list of potential benefits that firms may achieve when disclosing sustainability information such as enhancing transparency, improving reputation and brand value, motivating employees, supporting the firm’s control process. It seems that reporting CSR information that meets or exceeds stakeholder expectations would create the impression of firm doing well. This leads to the suspicion on the purpose of CSR disclosure: for purely presentation reasons rather than improving the sustainability or even for hiding poor performance on other activities. Indeed, Brammer and Pavelin (2006) argued that the main purpose of corporate disclosure is to “influence perceptions regarding the future financial prospects of the firm in the minds of external, primarily financial, stakeholders’ rather than to genuinely attempt to reduce environmental and social damage”. Holder-Webb et al. (2009) provided evidence that firms only select a portion of information that improve their image in the self-congratulatory way when doing voluntary disclosure. This line of argument refers to the fact that sustainability reporting does more harm than good (Gray 2010).

### **2.2.2 CSR performance – a measure of nonfinancial performance**

In this part, the definition and measurement of CSR performance and nonfinancial performance were summarized to provide evidence for the link between CSP and nonfinancial measures.

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<sup>5</sup> United Nations (2013) UN Panel Call for Global Sustainability Reporting.

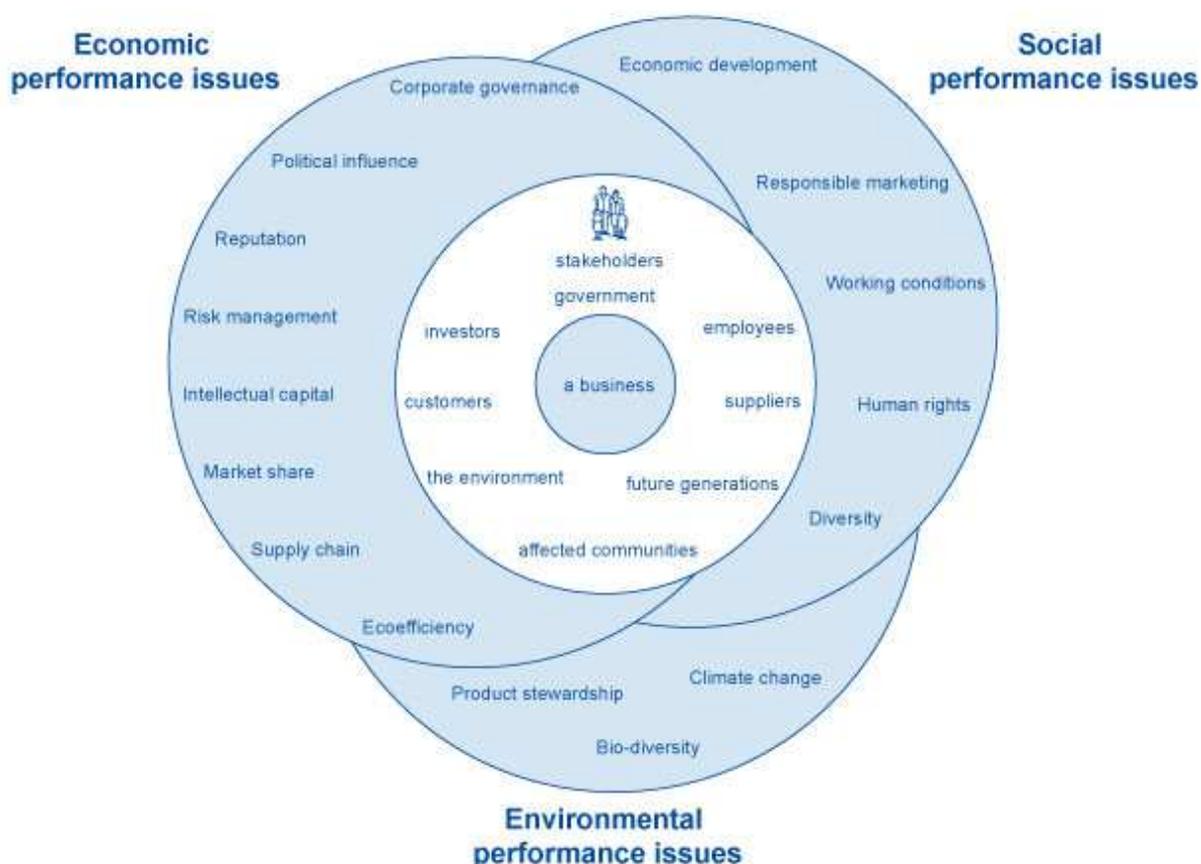
### 2.2.2.1 Concept and measurement

Corporate social responsibility (CSR) is a broad concept that haven't had a unified and precise definition yet (Wood 2010, Scherer and Palazzo 2007). According to The World Business Council for Sustainable Development (WBCSD), CSR infers to firm's commitment to balance the benefit between companies and community in order to improve the quality of life and ensure a sustainable economic development. The United States Social Investment Forum (SIF) defines the social responsibility investment as "investment practices that consider environmental, social and corporate governance criteria to generate long-term competitive financial returns and positive societal impact". Basically, CSR program is closely related to the concept of sustainability development with its emphasis on the three "P's" (People, Planet and Profit), where CSR is directed to improving the People and the Planet in some aspects (Luo and Bhattacharya 2006, Luo and Bhattacharya 2009), thus capturing two of the three "P's" of sustainability. CSR activities are based on the triple bottom line, namely economic, social, and environmental (Carroll 1999, McWilliams and Siegel 2001, Whetten and Mackey 2002). According to Harjoto and Jo (2015), there are two major groups of CSR activities. First, CSR activities that can be considered as following the laws and regulations (legal CSR) such as tax disputes, accounting concerns, non-representation, regulatory problem, labor rights, antitrust, product safety, etc.. Second, CSR activities that can be considered as following social norms (normative CSR) such as charitable giving, transparency concern, employment of the disabled, work life benefits, benefits to economically disadvantage, etc. Thus, CSR performance can be considered as the results that a company achieves from its CSR program. A properly implemented CSR can bring along a variety of competitive advantages, such as enhanced access to capital and markets, increased sales and profits, operational cost savings, improved productivity and quality, efficient human resource base, improved brand image and reputation, enhanced customer loyalty, better decision making and risk management processes.

In the empirical studies, the scholars have mostly used the Kinder, Lydenberg, and Domini (KLD) ratings database to construct a composite measure of CSP (see Waddock and Graves 1997, Kinder and Domini 1997, Nelling and Webb 2009, Barnett and Salomon 2012, Gao and Zhang 2015). KLD is an independent rating service that focuses exclusively on assessment of corporate social performance across a range of dimensions related to stakeholder concerns. It employs a widely accepted set of CSR measures that fit Carroll

(1979)'s proposed model which describes a firm's social obligations as economic, legal, ethical, and discretionary responsibilities. In particular, KLD database takes a comprehensive approach which examines seven dimensions related social performance: corporate governance, community, diversity, employee relations, environment, human rights, product characteristics and controversial business issues. After collecting information from surveys, financial statements, articles on companies in the popular press, academic journals (especially law journals), government reports, they rate such information into the strengths and weakness. CSP would be computed by aggregating the strengths and weakness ratings.

**Figure 2.1: The definition of Corporate Social Responsibility**



Source: The United Nations Industrial Development Organization (UNIDO)

### **2.2.2.2 The link between CSP and nonfinancial performance measures**

A bunch of studies promoted the use of nonfinancial performance measures in reflecting the organization's performance. For example, Kaplan and Norton (1992) found that senior executives pursue a balanced use of both financial and operational measures due to the complexity of management that requires to look at organizational performance on many aspects simultaneously. Chow and Van Der Stede (2006) provided evidence that nonfinancial measures are "superior" to traditional financial measures in managing effectively. Muhlbacher, Siebenaler, and Wurflingsdobler (2016) found that 80% of companies use a strategic performance measurement systems consisting of financial and nonfinancial measures. In this strand of research, the scholars followed to several performance evaluation frameworks in strategic management to identify the possible arenas that an organization's performance should be comprised. The Balanced Scorecard developed by Kaplan and Norton (1992, 1996) is the most popular one which consists of three nonfinancial perspectives: customer, internal business processes; and learning and growth. Basing on these perspectives, the researchers have suggested nonfinancial performance measures, for example, Hoque (2014) presented thirteen items. In particular, customer perspective includes five indicators: market share; customer satisfactions survey; on time delivery; customer response time; and warranty repair cost. Internal business ones consists of four indicators: material and labor efficiency variance; process improvement and reengineering; new product introduction; and long-term relations with suppliers. Innovation and growth ones includes four indicators: employee development and training; workplace relations; employee satisfaction; and employee health and safety. Lau (2011) relied on the Balanced Scorecard-derived performance of Kaplan and Atkinson (1998) to suggest five items: employee satisfaction rate; number of employees trained; employee turnover rate; number of innovations; and the adoption of new technology. Investigating the circumstance of reporting nonfinancial performance measures in the Austrian companies' annual reports, Muhlbacher, Siebenaler, and Wurflingsdobler (2016) introduced top ten nonfinancial measures in descending order are employee diversity (e.g., gender), environmental improvements, growth, R&D, employee training, capacity/production, employee productivity, social improvement, employee accidents, pile of orders. In general, these items are related to employees, customers and suppliers, diversity, environment, and society.

In the meanwhile, CSR performance which includes three main dimensions: environmental, social, and governance, with five inclusive categories: (1) community, (2) diversity, (3) employee relations, (4) environment, and (5) human rights (Lins et al. 2017) covers the aspects of nonfinancial performance. In particular, social performance is related to community and human rights; environment performance is associated with environment category; employee satisfaction responds to diversity and employee relations; customer satisfaction addresses issues related to community. In the essence, CSR actions are nonfinancial activities which regards to the issues of customers, employees, regulators, competitors, community and society. CSR performance is therefore able to represent nonfinancial performance measure in research. The similarity between CSP and nonfinancial performance's dimensions is presented in Table 2.1. In this table, we integrate the perspectives of nonfinancial performance and corporate social responsibility to Bloomberg ESG database's pillars so that we can construct CSR-related measures based on Bloomberg database in this work.

**Table 2.1: The similarity between CSP and Nonfinancial performance measures**

Kaplan and Norton (1992, 1996)'s BSC's nonfinancial perspectives	Santos and Brito (2012)'s nonfinancial performance	Lins, Servaes and Tamayo (2017)'s CSP	Bloomberg fields	
			Pillars	Issues
Innovation and Learning Perspective	Social performance Employee satisfaction	Community Diversity Employee relations	Social	Community (customer, gender equality, supplier, etc.); Employee (human rights, health and safety, training, equal opportunity, etc.); Others (gender equality, etc.)
Customer perspective	Customer satisfaction	Human rights		
Innovation and learning	Environmental performance	Environment	Environmental	Audit/verification Certifications Damages Emission Industry Specific

### 2.2.3 The relationship between CSR disclosure and CSR performance

Based on the concept of corporate social responsibility, CSR disclosure may be relative to CSR performance. CSR performance is the result that a company achieves from its CSR program or strategy. In the meanwhile, CSR disclosure is the mean that a company disclose their CSR achievements to stakeholders and society. Reporting CSR information is actually a

criterion to evaluate a firm's CSR performance. So, what is the nature of their relationship? Does CSR disclosure lead to CSR performance or vice versa?

Firstly, what is the true nature of the relationship between CSR disclosure and CSR performance, positive, negative or irrelative? As a beginning, the literature in environmental accounting research presented mixed results on the relation between environmental disclosure and environmental performance. Some studies using the CEP environmental performance rankings<sup>6</sup> and the Wiseman environmental disclosure index rankings<sup>7</sup> found no association between the two, for example, Ingram and Frazier (1980), Wiseman (1982), Freedman and Wasley (1990). Some presented a negative relationship between environmental disclosure and environmental performance after changing the methodology of measuring environmental disclosure and performance index, for example, Bewley and Li (2000), Hughes et al. (2001), Patten (2002). By using simultaneously equation approach, Al-Tuwaijri et al. (2004) found a positive association between environmental performance and non-discretionary environmental disclosure. Brammer and Pavelin (2006) showed that firms with poor environmental performance had less incentives to make environmental disclosure than the others and when they did, they would be careful to minimize the ability of adverse selection. Clarkson et al. (2008) said that these mixed results were due to the choice of non-discretionary disclosure channels and the use of the Wiseman (1982) index. They suggested to use the purely discretionary environmental disclosure and develop a content analysis index based on the GRI<sup>8</sup> sustainability reporting guidelines to measure environmental disclosure and environmental performance.

According to (Clarkson et al. 2008, Clarkson et al. 2011), there are two streams of theories that present opposite signs for the link between environment disclosure and environmental performance: the economics based and the socio-political theories of voluntary disclosure. The economic-based theory of voluntary disclosure (Verrecchia 1983) predicts a positive relationship between environmental performance and the discretionary environmental

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<sup>6</sup> The Council on Economic Priorities (CEP) is a nonprofit organization specializing in the analysis of corporate social responsibility.

<sup>7</sup> Wiseman (1982) constructed an environmental disclosure index basing on 18 items in four categories: economic factors (5 items), environmental litigation (2 items), pollution abatement activities (5 items), and environmental disclosures that do not stand in the other three (6 items). He assigned a score to each item on the notion that the disclosure is quantitative or qualitative, particularly 3 for quantitative disclosure, 2 for non-quantitative disclosure, 1 for general terms, 0 for no disclosure).

<sup>8</sup> The Global Reporting Initiative (GRI) principally focus on the environmental and social pillars with the conventions for presenting the economic dimension left largely to the conventional financial report.

disclosure. This theory proposes that firms tend to disclose “good news” to differentiate themselves from the inferior firms to avoid the adverse selection problem. Further, firms with superior environmental performance tend to show more objective environmental performance indicators that firms with poor performance cannot imitate. By providing voluntary disclosure, they can signal their proactive environmental performance “type” to investors and other stakeholders and then gain competitive advantages such as an enhanced corporate reputation and a reduction in the cost of capital (Mahoney et al. 2013, Luo and Tang 2014, Lys et al. 2015). Producing sustainability disclosures require expending resources to put the appropriate mechanisms in place to measure, collect and report relevant information (Buhr 2002), so firms would select to make sustainability disclosure if the expected benefits outweigh the costs. From this point of view, firms with superior CSR performance would select more voluntary disclosure whereas the inferior firms would disclose less or being silence for fear of stakeholders’ negative reaction towards “bad” news.

Inversely, socio-political theories including political economy, legitimacy theory, and stakeholder theory predict a negative relationship between the two. According to the legitimacy theory, legitimacy is required for the organizational survival. A company can get legitimacy when it is perceived to operate within a socially constructed system of norms, values, and bounds of which the entity is a part. When companies do not satisfy public expectations and requirements, they must face with the increased public pressure, scrutiny and monitoring as well as greater risks to legitimacy (Patten 2002, Hrasky 2011, Alrazi et al. 2015). In an effort to address these issues, companies may exploit communication strategies including the use of voluntary corporate disclosures to distract attention and change societal perceptions, expectations and values (Lindblom 1994, Gray et al. 1995a, Hooghiemstra 2000). Thus, firms with poor environmental performance face more political and social pressures and threatened legitimacy, so they tend to select a high level of discretionary disclosure to change stakeholders’ perceptions about their performance.

In short, doing “good” CSR performance may encourage firm to disclose a higher CSR information subsequently because it can improve the relationships with key stakeholder groups (e.g., Freeman, 1984), resulting in better overall performance and greater competitive advantages. On the other hand, doing “bad” CSR performance enable firms to face more social and political pressures and therefore firms need to disclose more voluntary CSR information to change stakeholders’ perceptions on their performance. Thus, the relationship

between CSR disclosure and CSR performance may run from CSR performance to CSR disclosure with either positive or negative sign.

Secondly, does a “virtuous circle” relationship between CSR disclosure and CSR performance exist? In literature, there are some suggestions that sustainability reporting improves CSR performance as it is considered as a measurable activity (Topping 2012). Christensen (2015) found that firms making voluntary disclosures tend to less engage in misconduct behaviors in the future. They found that such firms would suffer a worse loss if they are involved in a misconduct scandal because their previously good behavior granted them a degree of protection. In our opinion, CSR disclosure is one of communication channels which can reduce the information asymmetry between company and its stakeholders, it can be considered as a signal of “good” management skill (Alexander and Buchholz 1978, Bowman and Haire 1975). CSR reporting may develop as a myth incorporated in the organization structure on the notion that the organization will gain legitimacy, resources, stability and enhances its survival prospects (Meyer and Rowan 1977, DIMMAGGIO and Powell 1983, Suchman 1995). It thus enables to create the competitive advantages for company. CSR disclosure is an increasing trend in business that has been concerned by both individual organizations and authority. It therefore forces company to involve in CSR activities at a broader scope of content and implementation. From this point of view, CSR reporting can increase the subsequent CSR performance due to the pressure of informing “good information”. Inversely, CSR disclosure might be a self-congratulatory way to polish firm image or hide poor performance on other activities rather than to improve the sustainability (Brammer and Pavelin, 2006; Hodder-Webb et al., 2009). Firms that face a great public pressures such as the higher polluting companies might take risk to disclose hard performance indicators when public scrutiny is strong. In this context, stakeholders may detect whether that companies managed CSR disclosure to disguise bad CSR performance. This detection may damage firm’s reputation and perceived integrity, reducing its legitimacy and increasing the likelihood of outside intervention. CSR reporting therefore does more harm than good Gray (2010). In addition, firms with high CSRD does not mean that they have a superior CSP. Given that CSRD is a costly process, it may be assumed that companies that are either relatively good or bad environmental performers use CSRD as a management tool to enhance corporate value, as long as the expected marginal benefits outweigh the marginal costs (McWilliams and Siegel, 2001; Matsumura et al., 2014). In an unregulated setting with the

absence of certain governance structures, it is difficult to distinguish between the two types of firms because it is hard to observe whether a company conveys a true and fair view of its environmental performance or provides a misleading representation that may be not indicative of company's actual CSR performance. For this reason, bad CSR performers, that likely experience threatened legitimacy, could use extensive CSRD as a risk management tool to reduce public pressure and prevent intervention. The link between CSRD and CSP now is negative rather than positive.

All in all, the relationship between CSR disclosure and CSR performance can run from both directions with either positive or negative sign. Therefore, we hypothesize that:

H<sub>1</sub>: CSP is positively related to CSRD.

H<sub>2</sub>: CSP is negatively related to CSRD.

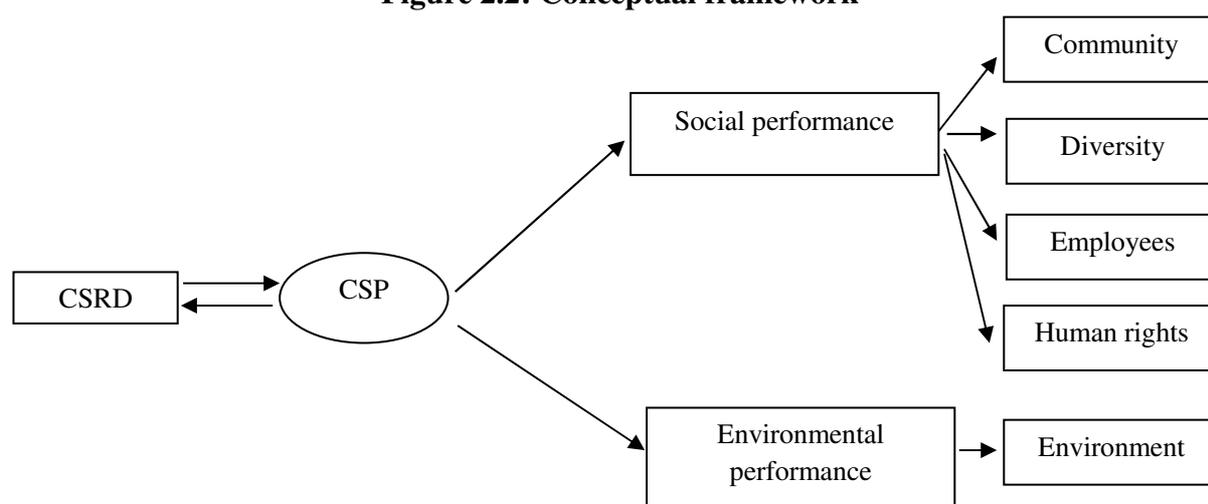
If this relationship run from both sides, we suspect that there would be a causal relationship between CSR disclosure and CSR performance. This paper goes further into the issue of precedence in order to capture the interaction between two items. It is hypothesized that either CSR disclosure precedes CSR performance or vice versa, then:

H<sub>3</sub>: CSP precedes CSRD.

H<sub>4</sub>: CSRD precedes CSP.

The null hypothesis in both cases is that there is no causal relationship.

**Figure 2.2: Conceptual framework**



## **2.3 Sample, variables, and models**

This section provides information about sample, data selection and the measurement of main variables such as CSR disclosure, CSR performance, and control variables. The empirical models are introduced in this part as well.

### **2.3.1 Sample and data**

To observe a general pattern of the mutual relationship between CSR disclosure and CSR performance, it'd be better to choose a sample of organizations or companies disclosing CSR information frequently and stably. To ensure the stability of ESG disclosure across nations, we choose Western European countries that follow a similar CSR reporting policy or regulation. We select a sample of listed companies from seventeen Western European countries including Norway, Finland, Netherlands, Belgium, Austria, Italy, Spain, Portugal, Ireland, Greece, France, Germany, Luxembourg, Switzerland, Sweden, Denmark, and the United Kingdom. However, to ensure the comparability in data, we only choose countries that have at least 10 entities and disclose the social and environmental information continuously during the period between 2007 and 2015. The initial sample includes 3,816 firm-year observations from 424 companies in 11 countries. Our selection also relies on a survey on the number of ESG companies in Western Europe based on Bloomberg ESG data to finalize which countries and which time duration should be used. As previous studies, we only choose “large” “public interest entities” (“PIEs”) with more than 500 employees and a balance sheet total of at least €20 million or a net turnover of at least €40million<sup>9</sup>. We also exclude firms that have missing data of all explanatory variables, noting the possibility of outlier's effect. The final sample consists of 2,894 firm-year observations.

### **2.3.2 Variables**

#### **2.3.2.1 Corporate social responsibility performance (CSP)**

In previous studies, CSP has been computed by aggregating the strengths and weakness ratings from Kinder, Lydenberg, and Domini (KLD) ratings database (now is the MSCI) to create a firm's overall net score across thirteen social performance criteria (i.e., Barnett et al., 2012; Nelling and Webb, 2009). Yet, this database does not cover our sample which focuses

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<sup>9</sup> Non-financial reporting Directive, Preamble pt14, the Accounting Directive Arts 2(1) and 3.4.

on the CSR performance of Western European countries' companies. Besides, due to using ESG disclosure score from Bloomberg, we decided to measure CSP by using ESG information gathered by Bloomberg as well. The use of these data are in our view the most reliable estimation of the effective level of CSR because it ensures the matching of ESG issues between two measures CSRD and CSP. As comparing in Table 2.1, Bloomberg ESG database also covers six categories of CSR activities: (1) Human Rights, (2) Community, (3) Employee, (4) Diversity, (5) Environment, and (6) Corporate Governance. Due to the elimination of corporate governance in measuring CSR disclosure score, we do not include the corporate governance domain in our main tests as in Lins et al. (2017).

Our self-constructed CSP variable is a composite measure covering the performance of five CSR categories: Human Rights, Community, Employee, Diversity, and Environment. Each category includes CSP indicators collected from Bloomberg ESG database. CSP indicators would reveal information about the performance of each category. We relied on such information to rate those as “strengths” and “concerns”. “Strength” refers that firms are engaged in some socially responsible actions that may have positive effects on society, and “Concern” implies that firm’s socially responsible actions may have negative impacts on society. Then, how do we rate CSP indicators? If ESG data are numeric, we compared a firm’s CSP to its industry’s CSP value to evaluate whether the performance of that CSR activity is strength or concern. We will assign it equals to 1 if it is strength and 0 for otherwise. On the other hand, if ESG data are in the form of dummies (0 or 1), we rely on the Bloomberg variable definition to decide whether that CSP is strength (1) or concern (0). For example, basing on Bloomberg’s ESG database, there are four CSP indicators to present the activities related to “Human rights” in which the equal opportunity policy indicates whether the company has made a proactive commitment to ensure non-discrimination against any type of demographic group. This indicator is a dummy which returns a '1' if Yes or '0' if No, so we follow such definition to assign 1 (strength) for firm having this policy and 0 (concern) for firm without this policy. In another case, the number of employee representatives on the board, one of CSP indicators in “Employee” category, is a numeric data. It presents the number of employee representatives on the board when companies have non-executive employee representatives. This indicator refers to the ability of employee involvement in company, whether the company strongly encourages worker involvement and/or ownership. Thereby, we compared the number of employee representatives on the board of each firm to

the median value of industry where firms belong to, if firm-value is larger than industry-median-value, we assign 1 for this CSP indicator (strength) and 0 (concern) for otherwise.

In doing so, CSP will contain both elements: strength and concern. However, the number of strengths and concerns for any given category differs over time, so we construct a strength (concerns) index of firm  $i$  at year  $t$  for each category as follows:

$$\text{Strength\_index}_{i,t} = \text{Number\_of\_strengths}_{i,t} \times \frac{\text{Number\_of\_disclosed\_CSP}_{i,t}}{\text{Median\_of\_disclosed\_CSP}_{j,t}}$$

$$\text{Concern\_index}_{i,t} = \text{Number\_of\_concerns}_{i,t} \times \frac{\text{Number\_of\_disclosed\_CSP}_{i,t}}{\text{Median\_of\_disclosed\_CSP}_{j,t}}$$

where:

- $\text{Number\_of\_strengths}_{i,t}$  ( $\text{Number\_of\_concerns}_{i,t}$ ) is the number of strengths (concerns) of firm  $i$  at year  $t$ ;
- $\text{Number\_of\_disclosed\_CSP}_{i,t}$  is the total number of CSP disclosed by firm  $i$  at year  $t$ ;
- $\text{Median\_of\_disclosed\_CSP}_{j,t}$  is the median value of total number of CSP disclosed at year  $t$  within industry  $j$  where firm  $i$  belongs.

As a result, we got the strengths (concerns) indices for each category-year. Then, the net CSP in each category-year is computed by taking the difference between strengths index and concern index. For example, the net CSP of Human rights activities of firm  $i$  at year  $t$  as follows:

$$\text{Net CSP}_{\text{Humanrights},i,t} = \text{strength\_index}_{\text{Humanrights},i,t} - \text{concern\_index}_{\text{Humanrights},i,t}$$

Our primary explanatory variable is the total net CSP of five CSR categories is as follows:

$$\text{CSP}_{i,t} = \sum (\text{Net CSP}_{\text{Humanrights},i,t} + \text{Net CSP}_{\text{Community},i,t} + \text{Net CSP}_{\text{Employee},i,t} + \text{Net CSP}_{\text{Diversity},i,t} + \text{Net CSP}_{\text{Environment},i,t})$$

### 2.3.2.2 CSR disclosure

To gauge the degree of corporate social responsibility disclosure (CSR), we employ ESG disclosure score obtained from Bloomberg. Bloomberg's ESG data is based on "triple bottom line on business approach" including three dimensions: Environmental, Social and Governance to measure the sustainability and ethical impacts of an investment within a

company. In fact, the concept of CSR comprises three pillars: social, environmental, and economics in which corporate governance is one of key elements in economics aspect (e.g., CSR definition of United Nation Industrial Development Organization, UNIDO). The core subjects and issues of social responsibility addressed in Guidelines on non-financial reporting issued by European Commission (Information and Notices, Official Journal of the European Union, vol. 60, 5 July 2017) also include organizational governance. “Governance” is thus reasonable to be compassed in CSRD measurement. However, this study makes an effort to link the disclosure and performance of CSR activities through the concept of social capital which emphasizes on social trust and cooperation, focusing on firm’s stakeholders and a broader community more than insiders. Therefore, we only use the social disclosure score (S-score) and environmental disclosure score (E-score) obtained from Bloomberg ESG database. S-score is an index that reflects the degree of a company’s social disclosure, ranging from 0.1 for companies that discloses minimum amount of social data to 100 for those that disclose every data point collected by Bloomberg. Each data point is weighted in terms of importance, with workforce data carrying greater weight than other disclosures. Similarly, E-score is an index which reflects the degree of a company’s environmental disclosure, also ranging from 0.1 to 100. Both scores are tailored to different industry sectors by which each company is only evaluated in terms of the data that is relevant to its industry sector. Then, we construct a single scale of CSR disclosure by taking the average of social disclosure and environmental disclosure indices. It is our primary explanatory variable, a firm’s average CSR disclosure index which ranges from 0.1 to 100. Neither the contribution of corporate governance on stakeholders’ trustworthiness nor its association with firm performance can be refused, we use governance disclosure (Gscore) in robustness test.

### **2.3.2.3 Control variables**

Previous studies have suggested size, risk, R&D investment, and industry to be factors that affect CSR performance (e.g., Ullman 1995; Waddock and Graves 1997), we use them as control variables. Firm size (*Size*) is widely recognized as determinant of CSR performance. There is some evidence that larger firms may exhibit many overt socially responsible behaviors more than smaller firms because of the more attention from external parties and the greater pressure from stakeholders. We approximated it by using total assets on a log scale in order to reduce skewness. Risk tolerance (*Risk*) affects firm’s willingness to adopt CSR activities that can incur both cost and benefit in long-term, we use the level of debt held by the

firm, which is the ratio of total debt to total assets. R&D investments enable firms to incorporate the stakeholders' preferences into production and services that may lead to a higher stakeholders' satisfaction and the firm's CSR as a result. Therefore, we use R&D intensity (*RD*) as a control, which is the ratio of R&D expenditures to total revenues. Since the idiosyncratic characteristics of country and industry may influence firm's social arena, we control for country and industry to take these differences into account. We include country, industry and year dummies in the model.

### 2.3.3 Models

Firstly, the FEM approach is applied to test the relationship between CSR disclosure and CSR performance (Hypothesis 1 and 2) so that we can control the difference in CSR reporting regulations and implementation across countries and industry. The OLS regressions with country, industry, and time fixed effects are as follows:

$$(1) \text{CSP}_{it} = \alpha_1 + \alpha_2 \text{CSR}_{it} + \alpha_3 \ln\_tasset_{it} + \alpha_4 \text{debt\_ratio}_{it} + \alpha_5 \text{rd}_{it} + \gamma_t + \varepsilon_{it}$$

$$(2) \text{CSR}_{it} = \chi_1 + \chi_2 \text{CSP}_{it} + \chi_3 \ln\_tasset_{it} + \chi_4 \text{debt\_ratio}_{it} + \chi_5 \text{rd}_{it} + \gamma_t + \varepsilon_{it}$$

where  $\text{CSR}_{it}$  and  $\text{CSP}_{it}$  represent CSR disclosure and CSR performance of firm *i* in year *t*;  $\ln\_tasset$ ,  $\text{debt\_ratio}$ ,  $\text{rd}$  are control variables which represent firm size, firm risk, R&D intensity respectively;  $\gamma_t = \beta_0 + \beta_1 Z_i$  and  $Z_i$  represents the unobserved variable that varies across country, firm but does not change over time;  $\varepsilon_{it}$  is an error term that are assumed to be uncorrelated over time. The signs of coefficients  $\alpha_2$  and  $\chi_2$  indicate the relationship between CSR disclosure and CSR performance.

We address the causal links between CSR disclosure and social capital in the context of Granger causality. The Granger causality approach (Granger 1969) actually concerns about the precedence more than about the causation in the usual sense (Leamer 1985). With this test, what we really know is whether a particular variable (*X*) comes before another (*Y*) in the time series. If *X* causes *Y*, lags of *X* should be significant in the equation for *Y*. In this case, it would be said that *X* “Granger-causes” *Y*. If *Y* causes *X*, lags of *Y* should be significant in equation for *X*. In this case, it would be said that *Y* “Granger-causes” *X*. If both set of lags are significant, there is a “bi-directional causality” between *X* and *Y* (Brooks 2014). So, Granger-causality really addresses the correlation between the current value of one variable and the

past values of others. It just focuses on lead-lag relationships rather than the true cause-and-effect relationship as in the standard notions of causation.

However, Granger-causality test is only applied for time series data whereas our data is in the panel. Thereby, we follow Nelling and Webb (2009) to incorporate both fixed effects and Granger causality using CSP and CSRD as dependent variables to test hypothesis. The model now includes  $n$  intercepts (where  $n$  is the number of firms in the panel data) that are represented by a set of indicator variables such that:

$$(3) \text{CSP}_{it} = a_0 + a_1 \text{CSP}_{i,t-1} + a_2 \text{CSR}_{i,t-1} + \sum_{n=3}^{\infty} a_n X_{it} + \gamma_t + \varepsilon_{it}$$

$$(4) \text{CSR}_{it} = b_0 + b_1 \text{CSR}_{i,t-1} + b_2 \text{CSP}_{i,t-1} + \sum_{n=3}^{\infty} b_n X_{it} + \gamma_t + \varepsilon_{it}$$

where  $\text{CSP}_{it}$  and  $\text{CSP}_{i,t-1}$  represent CSR performance of firm  $i$  in year  $t$  and  $t-1$ ;  $\text{CSR}_{it}$  and  $\text{CSR}_{i,t-1}$  represent CSR disclosure of firm  $i$  in year  $t$  and  $t-1$ ;  $X_{it}$  are control variables of firm  $i$  in year  $t$ , including size, risk, R&D intensity;  $\gamma_t = \beta_0 + \beta_1 Z_i$  and  $Z_i$  represents the unobserved variable that varies across country, firm but does not change over time;  $\varepsilon_{it}$  is an error term that are assumed to be uncorrelated over time.

If the coefficients  $a_2$  are significantly different from zero, we can conclude that CSR disclosure Granger-causes CSR performance. Similarly, if coefficients  $b_2$  are significant, we say that CSR performance precedes CSR disclosure. If coefficients  $a_2$  and  $b_2$  are both significantly different from zero, we infer a “bi-directional causality” between CSR disclosure and CSR performance, or the “virtuous circle” relationship does exist.

## 2.4 Results

The empirical results are presented in this section.

### 2.4.1 Summary statistics

Table 2.2 presents the summary statistics for the entire sample. **Panel A** reports the descriptive statistics of the main variables used in analysis. First, the variation of CSR disclosure and CSP is extremely high across firms ( $36.430 \pm 14.980$  and  $-0.18 \pm 0.68$ , respectively). ESG disclosure score has mean score of 39.45% where the mean of Gscore is highest, 54.91%; next is Sscore, 41.1%; and the last one is mean Escore of 31.76%. It suggests that approximately the sample of firms have more widespread governance disclosure than social and

environmental disclosure. Given that governance disclosure may take accountable part of overall ESG disclosure score, the use of self-measure CSRD becomes more rational when this study concentrates on the disclosure of social and environmental issues rather than governance matters. The mean CSRD is 36.43%, decreasing of 7.66% as compared to ESGscore. The mean of CSP is -0.18 where those of social performance (S\_perf) and environmental performance (E\_perf) are 0.01 and -0.19, respectively. **Panel B** reports the distribution of observations across countries. Nearly 40% of sample came from United Kingdom. France and Germany account for the second and third position, 13.68% and 8.73% respectively. Denmark is the last one with the smallest portion of 3.07%. **Panel C** reports the correlation results between CSR disclosure (CSRD, Sscore, Escore, Gscore), CSR performance (CSP, S\_perf, E\_perf) and other main controls. Notably, there is a highly positive correlation between CSR disclosure and CSR performance, either overall measure or dimensional measures. Furthermore, a positive and significant correlations between CSR disclosure scores and social performance is much more than those of environmental performance (i.e., 48.06% vs 11.76%). It seems that CSR disclosure extremely promotes more social performance than environmental performance.

**Table 2.2: Summary statistics**

Panel A: Descriptive statistics - full sample

Variable	n	Mean	S.D.	Quantiles					Skewness	Kurtosis
				Min	0.25	Mdn	0.75	Max		
csrd	3,816	36.430	14.980	3	24.58	35.80	48.13	80.76	0.14	2.26
sscore	3,816	41.100	15.970	3.33	28.07	38.60	52.63	86.67	0.09	2.40
escore	3,816	31.760	16.750	1.55	17.84	31.78	44.19	84.50	0.19	2.31
gscore	3,816	54.910	10.970	8.930	50.00	55.36	62.50	85.71	-0.61	3.87
esgscore	3,816	39.450	13.200	7.850	28.93	38.84	50	80.58	0.13	2.30
csp	3,816	-0.180	0.680	-3.38	-0.43	-0.2	0.02	3.84	1.13	9.11
S_perf	3,816	0.010	0.380	-1.460	-0.16	-0.03	0.15	2.780	1.23	9.53
E_perf	3,816	-0.190	0.450	-2.170	-0.35	-0.15	-0.04	2.7400	0.61	9.86
ln_tasset	3,816	8.960	2.030	3.940	7.53	8.66	10.24	14.740	0.54	2.99
debt_ratio	3,816	25.580	19.300	0.000	12.76	23.45	35.97	245.550	2.67	24.68
rd	2,894	2.220	4.100	0	0	0.27	2.53	19.4	2.59	9.46

Panel B: Number of obs across countries

COUNTRY	Freq.	Percent	Cum.
Denmark	117	3.07	3.07
Finland	171	4.48	7.55
France	522	13.68	21.23
Germany	333	8.73	29.95
Italy	171	4.48	34.43
Netherlands	135	3.54	37.97
Norway	126	3.3	41.27
Spain	180	4.72	45.99
Sweden	279	7.31	53.3
Switzerland	252	6.6	59.91
United Kingdom	1,530	40.09	100
Total	3,816	100	

## Panel C: Correlation

Variables	csrd	sscore	escore	gscore	esgscore	csp	S_perf	E_perf	ln_tasset	debt_ratio	rd
Person correlation (obs=2,894)						Spearman correlation (obs=2,894)					
csrd	1	0.9134*	0.9207*	0.5229*	0.9784*	0.3275*	0.5651*	0.0433#	0.5911*	0.1459*	0.1928*
sscore	0.9112*	1	0.6877*	0.5077*	0.8434*	0.3113*	0.5306*	0.0392#	0.5146*	0.1360*	0.1343*
escore	0.9219*	0.6805*	1	0.4518*	0.9498*	0.2911*	0.5083*	0.0373#	0.5667*	0.1341*	0.2171*
gscore	0.4853*	0.4842*	0.4079*	1	0.6283*	0.2414*	0.3275*	0.0688*	0.3617*	0.0501*	0.0242
esgscore	0.9774*	0.8384*	0.9503*	0.6067*	1	0.3314*	0.5556*	0.0522*	0.5933*	0.1385*	0.1817*
csp	0.3422*	0.3092*	0.3181*	0.2361*	0.3504*	1	0.7339*	0.7770*	0.4725*	0.0413#	0.0193
S_perf	0.4806*	0.4527*	0.4291*	0.2919*	0.4772*	0.7835*	1	0.2722*	0.5342*	0.0469	0.1204*
E_perf	0.1176*	0.0908*	0.1238*	0.1140*	0.1327*	0.8575*	0.3522*	1	0.2839*	0.0502*	-0.0749*
ln_tasset	0.5901*	0.5086*	0.5713*	0.3166*	0.5917*	0.4823*	0.5086*	0.3054*	1	0.2019*	0.0995*
debt_ratio	0.1338*	0.1329*	0.1129*	0.0368#	0.1219*	0.0196	0.0196	-0.0134	0.1767*	1	-0.1109*
rd	0.0735*	0.0367#	0.0962*	-0.0212	0.0696*	0.0579*	0.1333*	-0.0232	-0.0137	-0.1769*	1

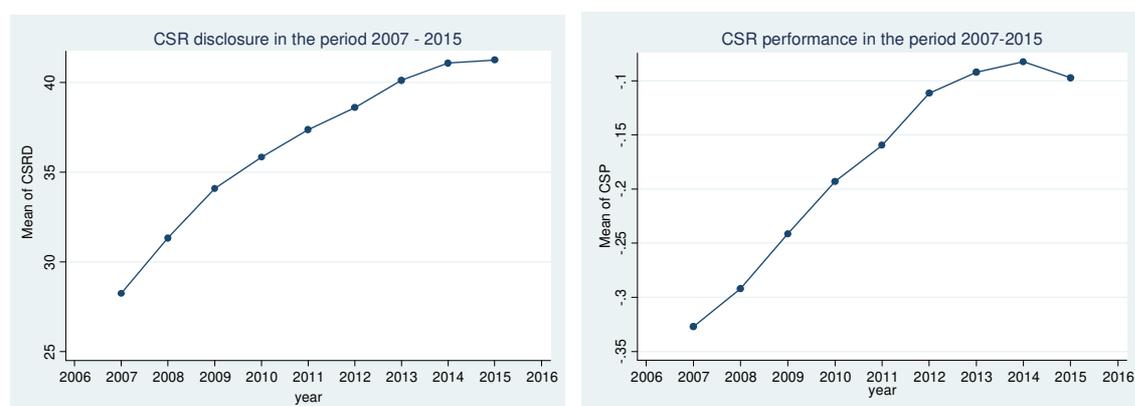
\*  $p < 0.01$ , two tailed; #  $p < 0.05$ , two tailed; !  $p < 0.1$ , two tailed

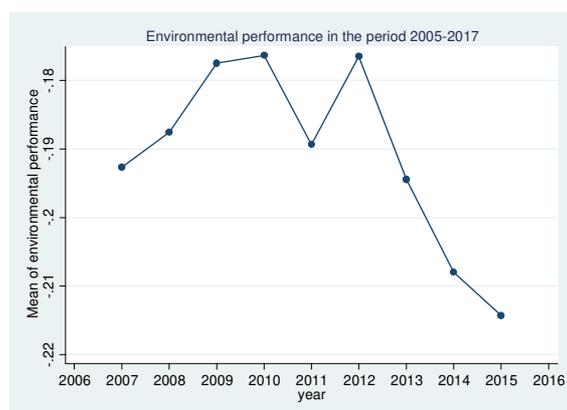
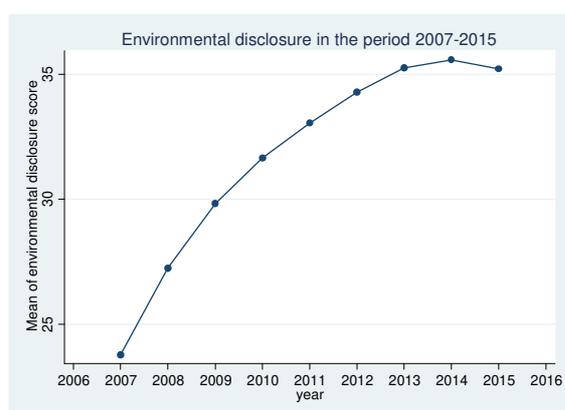
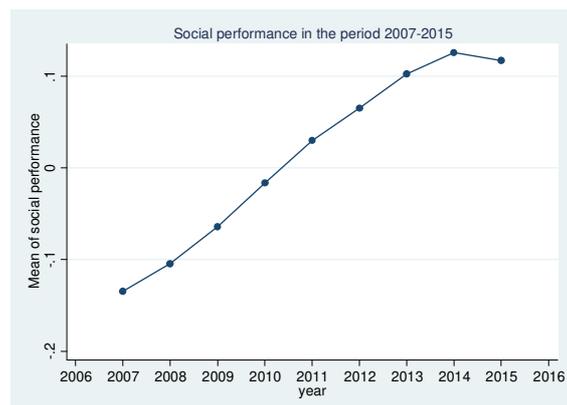
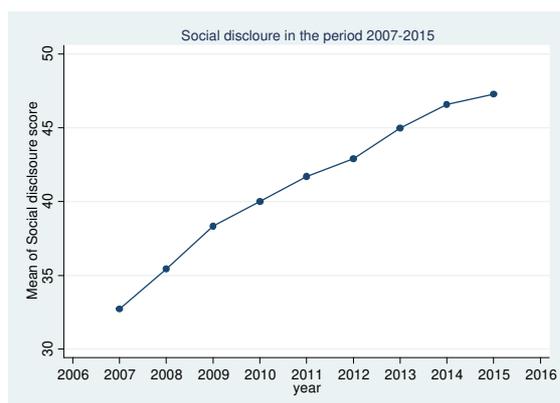
## 2.4.2 Graphing results

The relationship between CSRD and CSP can be revealed by observing the trend of CSRD and CSP (and their components) during the period between 2007 and 2015. Figure 2.3 shows that the increasing trend of CSRD and CSP was similar from 2007 to 2014 excepting for 2015 when CSRD increases lightly but CSP decreases. The light increase of CSRD in 2015 was driven by the reduction of environmental disclosure in the meanwhile social disclosure still climbed up. This is a preliminary for the potential correlation between CSRD and CSP.

The movement of CSP and social performance was quite the same over 9 years, increasing from 2007 to 2014 and moderately decreasing in 2015. However, the environmental performance was not the same, it fluctuated and dramatically reduced from 2012 to 2015. From the graphs we can see that most of social activities are the “good” actions that can make positive impacts on society (strengths) while firm’s environmental actions can bring the concerns to society. Thus, the improvement of CSR performance over time was primarily contributed by the social actions.

**Figure 2.3: CSR disclosure and CSR performance in the period 2007 – 2015**





### 2.4.3 Empirical results

Table 2.3 presents the FEM results of testing the relationship between CSR disclosure and CSR performance (Hypothesis 1 and 2) as well as the FEM estimates of Granger causality models (Hypothesis 3 and 4). First, the coefficients on CSRD in model 1 and CSP in model 2 are positive and significant. In other words, the association between the two is positive and furthermore this positive relation runs from both sides:  $CSP \rightarrow CSRD$  and  $CSRD \rightarrow CSP$ . These results are consistent with the predictions of economic based voluntary disclosure theory: superior CSR performance are more forthcoming in CSR disclosure channels, and firms with high level of CSR disclosure have many incentives to be good at performing CSR activities. Besides, the coefficients of CSP are much more than of CSRD in magnitude, suggesting a possible stronger effect of CSP to CSRD than the inversed direction.

The results of Granger causality models also show a positive relationship between CSR disclosure and CSR performance but it is not causality. Particularly, the coefficient of 1-year lagged CSRD in model 3 is positive but insignificant, suggesting that CSRD does not lead to

CSP. Similarly, the coefficients of 1-year lagged CSP in model 4 is positive but insignificant, showing that CSP does not precede CSR. Thus, there is no lead-lag relationship between CSR disclosure and CSR performance.

**Table 2.3: The relationship between CSR disclosure and CSR performance**

Independent/ Control variables	Dependent variable			
	CSP	CSR	CSP	CSR
	Model 1	Model 2	Model 3	Model 4
CSP <sub>it</sub>		3.5679*** (0.000)		
CSP <sub>it-1</sub>			0.4414*** (0.000)	0.3443 (0.368)
CSR <sub>it</sub>	0.0065*** (0.000)			
CSR <sub>it-1</sub>			0.0003 (0.682)	0.5484*** (0.000)
ln_tasset <sub>it</sub>	-0.0218 (0.265)	2.9691*** (0.000)	-0.0076 (0.722)	2.2866*** (0.000)
debt_ratio <sub>it</sub>	0.0009 (0.223)	0.0073 (0.658)	-0.00003 (0.968)	0.0044 (0.784)
rd <sub>it</sub>	-0.0097* (0.098)	0.2939** (0.033)	-0.0107* (0.087)	0.0042 (0.975)
Constant	-0.3163* (0.053)	3.3278 (0.386)	-0.0541 (0.759)	3.7371 (0.329)
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Observations	2,894	2,894	2,667	2,667
R-squared	0.0235	0.3756	0.8501	0.8366
F-test	23.37***	123.17***	66.78***	217.53***

Table 2.3 presents the results of tests regarding to the relationship between CSR and CSP. Model 1 and Model 2 are the FEM whereas Model 3 and Model 4 are the Granger causality model using the fixed time, country and industry. All variables are as defined in Appendix 1. \*\*\*, \*\*, \* denote the regression coefficients are statistically significant at the two-tailed 1 %, 5 %, and 10 % levels, respectively.

## 2.5 Additional analyses

This section presents the results of additional tests to robust the main results including the Dumitrescu and Hurlin (2012) test for Granger causality in panel data, the use of single social and environmental disclosure, and the effect of difficult time (i.e., financial crisis).

### 2.5.1 The Dumitrescu and Hurlin (2012) test for Granger causality

The drawback of Granger causality approach (Granger, 1969) is only analyzing the causal relationships between time series. It assumes there is causality for all individuals in time series. A typical Granger model is as follows:

$$y_t = \alpha + \sum_{k=1}^K \beta_k y_{t-k} + \sum_{k=1}^K \gamma_k x_{t-k} + \varepsilon_t$$

The basic idea is that if the past values of  $x$  significantly predict the current values of  $y$  even when the past values of  $y$  were included in the model, then  $x$  Granger-causes  $y$ . This direction of causality between  $x$  and  $y$  can be interchanged and we possibly observe a bi-directional causality between two variables.

In the context of panel data which includes many individuals and time periods, Dumitrescu and Hurlin (2012) (hereafter DH) developed a procedure to detect causality in panel data with the extended models as follows:

$$y_{i,t} = \alpha_i + \sum_{k=1}^K \beta_{ik} y_{i,t-k} + \sum_{k=1}^K \gamma_{ik} x_{i,t-k} + \varepsilon_{it}$$

where:  $x_{it}$  and  $y_{it}$  are observations of two stationary variables for individual  $i$  at time  $t$ . The DH test assumes there can be causality for some individuals but no need for all. Thereby, DH do not use F-test but rely on the standardized statistic ( $\bar{Z}$ ) and the approximately standardized statistic ( $\tilde{Z}$ ), which are the standard scores of  $W_i$ , the standard adjusted Wald statistics for individual  $i$  observed during  $T$  periods<sup>10</sup>. In particular, DH (2012) perform F-test to retrieve  $W_i$ , then compute the average of the  $N$  individuals Wald statistics ( $\bar{W}$ ) based on  $W_i$ . Using Monte Carlo simulations, DH (2012) show that ( $\bar{W}$ ) can authentically detect panel causality. If Z-scores are larger than the corresponding normal critical values, then  $H_0$  should be rejected and conclude that there is Granger causality. The DH (2012) test for Granger causality is run by the command **xtgcause** in Stata.

Using the DH (2012) test with **xtgcause**, we only detect the causality between CSR disclosure and CSR performance without considering any other control variables. Due to the restricted

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<sup>10</sup>  $T$  in DH's formula is the number of observations remaining in the estimations, measured by the number of periods minus the number of lags included.

period of time, the maximum number of lags<sup>11</sup> in this study is 1 lag. Our DH model must be as follows:

$$(5) \text{CSP}_{i,t} = \alpha_i + \beta_i \text{CSP}_{i,t-1} + \gamma_i \text{CSR}_{i,t-1} + \varepsilon_{it}$$

$$(6) \text{CSR}_{i,t} = \alpha_i + \beta_i \text{CSR}_{i,t-1} + \gamma_i \text{CSP}_{i,t-1} + \varepsilon_{it}$$

Table 2.4 and Table 2.5 present the DH test's results for model (5) and (6), respectively. Since P-value of Z-scores are significant, we cannot reject the null hypothesis. In other words, there are no Granger causality between CSR disclosure and CSR performance in both directions. These results are consistent with the Granger causality test incorporated with FEM in the main tests.

**Table 2.4: The Dumitrescu & Hurlin (2012) Granger non-causality test results (model 5)**

Dumitrescu & Hurlin (2012) Granger non-causality test results:

-----  
Lag order: 1

W-bar = 3.1393

Z-bar = 31.1487 (p-value = 0.0000)

Z-bar tilde = 6.4326 (p-value = 0.0000)  
-----

H0: csrd does not Granger-cause csp.

H1: csrd does Granger-cause csp for at least one panelvar (TICKER).

**Table 2.5: The Dumitrescu & Hurlin (2012) Granger non-causality test results (model 6)**

Dumitrescu & Hurlin (2012) Granger non-causality test results:

-----  
Lag order: 1

W-bar = 2.3646

Z-bar = 19.8686 (p-value = 0.0000)

Z-bar tilde = 3.0485 (p-value = 0.0023)  
-----

H0: csp does not Granger-cause csrd.

H1: csp does Granger-cause csrd for at least one panelvar (TICKER).

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<sup>11</sup> Note that xtgcause requests the maximum authorized number of lags is such that  $T > 5+3.K$ , where T is the number of observations remaining in the estimations, measured by the number of periods minus the number of lags included; K is the number of lags. In addition, xtgcause requests that the lag order be chosen such that the Akaike, Bayesian, or Hannan-Quinn information criteria be minimized. After running xtgcause with lag (AIC/BIC/HQIC), 1 lag is the optimal number of lags that we got.

### 2.5.2 Multi-dimensionality of CSR disclosure and CSR performance

CSR is a multi-dimensional concept often grouped into three main pillars: environmental, social and corporate governance (so-called ESG factors) which firms can work well in some dimensions but not in others (Waddock and Graves 1997, Cavaco and Crifo 2014). Accordingly, the disclosure of each dimension might have a different impact on CSP depending on the important informativeness of each dimension. To test this proposition, we regress the separated disclosure score of three single pillars (Escore, Gscore, Sscore) on CSP. If the estimates are statistically significant, this finding promotes the use of separated-dimensional CSR disclosure in the study.

We get the strong evidence for the positive relationship between CSRD and CSP when using dimensional measures of CSR disclosure. In Table 2.6, the coefficients on current CSP (model 2) and Sscore/Escore/Gscore (model 1) are all positive and significant, confirming the positive association between CSR disclosure and CSR performance despite of that the direction runs from CSRD or CSP. The coefficients on lag-CSP (model 4) and lag-Sscore/lag-Escore (model 3) are positively and insignificantly different from zero, suggesting there is no causal relationship between single disclosures and CSR performance. Yet, the coefficient on lag CSP (model 4) becomes negative and significant at the level of 5%, promising the lead-lag relationship between governance disclosure and CSR performance. The result suggests that firms that have poor social and environmental performance in the past is likely to produce more governance information in the future. Perhaps, firms try to hide the poor performance on social and environmental activities by disclosing governance information. The disclosure here is as a cover-up for hiding the poor performance in other activities as predictions of the socio-political theories. Finally, we also found that the CSP → CSRD has stronger power than the inversed direction, similar to the main results. Overall, using single measure of CSR in study reinforces the main results.

**Table 2.6: The relationship between Score, Escore, Gscore and CSP**

Independent/ Control variables	Dependent variable											
	CSP		Score		CSP		Score		CSP		Gscore	
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
CSP <sub>it</sub>		5.9361*** (0.000)				1.1997** (0.024)					1.478*** (0.001)	
CSP <sub>it-1</sub>			0.4394*** (0.000)	0.3140 (0.530)			0.4426*** (0.000)	0.5575 (0.207)			0.4424*** (0.000)	-0.9574** (0.013)
CSR <sub>it</sub>												
CSR <sub>it-1</sub>												
Sscore <sub>it</sub>	0.0069*** (0.000)											
Sscore <sub>it-1</sub>			0.0005 (0.386)	0.5209*** (0.000)								
Escore <sub>it</sub>					0.0017** (0.024)							
Escore <sub>it-1</sub>							-0.0001 (0.832)	0.5263*** (0.000)				
Gscore <sub>it</sub>									0.003*** (0.001)			
Gscore <sub>it-1</sub>											0.0001 (0.940)	0.458*** (0.000)
ln_tasset <sub>it</sub>	-0.0255 (0.187)	3.3354*** (0.000)	-0.0081 (0.702)	2.845*** (0.000)	-0.0069 (0.724)	2.6028*** (0.000)	-0.0066 (0.757)	1.8386*** (0.000)	-0.0015 (0.938)	-0.3426 (0.426)	-0.0068 (0.747)	-0.1008 (0.826)
debt_ratio <sub>it</sub>	0.0009 (0.189)	-0.0037 (0.856)	-0.00003 (0.973)	-0.0130 (0.527)	0.0009 (0.209)	0.0184 (0.335)	-0.00003 (0.970)	0.0218 (0.239)	0.00104 (0.145)	-0.0373** (0.017)	-0.00003 (0.972)	-0.0142 (0.381)
wrd <sub>it</sub>	-0.0112* (0.056)	0.5041*** (0.003)	-0.0109* (0.081)	0.0752 (0.663)	-0.0081 (0.171)	0.0837 (0.598)	-0.0107* (0.088)	-0.0547 (0.724)	-0.0091 (0.125)	0.3703*** (0.005)	-0.0107* (0.089)	0.1290 (0.340)
Constant	-0.3268** (0.044)	5.4274 (0.254)	-0.0583 (0.741)	-5.2861 (0.276)	-0.3032* (0.067)	1.2283 (0.781)	-0.0504 (0.775)	-1.5167 (0.728)	-0.46*** (0.007)	52.42*** (0.000)	-0.0545 (0.764)	28.88*** (0.000)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,894	2,894	2,667	2,667	2,894	2,894	2,667	2,667	2,894	2,894	2,667	2,667
R-squared	0.0127	0.2834	0.8483	0.7623	0.0066	0.324	0.8489	0.84	0.0114	0.0306	0.8496	0.7211
F-test	27.71***	102.16***	66.84***	174.07***	18.43***	75.36***	66.76***	152.88***	19***	49.38***	66.76***	94.4***

Table 2.6 presents the results of tests regarding to the relationship between CSR<sub>it</sub> and CSP, using dimensional measures of CSR disclosure. Model 1 and Model 2 are the FEM whereas Model 3 and Model 4 are the Granger causality model using the fixed time, country and industry. All variables are as defined in Appendix 1. \*\*\*, \*\*, \* denote the regression coefficients are statistically significant at the two-tailed 1 %, 5 %, and 10 % levels, respectively.

### 2.5.3 Crisis time

CSR adoption is a strategic choice by which managers aim to enhance firm value by building up stakeholder trust and cooperation. Is it better if doing research during the crisis of trust, for example, the period of economic crisis or financial crisis when the public trust into companies, capital markets, and organizations fall down circumstantially? The use of crisis period in CSR study has been highlighted in literature. For example, Lins, Servaes and Tamayo (2017) found that CSR has a positive impact on returns only during the crisis period and that this effect is not due to time-invariant unobservable firm characteristics. We thus conduct an analysis during the crisis period to capture the particular patterns in the link between CSRD and CSP. Since our sample includes European companies, we prefer to study the period of debt crisis between 2009 and 2011. According to the Organization for Economic Cooperation and Development (OECD), the Eurozone debt crisis started in 2009 when the world first realized Greece could default on its debt, and became the world's greatest threat in 2011. Studying CSR adoption during this period may reveal some interesting implementations.

The results in table 2.7 show that the positive relationship between CSRD and CSP remains during the debt crisis. Yet, there is an exceptional for the Granger causality test in comparison with the main results. The coefficients on lag-CSP (model 4) and lag-CSRD (model 3) are positively and significantly different from zero, suggesting a lead-lag relationship between CSR disclosure and CSR performance during the period of crisis. This emphasizes a positive contribution of CSR adoption in rebuilding stakeholders' trust and belief towards company in the difficult time.

**Table 2.7: The relationship between CSRD and CSP during the debt crisis between 2009 and 2011**

Independent/ Control variables	Dependent variable			
	CSP	CSRD	CSP	CSRD
	Model 1	Model 2	Model 3	Model 4
CSP <sub>it</sub>		3.1935*** (0.000)		
CSP <sub>it-1</sub>			-0.0930** (0.016)	1.4144* (0.083)
CSRD <sub>it</sub>	0.0058*** (0.000)			
CSRD <sub>it-1</sub>			0.0036** (0.029)	0.2689*** (0.000)
ln_tasset <sub>it</sub>	-0.0156 (0.748)	1.0978 (0.335)	-0.0502 (0.399)	1.4084 (0.262)
debt_ratio <sub>it</sub>	-0.0014 (0.387)	-0.0082 (0.824)	-0.00161 (0.426)	-0.0100 (0.815)
rd <sub>it</sub>	-0.0055 (0.688)	0.5351 (0.095)	0.0211 (0.216)	0.0106 (0.976)
Constant	-0.2702 (0.499)	21.5430** (0.021)	0.0475 (0.922)	13.9057 (0.177)
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Observations	1,265	1,265	1,028	1,028
R-squared	0.0413	0.2317	0.2396	0.7825
F-test	29.16***	19.79***	3.25***	2.84***

Table 2.7 presents the results of tests regarding to the relationship between CSRD and CSP during the debt crisis 2008-2011. Model 1 and Model 2 are the FEM whereas Model 3 and Model 4 are the Granger causality model using the fixed time, country and industry. All variables are as defined in Appendix 1. \*\*\*, \*\*, \* denote the regression coefficients are statistically significant at the two-tailed 1 %, 5 %, and 10 % levels, respectively.

## 2.6 Conclusion

This paper contributes to the CSR study by examining the relationship between CSR disclosure and CSR performance. A long history of CSR study shows that firms with high CSR performance tends to disclose more CSR to increase its competitive advantage, in turn CSR disclosure meet the demand of stakeholders on voluntary information to resolve the information asymmetry which can create the trust and cooperation between firms and outsiders. Their relationship therefore might be positive. However, the socio-political theories predict a potentially negative association between the two. Therefore, we questioned what the true nature of this relation is and if it runs from two sides: CSRD → CSP and/ or CSP →

CSRD. Due to the potential circle correlations, we further suspect a causality relationship between CSRD and CSP.

Using the fixed effect models incorporated with the Granger causality test with present and 1-year lagged CSP and CSRD, our results support a positive relationship between the two. Besides, we found that the CSP → CSRD is stronger than the inversed direction, showing that firms with good CSR performance tend to inform more, perhaps to get more rewards from society and polish their image, those are intangible assets that increases the firm's competency. However, there is no evidence for the lead-lag relationship between CSR disclosure and CSR performance. This finding is reinforced by the Dumitrescu and Hurlin (2012) test for Granger causality in panel data.

We got the same results when using the single disclosure on society, environment, and governance. Interestingly, we found evidence that CSR performance does Granger cause governance disclosure. The results suggest that firms with poor CSR performance in the past would produce more governance reporting in the future. This finding is consistent with the prediction of socio-political theories which suggest that poor CSR performance firms need to increase the voluntary disclosure to change the perception on their performance. The governance disclosure here aims to hide the poor performance of social and environmental activities rather than for the sustainability purposes. Besides, the lead-lag relationship between CSRD and CSP turned to be significant during the debt crisis period between 2008 and 2011. This finding emphasize the strategic feature of CSR involvement.

In short, our study provides evidences for a positive relationship between CSR disclosure and social capital. This relation runs from two sides but it is not a causality. Our findings highlight the interaction between CSR disclosure and CSR performance in research. The scholars should pay attention on both terms when doing research on one of them, avoiding the missing of important factors in the CSR study.

**Appendix 2.1: Description of variables**

<i>Variables</i>	<i>Symbol</i>	<i>Definition / Measurement</i>
<i>CSR performance</i>	CSP	The total performance of five CSR categories: Human Rights, Community, Employee, Diversity, and Environment, using environmental, social, and governance database (ESG) from Bloomberg.
<i>Environmental disclosure</i>	Escore	Environmental disclosure score over [0.1, 100]
<i>Social disclosure</i>	Sscore	Social disclosure score over [0.1,100]
<i>CSR disclosure</i>	CSRD	The average of social disclosure and environmental disclosure indices, ranging from 0.1 to 100.
<i>Firm size</i>	ln_tasset	Ln of total assets
<i>Risk</i>	Debt_ratio	Total debt / total assets
<i>R&amp;D intensity</i>	RD	R&D expenses / net sales
<i>Industry profile</i>	Industry	Dummy variables according to GICS four-digit classification
<i>Country profile</i>	Country	Dummy variables
<i>Time fixed effect</i>	Year	Dummy variables

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## Appendix 2.2: Environmental and Social Issues with Bloomberg fields

Categories	Indicators	Categories	Indicators
Community		Environment	
	1 Community Spending	58	Total GHGs/Sales
	2 SRI Assets Under Management (AUM)	59	Total GHGs/Energy
	3 Percentage SRI AUM	60	Total GHGs/Employees
	4 Business Ethics Policy	61	Total GHGs/BOE
	5 Political donations	62	Energy/Sales
	6 Political donations/Profit before tax	63	Energy/Employees
	7 PRI Signatory	64	Energy/BOE
	8 Equator principle signatory	65	Water/Sales
	9 Consumer data protection policy	66	Water/Employees
	10 Quality assurance and recall policy	67	Water/BOE
	11 Intellectual property rights protection policy	68	Total Incident Rate
	12 Donate to gender equality	69	Lost Time Incident Rate
	13 Offer products for women health and well-being	70	Fatalities/1,000 Emp.
	14 Lobby in support for gender quality	71	Greenhouse Gas Emission
	15 Sponsors financial education programs for women	72	Direct (Scope 1) Emissions
	16 Sponsors health education programs for women	73	Indirect (Scope 2) Emission
Human rights		74	Scope 3 Emissions
	17 Equal Opportunity Policy	75	Energy Use
	18 Human Rights Policy	76	Electricity Use
	19 Policy Against Child Labor	77	Renewable Energy Use
	20 UN Global Compact Signatory	78	Water Consumption
Employee		79	Water usage efficiency rate
	21 Employee Turnover	80	Waste Total Generation
	22 Workforce Accidents_	81	Hazardous Waste
	23 Lost Time from Accidents	82	Waste Recycled
	24 Total Fatalities	83	Waste Landfilled
	25 Employee Fatalities	84	Number of Spills
	26 Contractor Fatalities	85	Amount of Spills
	27 Number of employee representatives on the board	86	Gas Flaring
	28 Employee Average Age	87	Business Travel CO2 / Employee
	29 Number of employees-CSR	88	Business Travel CO2
	30 % Employees Unionized	89	NOx Emissions
	31 Employee Training Cost	90	SOx Emissions
	32 3rd Party Fatalities	91	SO2 Emissions
	33 # of Suppliers Audited	92	VOC Emissions
	34 # of Supplier Audits Conducted	93	CO Emissions
	35 # of Supplier Facilities Audited	94	Methane Emissions
	36 Health and Safety Policy	95	ODS Emissions
	37 Training Policy	96	Particulate Emissions
	38 Fair Remuneration Policy	97	% Water Recycled
	39 Employee CSR Training	98	Discharges to Water
	40 Employee Protection / Whistle Blower Policy	99	Coal Use
	41 Anti-Bribery Ethics Policy	100	Natural Gas Use
	42 Offers Flexible Work Schedule	101	Oil and Distillates Use
	43 Offers Flexible Work Location	102	Paper Consumption
	44 Offers Elder Care Support	103	Paper Recycled
	45 Investigator for sexual harassment	104	% Capacity Fossil Fuels
	46 Has formal employee development programs	105	% Capacity Nuclear
Diversity		106	% Capacity Hydroelectric
	47 Women in Management	107	% Capacity Renewables
	48 Women in the Workforce	108	% Generation Nuclear
	49 % Employees Minorities	109	% Generation Solar
	50 % Management Minorities	110	Number of Environmental Fines
	51 % Employees Disabled	111	Value of Environmental Fines
	52 Social Supply Chain Management	112	Energy Efficiency Policy
	53 Sustain Sup Guidelines Encomp ESG Area Pub Disclosed	113	Emissions Reduction Initiatives
	54 Has supplier diversity program	114	Environmental Supply Chain Management
	55 Requires gender divers candidates for management	115	Green Building Policy
	56 Board has at least one female director	116	Waste Reduction Policy
	57 Women promoted percentage of total promoted percentage	117	Sustainable Packaging
		118	Environmental Quality Management Policy
		119	New Products - Climate Change
		120	Climate Change Policy
		121	GRI Criteria Compliance
		122	Biodiversity Policy
		123	Climate Change Opportunities Discussed
		124	Risks of Climate Change Discussed
		125	Water Policy
		126	ISO 14001 Certified sites
		127	Number of sites
		128	% Sites certified
		129	Verification type
		130	Assured ESG data



# CHAPTER 3



## CHAPTER 3

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# CSR DISCLOSURE, CORPORATE GOVERNANCE QUALITY, AND FINANCIAL PERFORMANCE

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### Abstract

This paper investigates the link between corporate social responsibility disclosure (CSR) and financial performance on the aspect of corporate governance quality as a contingent factor. Indeed, corporate governance has a positive impact on the executives' incentives to disclose or perform corporate social responsibility activities because CSR can reduce the information asymmetry between managers and stakeholders, diminish agency costs and increase financial performance. In the meanwhile, both CSR and corporate governance significantly affect the financial performance. We will also examine whether the relationship between CSR and financial performance is non-linear because CSR could increase company valuation due to conflict-resolution and intangible-value creation but also decrease company performance due to the costs incurred and suspicion by stakeholders of corporate misconduct. Based on an international sample of 15,046 company-year observations, we find a U-shaped relation between CSR and financial performance, especially after controlling the effect of corporate governance quality and its interaction with CSR. Our results also confirm the moderation effect of governance quality in this relation, rather than a mediation effect.

**Keywords:** CSR, financial performance, corporate governance quality, moderation effect.

### 3.1 Introduction

During the long stand of corporate social responsibility study, many scholars have questioned the existence and direction of the relationship between corporate social responsibility (henceforth, CSR) and financial performance from theoretical and empirical perspectives. No consensus has been reached theoretically (Friedman 1970, Jensen and Meckling 1976, Freeman 1984, Aupperle et al. 1985, McGuire et al. 1988a, Suchman 1995). Empirically, results are also very diverse. In their meta-analysis, Margolis and Walsh (2003) found approximately half of 127 prior studies suggesting a positive relationship between CSR and financial performance. Boaventura et al. (2012) reported that the studies reviewed found positive (65.5 %), negative (19 %), neutral or inexistent relationships (31 %).

Here, we attempt to shed light on the relationship between CSR disclosure (henceforth, CSRD) and financial performance. There is a difference in the concept of CSR and CSRD. In particular, CSR is conceptualized as a management strategy or program by which companies incorporate social and environmental concerns in their business operations and interactions with their stakeholders (EU Commission, 2002). In the meanwhile, CSRD is defined as a process of communication between companies and specific groups of stakeholders and society, which reports the impact of economic activities on social and environmental related aspects (Mathews 1997). The provisions that CSRD often cover up are human resource aspects, products and services, involvement in community activities and environmental reporting (Bayoud and Kavanagh 2012). Thus, in nature, CSRD is a part of CSR adoption, which plays a role as an external and internal information system allowing the comprehensive assessment of all corporate resources and sustainability impacts, measuring the effectiveness of CSR programs, reporting on CSR performance (Mathews 1997).

As for CSR (see Waddock and Graves 1997, Jo and Harjoto 2011, McWilliams and Siegel 2001: for a review), the empirical results on the impact of CSR disclosure on financial performance are mixed. CSR reporting can impact positively on stakeholders' perceptions of financial performance, firm value and firm risk, and thereby improves firms' profitability, cost of capital and share price (Gray et al 1995a, 1995b; Brammer and Pavelin 2006; Branco and Rodrigues 2008; Bayoud and Kavanagh 2012). In contrast, CSRD benefits a broader community of stakeholders than the capital providers that are the primary audience for financial disclosure. It therefore has an overall negative effect on the firm because of the penalty of capital providers (Richardson and Welker 2001). These mixed findings might be

caused by issues such as model misspecification, omitted variables, limited data, and invalidity of analysis method in the presence of firm heterogeneity, measurement errors of CSRD and proxies of financial performance, or direction and mechanism of causation (Cavaco and Crifo 2014).

In this paper, we develop two explanations for the lack of consensus in previous empirical studies. First, most previous papers assume a linear relationship between CSR disclosure and financial performance. However, since CSRD can be executed not only to get the rewards of society but also to cover the misconduct behavior of managers, the implementation of CSR reporting can create both cost and benefit simultaneously. Barnett and Salomon (2012) found that the relationship between corporate social performance and financial performance is not linearly positive or negative but curvilinear. By extending these results, we expect that the relation between CSRD and financial performance could be nonlinear.

Second, this relationship could also depend on situational factors. Following the contingency approach (Pennings 1992, Zeithaml et al. 1988), managers make their decisions depending on the firm situation (Anderson and Paine 1975, Glaister and Thwaites 1993) embracing internal factors (resources and organizational structure) and external factors (macro- and micro-environments). The performance obtained depends on the ‘fit’ between managers’ decisions and the firm situations (for the concept of fit see Geiger et al. 2006, Parnell et al. 1996, Venkatraman and Camillus 1984). The question is not if, but in which situation a specific degree of CSRD is likely to enhance the firm’s financial performance.

Some recent studies have studied this link under a contingent perspective which emphasizes the indirect or mediation/moderation relations (Richardson and Welker 2001, Carroll and Shabana 2010, Cavaco and Crifo 2014, Karaye et al. 2014, Saeidi et al. 2015). Various contingency factors have been proposed in the literature, such as the stakeholder influence capacity (Karaye et al. 2014), the interactions between the multiple dimensions of CSR (Cavaco and Crifo 2014), the competitive advantage, reputation, and customer satisfaction (Saeidi et al. 2015). In our view, this contingent perspective is reasonable for CSR-related studies because CSR is a multiple-dimensional concept (basing on “triple bottom line”, namely economic, social, and environmental), which might be used towards multiple subjects (legitimacy, stakeholders’ demand, shareholders’ interest, managerial strategies) in order to get better competitive advantages and positive societal impact (Carroll 1999, McWilliams and

Siegel 2001). These are motivations for us to look for one or more managerial factors which potentially explain or affect the link between CSRD and financial performance.

Grounded on a multiple-theoretical framework including stakeholder theory, institutional theory, legitimacy theory, shareholder theory, and agency theory we will demonstrate that corporate governance (henceforth, CG) could be a very important contingency factor in the relationship between CSRD and financial performance. Indeed, corporate governance includes all fields of management from operating and control strategies to performance measurement and corporate disclosure. The concept of ‘good corporate governance’ emphasizes the transparency in the management system. Corporate governance is therefore an important internal contextual factor that is positively associated with CSRD, and CSRD can be considered as an extension of good corporate governance. The adoption of CSRD can enhance financial performance thanks to conflict-resolution and intangible-resource creation through efficient or good corporate governance. Conversely, it may also worsen the conflicts among the various stakeholders, leading to a negative impact of CSR reporting on financial performance due to the ineffective or poor corporate governance. Moreover, corporate governance itself has a significant effect on financial performance. Thus, we propose that corporate governance quality could be a contingency factor that is likely to explain or influence the strength and/or the form of the relation between CSRD and financial performance.

To empirically test the relationship between CSRD and financial performance taking into account the situational role of CG, we follow the methodology of Baron and Kenny (1986) and Frazier et al. (2004) (mediated/moderated regression analysis (MRA)) in order to distinguish between a moderation (interaction variable) or a mediation (intervention variable) effect of corporate governance. We apply this methodology on a sample of 2,092 companies across 56 countries during the period between 2007 and 2015. To our knowledge, there is no paper using a global setting with the aggregate measure of CSRD and a composite measure of corporate governance quality to examine the relationship between CSRD and corporate governance quality or between CSRD/corporate governance quality and financial performance.

We find a U-shaped correlation between CSRD score and financial performance, suggesting that companies have to disclose a significant amount of information on their CSR activities in order to obtain a positive impact on their financial performance. This nonlinear relation has

more evidence when CSRD is incorporated with corporate governance quality, suggesting that corporate governance quality plays an important role as a situational variable which affects the strength and form of the relation between CSRD and financial performance. The regression results hold for both the tests using the disclosure scores of CSR components (ESG) and a close-fisted measure of corporate governance.

Our study is the first effort using a multiple-theoretical and empirical framework to explain the relationship between CSRD and financial performance under a contingent view that corporate governance quality could have a significant influence on this relationship. It emphasizes the important role of corporate governance in operating and managerial strategies at firm-level. Our findings might provide more insights in studying CSR adoption in business. The paper is organized as follows. Section 3.2 discusses the literature review and hypothesis development. Section 3.3 describes the sample, data and methodology. Section 3.4 displays the results. Section 3.5 presents the additional robustness tests. Section 3.6 is the conclusion.

### **3.2 Literature review and hypotheses development**

In this section, we summarize the relationships between CSRD, corporate governance and financial performance in the prior studies. The empirical findings along with CSR-related theories are used to explain the nonlinear relationship between CSRD and financial performance as well as the possible contingency effect of corporate governance quality on this nexus.

#### **3.2.1 CSRD and financial performance**

In literature, there are two main contradictorily theoretical and empirical schemes regarding the link between CSRD and financial performance. On the one hand, the scholars suggest that being socially responsible can have a positive impact on financial performance due to intangible resource creation and conflict resolution. Stakeholder theory and institutional theory are the crucial theoretical bases to explain the positive relationship between CSRD and financial performance. A firm performing CSR reporting as well as considering CSR matters in business strategy is executing a managerial approach of stakeholder theory perspective (Wangombe 2013). CSRD reflects managers' concern and appropriately the intention to balance the interests of all stakeholders. Firms use CSRD to improve their relationship with stakeholders and thereby increase their reputation among the main stakeholders (Berman et al. 1999, Brammer and Pavelin 2006, Carmeli et al. 2007). The intangible assets like reputation,

customer satisfaction, supplier trust, employee loyalty, “good citizen” image toward government, community and non-business organizations that firms earned from CSR are a source of competitive advantage which helps them to get higher valuation. Moreover, satisfying the claims of stakeholders will help the firm to reduce the conflict of interests and agency costs between the firm and its stakeholders and thereby increase the financial performance (Jo and Harjoto 2011, Cavaco and Crifo 2014).

CSR reporting might be able to develop as an “institution” incorporated in the corporate structure based on the notion that companies will gain legitimacy, resources, sustainability and ensure their survival by so doing (Suchman 1995). Indeed, firms addressing the needs of powerful stakeholders, such as customers, governments, and employees, have better performance due to the reduction of political costs (litigation, regulation, taxation, and nationalization), labor frictions, and customer boy (Freeman 1984, Donaldson and Preston 1995). In short, on the basis of stakeholder theory and institutional theory, the relationship between CSR and financial performance is likely to be positive due to the intangible resource creation and the conflict resolution.

On the other hand, some scholars posit that CSR involvement has a negative impact on financial performance due to corporate misconduct and overinvestment. This scheme is supported by legitimacy theory and shareholder theory. Legitimacy theory is the most cited theory in the study of corporate social reporting (Campbell et al. 2003). It is based on the notion of a ‘social contract’, which limits the activities of an organization within the boundaries set by the society (Gray et al., 1996). Several studies have questioned whether firms use CSR reporting to fill up their legitimacy “gaps” and found that prosecution (Deegan and Rankin 1996) , media attention (Brown and Deegan 1998), public policy pressure (Deegan et al., 2000) were the main motivations for CSR reporting. Those are just “relevant public external pressures” which might affect corporate governance behaviors. Given that, organizations can construct a managerial strategy including manipulation of symbols to gain societal acceptance (Ashforth and Gibbs 1990, Suchman 1995). If they are, then a company, which does not assure its social contract, is likely to use remedial strategies to improve its “good corporate citizens” image and influence external parties. Remedial actions will not however be efficient in changing perceptions if they are not reported publicly. Indeed, an organization can employ CSRs to mitigate legitimacy threat and reduce the legitimacy gap (Chen et al. 2008; Deegan et al. 2000, 2002). Basing on such views, CSR which results from

a firm's intention to enhance its legitimacy or change social perspectives might be limited to "good" news. Reporting CSR information might be a way to cover up its misconduct (Hemingway and Maclagan 2004). CSR is therefore likely to have a negative effect on financial performance, especially when the external stakeholders are well informed about the company (less information asymmetry). In the same scheme but with another explanation, CSR can be seen as a signal of the degradation of the competitive position of the competitive with a negative effect on financial performance. Friedman (1970) stated that the only appropriate goal for managers in the modern corporation is to maximize the economic benefits for shareholders (stockholders wealth maximization). A consideration of other stakeholders induces firms to pursue multiple objectives which in turn either writes off the quality of decisions (Jensen 2001, Sundaram and Inkpen 2004) or wastes resources towards less or non--profitability (McWilliams and Siegel 2001). Richardson and Welker (2001) found social disclosure has an overall negative effect on the firm because of the penalty of capital providers. Perhaps CSR will benefit a broader community of stakeholders than the capital providers that are the primary audience for financial disclosure. Cavaco and Crifo (2014) suggested that company managers may invest in too many CSR practices with the objective to enhance their personal reputation. In this context, a high level of CSR can be an index of this overinvestment behavior. In short, under the view of legitimacy theory and shareholder theory, CSR might be negatively related to financial performance due to the executive misconduct and the over--investment.

As discussed above, either the theoretical perspectives or empirical studies provide evidences for no consensus in the relationship between CSR and financial performance. CSR adoption and reporting create benefit and cost simultaneously. McWilliam and Siegel (2001) showed that the level of CSR adoption can be evaluated by considering the marginal costs and benefits. Elsayed and Paton (2005) provide evidences that firms invest in social initiatives until reaching a break-point where the marginal cost of investment is equal to its marginal benefit. Indeed, there are a few CSR-related works proving this view (Barnett 2007, Barnett and Salomon 2006, Barnett and Salomon 2012). Cohen and Levinthal (1990) found that the relationship between corporate social performance and financial performance is not linearly positive or negative but curvilinear. Firms having low corporate social performance have higher financial performance than those with a moderate level of corporate social performance, while firms having high corporate social performance enjoyed the highest

financial performance. To the extent that practicing CSR activities can create both cost and benefit simultaneously, we posit a nonlinear association between CSR and financial performance. Our first hypothesis follows:

*Hypothesis 1: CSR is nonlinearly related to financial performance.*

### **3.2.2 CSR, corporate governance, and financial performance**

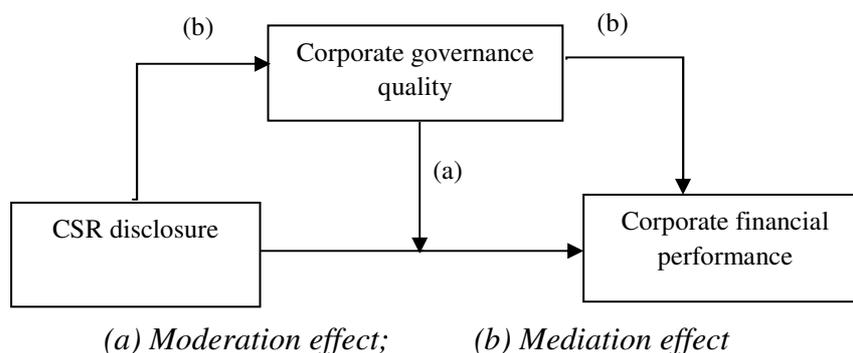
Scholars have connected the concept of corporate governance quality to the aspects of CSR. For example, Claessens (2006) posits that corporate governance is regarded with holding the balance between business and social targets or individual and communal targets. Gibson and O'Donovan (2007) confirm that “good governance is now closely linked to the concept of CSR and accountability and that one way to demonstrate CSR is to increase annual report disclosures”. Thus, the concept of good corporate governance focuses on resolving the interest conflicts between agents (boards, directors), primary actors (shareholders) and other stakeholders (creditors, government, etc.) in order to harmonize the economic and social goals as well as the individual and communal goals. This highlights a potential correlation between corporate governance, CSR adoption/ reporting, and financial performance.

The key point is the interaction between corporate governance quality and CSR. Firstly, CSR is an extension of good governance. Jamali et al. (2008) suggested that CSR reporting helps to reduce the information asymmetry between managers and investors as well as other stakeholders, comprehensive CSR reporting aids the supervision and control of managers. As a result, effective executives in turn promote CSR reporting; firms with better corporate governance quality tend to enhance CSR. Empirical studies reveal the causal effect between corporate governance quality and CSR reporting behavior. According to Haniffa and Cooke (2005), CSR is influenced by the choices, motives and values of those who are involved in formulating and taking decisions in the organizations, consideration of corporate governance mechanisms such as ownership structure and board composition. Chan et al. (2014) suggested corporate governance quality can serve as a way to increase CSR. They argued that a company with high quality of corporate governance will construct objectives and strategies with regard to the social contract (legitimacy theory) and the stakeholder power (stakeholder theory), so then better-governed firms (i.e., firms with high levels of accountability, responsibility, and transparency) should be better corporate citizens and adopting more socially and environmentally responsibility than their counterparts. This finding is consistent with the statement that corporate governance is an important internal contextual factor that is

positively associated with CSR activities and disclosure (Michelon and Parbonetti 2012, Adams 2002). This implies that managers in better-governed firms (i.e., firms with high levels of accountability, responsibility, and transparency) are more likely to adopt CSR practices/reporting in order to achieve legitimacy and strengthen the relations with their stakeholders. Inversely, managers in poorly-governed firms (i.e. firms with high levels of fraud and managerial entrenchment) can take advantage of CSR disclosure for their own benefit or not implement CSR practices efficiently. This can worsen the conflicts among the various stakeholders (Jo and Harjoto 2011), leading to a negative impact of CSR reporting on financial performance due to ineffective or poor corporate governance. In short, the quality of corporate governance influences the relationship between CSRD and financial performance. Therefore, we posit that:

*Hypothesis 2: Corporate governance quality moderates or/and mediates the link between CSRD and financial performance.*

We employed some popular moderator/mediator-related works to adduce the choice of corporate governance as a contingency variable in this study (Sharma et al. 1981, Frazier et al. 2004). According to Sharma et al. (1981), a moderator variable is one that alters the direction or strength of a relationship between two other variables while a mediator variable explains the relationship between the two other variables. First, we predetermine that the effect of corporate governance quality on CSRD-financial performance nexus is a moderation. As discussed above, well-governed companies reporting CSR information can enhance financial performance thanks to conflict-reduction and intangible-resource creation. Conversely, poorly-governed companies tend to suffer increasing information asymmetry between insiders (i.e. manager, controlling shareholder and informed traders) and outside owners or liquidity providers, leading to a higher probability of corporate misconduct and overinvestment in performing CSR disclosure, increasing the cost and worsening financial performance after all. Generally, the impact of CSRD on financial performance is altered by the quality of corporate governance. Second, we cannot reject the probability of mediation effect between them, because the fact that CSRD is an extension of good corporate governance and corporate governance is significantly related to financial performance. The link between CSRD and financial performance can thus be explained by corporate governance quality. All in all, we construct a research framework to investigate which kind of contingent variable corporate governance quality should be, moderator or/and mediator as Figure 3.1 below:

**Figure 3.1: Research conceptual framework**

### 3.3 Sample, variables and models

In this section, we provide a detailed description of the data and sample selection. In addition, we introduce the research model used to test hypotheses.

#### 3.3.1 Sample and data

All data come from Bloomberg data source. Our starting sample includes 2,988 firms over 60 countries from 2007 to 2015. For all these countries, we have ESG data on Bloomberg during this period. Due to the difference in environmental, social, and governance regulations followed by financial firms (Qiu et al. 2016), we exclude them from the sample, giving a sample of 2,623 firms. The analyses are based on all firms whose data are available for ESG score, environmental score, social score, governance score, financial performance variables, corporate governance measures, and control variables. We winsorize extreme (1st and 99th) percentiles of dependent variables (ROA, Tobin's Q, total returns) and control variables (size, leverage, R&D intensity, capital intensity, volatility) to prevent the effect of outliers. Finally, our main sample is unbalanced, containing 2,092 companies over 56 countries from 2007 to 2015. The final dataset consists of 15,046 firm-year pairs. Table 3.1 presents the sample. Panel A reports the distribution of observations across sector and Panel B across countries. Five sectors – Industrials, Materials, Consumer Discretionary, Information Technology, and Consumer Staples – occupy a large portion of the total observations (nearly 75 %). In Panel B, approximately 50 % of the sample comes from Japan, the U.S., and China.

**Table 3.1: Characteristics of the sample**

Panel A: Sample distribution across sectors				
GICS code	GICS name	Freq.	Percent	Cum.
10	Consumer Discretionary	2,183	14.51	14.51
15	Consumer Staples	1,425	9.47	23.98
20	Energy	1,104	7.34	31.32
25	Health Care	937	6.23	37.54
30	Industrials	3,682	24.47	62.02
35	Information Technology	1,634	10.86	72.88
45	Materials	2,326	15.46	88.34
50	Real Estate	409	2.72	91.05
55	Telecommunication Services	355	2.36	93.41
60	Utilities	991	6.59	100
<b>Total</b>		<b>15,046</b>	<b>100</b>	

Panel B: Sample distribution across countries							
Country	Freq.	Percent	Cum.	Country	Freq.	Percent	Cum.
Australia	649	4.31	4.31	Lithuania	10	0.07	59.16
Austria	75	0.5	4.81	Luxembourg	36	0.24	59.4
Belgium	47	0.31	5.12	Malaysia	126	0.84	60.24
Brazil	173	1.15	6.27	Mexico	15	0.1	60.33
Canada	396	2.63	8.91	Netherlands	147	0.98	61.31
Chile	51	0.34	9.24	New Zealand	54	0.36	61.67
China	2,336	15.53	24.77	Norway	99	0.66	62.33
Croatia	9	0.06	24.83	Pakistan	15	0.1	62.43
Cyprus	6	0.04	24.87	Panama	6	0.04	62.47
Czech Republic	9	0.06	24.93	Peru	14	0.09	62.56
Denmark	156	1.04	25.97	Philippines	21	0.14	62.7
Estonia	29	0.19	26.16	Poland	5	0.03	62.73
Finland	224	1.49	27.65	Portugal	55	0.37	63.1
France	469	3.12	30.77	Russia	59	0.39	63.49
Germany	389	2.59	33.35	Saudi Arabia	9	0.06	63.55
Greece	61	0.41	33.76	Singapore	145	0.96	64.52
Hong Kong	174	1.16	34.91	Slovenia	13	0.09	64.6
Hungary	16	0.11	35.02	South Africa	105	0.7	65.3
India	176	1.17	36.19	South Korea	78	0.52	65.82
Indonesia	34	0.23	36.41	Spain	151	1	66.82
Ireland	59	0.39	36.81	Sweden	245	1.63	68.45
Israel	22	0.15	36.95	Switzerland	267	1.77	70.22
Italy	132	0.88	37.83	Taiwan	328	2.18	72.4
Japan	3,171	21.08	58.91	Thailand	40	0.27	72.67
Jersey	14	0.09	59	Turkey	27	0.18	72.85
Jordan	9	0.06	59.06	United Arab Emirates	7	0.05	72.9
Kazakhstan	2	0.01	59.07	United Kingdom	1,461	9.71	82.61
Latvia	3	0.02	59.09	United States	2,617	17.39	100
				<b>Total</b>	<b>15,046</b>	<b>100</b>	

### 3.3.2 Variables

Our variables are chosen and measured on the basis of previous studies and theories on CSR, corporate governance, and financial performance to ensure their reliability and involvement in the given hypotheses. All variables are described in Appendix 3.1.

#### 3.3.2.1 Performance variables

We use two classical market-based measures of financial performance i.e., Tobin's Q and total shareholder returns to consider the impact of CSR on market valuation. We also use ROA as a dependent variable because it is a standard measure of performance used in CSR empirical studies and being an accounting-based performance measure it presents the management actions outcome (Hutchinson and Gul 2004). Moreover, it is a widely adopted measure of financial performance in the broader field of strategy. For example, (Al-Matari et al. 2014) found ROA is the first account-based indicator of performance used in firm performance studies.

#### 3.3.2.2 Corporate social responsibility disclosure

As defined, three main dimensions of CSR are Economic, Social and Environmental (Carroll 1999, McWilliams and Siegel 2001) meanwhile Bloomberg's ESG data is based on "triple bottom line on business approach" including Environmental, Social and Governance aspects to measure the sustainability and ethical impacts of an investment within a company. As the economic dimension will be measured by financial performance indicators, we use the Bloomberg global ESG disclosure score as well as its three components: Environmental disclosure score (Escore), Social disclosure score (Sscore), Governance disclosure score (Gscore) to gauge the degree of corporate social responsibility disclosure (CSR).

Basing on the annual CSR reporting, Bloomberg rates companies on the basis of their disclosure of quantitative and policy-related ESG data on three pillars. ESG data cover more than 300 CSR program indicators ranging from emissions and energy consumption to accident rates and board independence<sup>12</sup>. In the meantime, Escore, Sscore, and Gscore are computed on the basis of indicators of Environmental program, Social program and Governance program

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<sup>12</sup> According to Zuraida, Z., Houqe, M. N. & Van Zijl, T. 2018. '24. Value relevance of environmental, social and governance disclosure'. *Research Handbook of Finance and Sustainability*, 458., Bloomberg ESG disclosure scores currently cover more than 300 indicators and the number of indicators are increased every year. It relies on the GRI framework but the scoring system is not disclosed by Bloomberg as it is considered proprietary to Bloomberg.

separately. The score ranges from 0.1 for companies that disclose a minimum amount of ESG data to 100 for those that disclose every data point.

### **3.3.2.3 Corporate governance quality**

To measure corporate governance quality (CGQ), we use data on corporate governance standards provided by the Institutional Shareholder Services (ISS) to construct a summary index similar to Brown and Caylor's (2006) Gov Score. Gov Score is a summary governance measure constructed based on 51 firm-specific provisions on both internal and external governance. In particular, Brown and Caylor (2006) used the ISS Corporate Governance: Best Practices User Guide and Glossary (2003) to code each of fifty-one factors either 1 or 0 depending on whether ISS considers the firm's governance to be minimally acceptable, and then sum all of fifty-one binary variables to create a firm-specific summary measure (Governance 2003). Applying Brown and Caylor's (2006) methodology, we compute GOV score on the basis of only 30 governance factors due to the limited availability of corporate governance data points as using an international sample. GOV score is reported on a percentile basis ranging from zero to 100 per cent. A high GOV score means good corporate governance.

### **3.3.2.4 Control variables**

Consistent with the past literature, firm size, leverage, R&D intensity, capital intensity, growth opportunity, firm risk, and industry may result in some variations in CSRD and firm financial performance (Waddock and Graves 1997, Chan et al. 2014). Besides, the practices of CSRD and corporate governance mechanisms significantly vary from one country to another. We therefore include country dummies (country) to account for the differences in the national legal and regulatory framework, culture, politics, and history among different countries. Finally, we use yearly dummies (year) to check for macroeconomic and business cycle effects.

### **3.3.3 Models**

In the following section, we describe the specific models used in our analyses. To test hypothesis 1, we follow Barnett and Salomon (2012) to add the squared-value of the main predictor (CSRD) to examine a non-linear relation between CSRD and financial performance (CFP). The specific form of the model is ( $X$  representing control variables and  $\varepsilon$  residuals):

$$(1) \text{ CFP}_{it} = \beta_0 + \beta_1 \text{CSR}_{it-1} + \beta_2 \text{CSR}_{it-1}^2 + \sum_{n=3}^{\infty} \beta_n X_{it-1} + \varepsilon_{it-1}$$

To test hypothesis 2, we follow Baron and Kenny (1986) and Frazier et al. (2004) to establish the moderation/mediation regression analysis (MRA). According to Baron and Kenny (1986), three regressions should be used to see whether there is a mediation effect, as follows. The first examines the relation between CSR and financial performance to ensure that they are correlated with each other. The second examines the link between CSR and corporate governance quality variable (CGQ) to verify their association. The third examines the association between corporate governance quality and financial performance with a check for the effect of CSR to ensure that corporate governance quality is significantly associated with financial performance. If the CSR coefficients in the third are significantly less than those in the first, the mediation effect occurs. Two more equations used to test mediation effect in our analysis are therefore:

$$(2) \text{ CGQ}_{it} = \beta_0 + \beta_1 \text{CSR}_{it-1} + \sum_{n=2}^{\infty} \beta_n X_{it-1} + \varepsilon_{it-1}$$

$$(3) \text{ CFP}_{it} = \beta_0 + \beta_1 \text{CSR}_{it-1} + \beta_2 \text{CSR}_{it-1}^2 + \beta_3 \text{CGQ}_{it-1} + \sum_{n=4}^{\infty} \beta_n X_{it-1} + \varepsilon_{it-1}$$

Baron and Kenny (1986) also suggested two regressions which should be conducted to test the presence of moderation effect as follows. The first examines the association between corporate governance quality and financial performance with a check for CSR disclosure to ensure that corporate governance quality is significantly associated with financial performance (Eq. 3). The second includes the interaction between predictor and moderator (CSR×CGQ) to test the moderator effect (Eq. 4). If the coefficient of the interaction between predictor and moderator variables is statistically different from zero, the moderation effect occurs. In addition, CSR and corporate governance quality variables need to be standardized to get a revised sample mean of zero for the chosen variable. Standardizing eliminates the multicollinearity effects among the variables in the regression model (Aiken et al. 1991, Friedrich 1982). Despite this, the product term representing the interaction term (CSR×CGQ) does not need to be centered or standardized. Consequently, the moderation testing model used in our analysis is:

$$(4) \text{ CFP}_{it} = \beta_0 + \beta_1 \text{CSR}_{it-1} + \beta_2 \text{CSR}_{it-1}^2 + \beta_3 \text{CGQ}_{it-1} + \beta_4 (\text{CSR} \times \text{CGQ})_{it-1} + \beta_5 (\text{CSR}_{it-1}^2 \times \text{CGQ}_{it-1}) + \sum_{n=6}^{\infty} \beta_n X_{it-1} + \varepsilon_{it-1}$$

In regressions as above,  $CFP_{it}$  represents financial performance (ROA, Tobin's Q, total return) for firm  $i$  at year  $t$ .  $CSR_{it-1}$  and  $CSR^2_{it-1}$ ,  $CGQ_{it-1}$ ,  $(CSR \times CGQ)_{it-1}$ , and  $(CSR^2_{it-1} \times CGQ_{it-1})$  represent CSR disclosure scores, governance quality score, and the interaction terms between CSR disclosure and governance quality for firm  $i$  at year  $t-1$ , respectively.  $X_{it-1}$  are the control variables:  $\ln$  total assets (size), debt ratio (leverage), R&D ratio (RD), capital intensity (CI), growth opportunity (growth), stock volatility (risk), and industry, country, and year indicator variables.

Besides, the previous works reveal the causality effect can run from CSR to financial performance and vice versa (Waddock and Graves 1997). In addition, the current financial performance can be explained by the past financial performance (Surroca et al. 2010) and unobservable factors (i.e. heterogeneity), which also determine current realizations of CSR. To take into account these endogeneity problems we therefore apply the system GMM approach (Arellano and Bond 1991) which transforms the equations into first difference and then takes the lagged values of the endogenous variables as instruments. We include the lagged value of financial performance in the equations, and we use the two-period-lagged value of financial performance and firm-level control variables as instruments for the endogenous CSR score. To obtain consistent GMM estimators, we conduct the second-order serial correlation test and the Hansen test. The former ensures that all historical values of financial performance are exogenous to current financial performance. If they are, then the residuals in first differences (AR (1)) should be correlated, but there is no serial correlation in second differences (AR (2)). The latter proves the validity of instruments.

### 3.4 Results

This section represents the results and our analysis of summary statistics, sorting tests, and multivariate tests.

#### 3.4.1 Summary statistics

Table 3.2 presents the summary statistics for the entire sample. Panel A reports the descriptive statistics of the main variables used in analysis. First, concerning the performance measures, the dispersion of total return (RET) is high across firms (mean 0.118, standard deviation 0.430) and higher than Tobin's Q (1.307; 0.969) and ROA (0.046; 0.064). ESG disclosure has a mean score of 32.35 % where the mean of Gscore is highest, 50.6 %; next is Sscore, 30.92 %; and the last one is mean Escore at 25.03 %. The dispersion is in the reverse order. This

suggests that firms in the sample have more widespread and homogeneous governance disclosure than social and environmental disclosure. This might be caused by the difference between strict governance regulations or laws (compulsory) and social and environmental guidance or agenda (voluntary, selectively). The mean (standard deviation) of GOVscore is 33.96 % (17.44 %) and those of GOV7score is 38.95 % (18.36 %). Note that GOV7score<sup>13</sup> is another measure of governance quality proposed by Brown and Caylor (2006), which has also been used in empirical studies on the relation between corporate governance and firm valuation. It is a parsimonious index of governance quality created from seven factors which actually matter for the link between corporate governance and firm valuation. The set of corporate items used to construct GOV7score is statistically identified instead of any potentially relevance governance items thrown into the index (“kitchen-sink problem”)<sup>14</sup> like GOV score. This is consistent with the finding of Bebchuk et al. (2008), which is that only a small subset of provisions marketed by the commercial corporate governance data providers is related to firm valuation. The values of skewness and kurtosis show that the data are quite well normally distributed.

Panel B reports the pairwise correlations between financial performance (ROA, Tobin’s Q, Total return), corporate governance (GOV score and GOV7 score), CSR scores and other main controls. Four results are remarkable. First, there are positive and significant correlations between the three components of CSRD (ESGscore): Environmental (Escore), Social (Sscore) and Governance (Gscore) disclosure. Second, CSRD is negatively and significantly correlated with market financial performance measures (Tobin’s Q and total return) but positively insignificant correlated with profitability (ROA). However, we observe heterogeneity relatively to the components of the score justifying the decomposition in our subsequent analyses. Third, there is a positive and significant correlation between ESG score and

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<sup>13</sup> Following to Brown and Caylor (2006), seven governance measures are key drivers of the link between corporate governance and firm valuation: 1– board members are elected annually (no staggered board); 2– company either has no poison bill or one approved by shareholders; 3 – option re-pricing did not occur within the last three years; 4– average options granted in the past three years as a percentage of basic shares outstanding did not exceed 3%; 5 – all directors attended at least 75% of board meetings or had valid excuse for non-attendance; 6– board guidelines are in each proxy statement; 7– directors are subject to stock ownership guidelines. The first two factors are the external governance mechanism. The remaining five are the internal governance factors related to firm value.

<sup>14</sup> Schnyder (2012) proposed two main problems contributing to the serious measurement errors of both academic indicators and commercial indicators of corporate governance. 1 – the “kitchen-sink” problem, whereby any potentially relevant corporate governance items are “thrown into” the index without considering whether such items are “really matter” for firm valuation. 2 – the “tick-and-sum” problem, whereby the weighting of different items of the index are not theoretically justified.

governance quality score (16.93 % for GOV score and 36.60 % for GOV7 score). This is consistent with the view that CSR is an indicator of management skill (Alexander and Buchholz 1978, Bowman and Haire 1975) and a signal of better corporate governance (Adam and Zutchi, 2004). This correlation is mainly explained by a highly positive correlation between governance disclosure (Gscore) and corporate governance quality (54.91 % for GOV and 51.22 % for GOV7). Fourth, the three financial performance measures are positively correlated with governance quality (significant for GOV score). The correlation results support our view that CSR and corporate governance are highly related to each other and together have a strong impact on financial performance. Scholars should not separate them when studying their effects on financial performance. As some correlations are significant, we test to see whether the results might be affected by multicollinearity. No independent variable has a variance inflation factor (VIF) greater than 10, which is the generally accepted limit value for individual variables, and the highest condition index value is 25.42<sup>15</sup>. Thus, multicollinearity does not negatively affect the results reported herein.

### 3.4.2 Sorting results

To test whether CSR could have a nonlinear effect on firm financial performance, we calculate ROA, Tobin's Q, and total return mean values within the quintiles for both CSR score (ESG score) and governance quality score (CGQ). First, we sort and partition all firms based on the distribution of CSR score. Next, we divide each CSR quintile into five quintiles on the basis of governance score and then compute the mean value of financial performance separately for each governance quintile score for all CSR quintile scores. Within each CSR quintile without governance quality concern, although total return shows a monotone decreasing pattern from 0.1521 to 0.086 (figure 3.2-c), this is not the case for the two other financial performance measures where we observe a U shape (figure 3.2-a, b). The difference mean between the lowest and highest CSR quintiles is positive but insignificant for ROA and negative significant for Tobin's Q.

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<sup>15</sup> As a rule of thumb, a condition index exceeding 30 indicates strong multicollinearity (Gujarati, 2003).

**Figure 3.2: Mean values of three financial performance measures across CSRD quintiles**

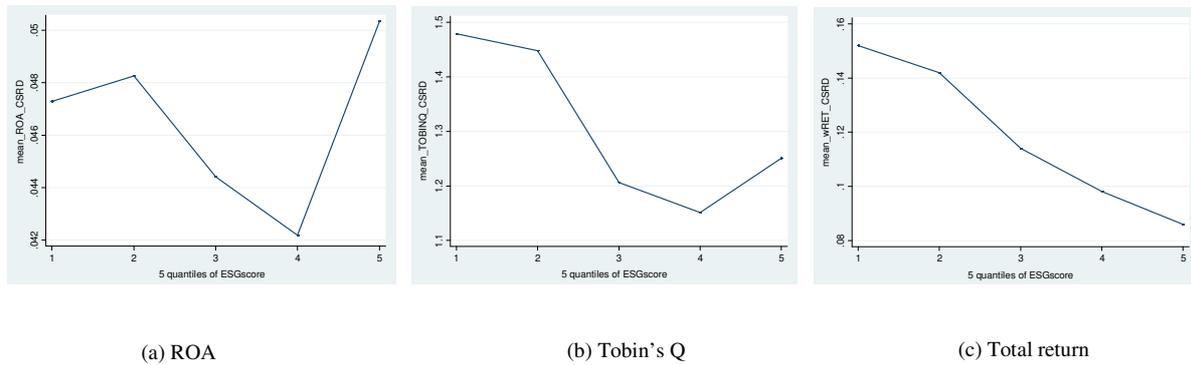


Figure 3.3 presents how financial performance measures evolve for poorly-governed (lowest quintile of CGQ index) and good-governed companies (highest quintile of CGQ index). We found that the relationship between CSRD and performance is U-shaped for poorly-governed companies (a) and inverse U-shape for good-governed companies (b). This shape suggests that for high quality governance firms it could have an optimal level of CSR disclosure.

**Figure 3.3: Financial performance across CSRD quintiles in the extreme quintiles of CGQ**

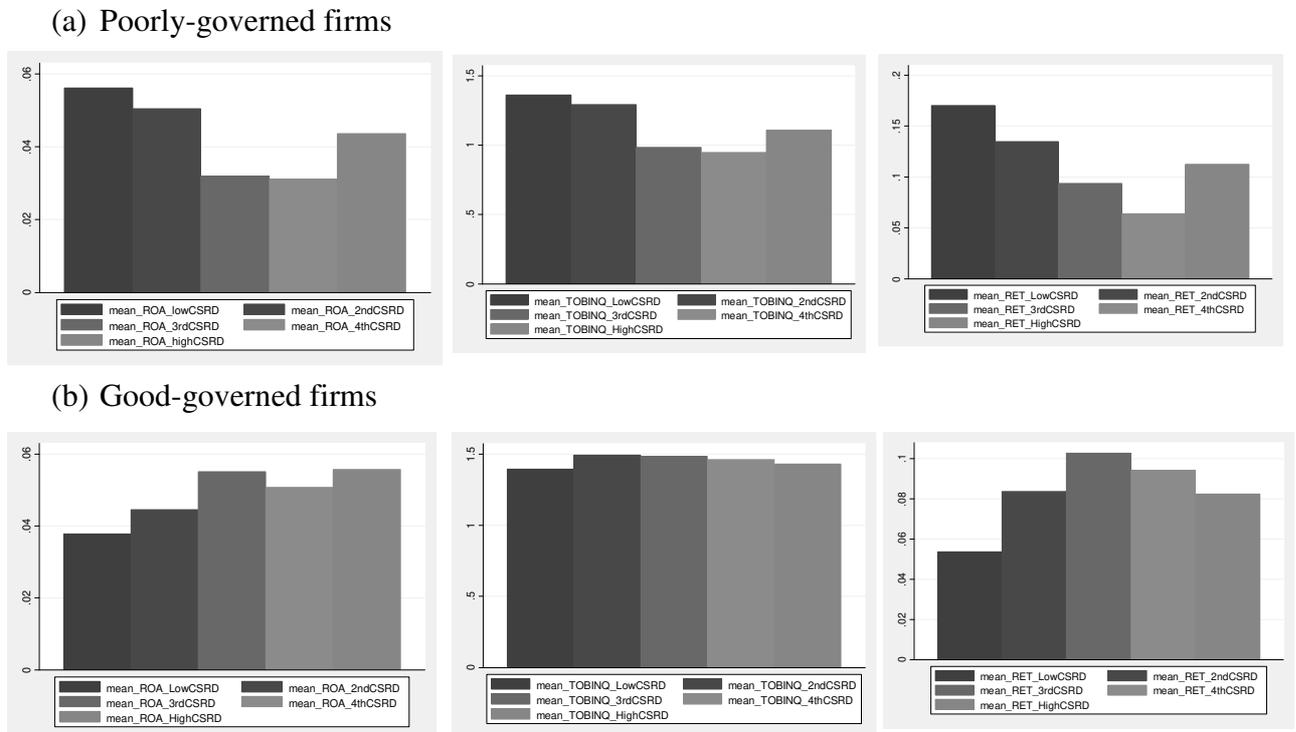


Table 3.2: Summary statistics

## Panel A: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max	Median	Skewness	Kurtosis
ROA	0.0465	0.0642	-0.2005	0.2554	0.0414	-0.1985	6.2754
TOBINQ	1.3073	0.9688	0.3216	6.1913	1.0027	2.5849	11.3935
RET	0.1185	0.4301	-0.7062	1.8593	0.0714	1.1774	5.7914
ESGscore	32.3539	13.1099	5.2632	86.7769	30.1653	0.5464	2.5684
Escore	25.0328	17.1836	0.7752	93.7984	21.7054	0.4953	2.2707
Gscore	50.6042	9.7753	8.9286	85.7143	51.7857	-0.0753	3.4880
Sscore	30.9268	15.8808	3.1250	96.8750	28.0702	0.6744	3.1728
GOV score	33.9563	17.4397	0	93.3333	30	0.4048	2.3056
GOV7 score	38.9482	18.3615	0	100	42.8571	0.3324	2.8772
Leverage	0.2477	0.1617	0	0.6659	0.2369	0.4160	2.5921
ln_asset	8.5315	1.5593	3.5342	13.5896	8.4953	0.0951	2.7529
RD	0.0222	0.0405	0	0.2125	0.0038	2.8177	11.4076
CI	0.3374	0.2269	0	0.8858	0.2934	0.6394	2.4618
Growth	0.0556	0.1864	-0.4249	0.8517	0.0413	1.0747	7.0836
Volatility	0.4009	0.2044	0.1459	1.6110	0.3614	2.8171	15.6397

All variables are as defined in Appendix 3.1. All continuous variables are winsorized at the 1\_% and 99\_% percentiles each year.

## Panel B: Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Spearman correlation coefficients (obs = 15,046)															
1. ESGscore	1.00														
2. Escore	0.94*	1.00													
3. Gscore	0.56*	0.38*	1.00												
4. Sscore	0.80*	0.64*	0.46*	1.00											
5. GOV7score	0.36*	0.28*	0.51*	0.28*	1.00										
6. GOV score	0.16*	0.04*	0.54*	0.19*	0.72*	1.00									
7. ROA	0.0086	-0.03*	0.13*	0.03*	0.01 <sup>!</sup>	0.11*	1.00								
8. TOBINQ	-0.12*	-0.17*	0.06*	-0.02*	0.004	0.17*	0.60*	1.00							
9. RET	-0.03*	-0.04*	0.01	-0.02*	0.004	0.03*	0.19*	0.31*	1.00						
10. Leverage	0.02 <sup>#</sup>	0.0021	0.03*	0.04*	0.03*	0.04*	-0.35*	-0.09*	-0.07*	1.00					
11. Ln_asset	0.44*	0.40*	0.41*	0.34*	0.30*	0.20*	-0.06*	-0.19*	-0.02	0.23*	1.00				
12. RD	0.15*	0.22*	-0.05*	0.04*	0.02 <sup>#</sup>	-0.14*	0.05*	0.07*	0.01	-0.19*	-0.02*	1.00			
13. CI	0.01	0.03*	-0.02	-0.01	-0.03*	-0.02*	-0.16*	-0.09*	-0.07*	0.27*	0.07*	-0.30*	1.00		
14. Growth	-0.08*	-0.09*	-0.01	-0.05*	-0.07*	-0.03*	0.29*	0.19*	0.09*	-0.06*	-0.01 <sup>#</sup>	-0.01 <sup>#</sup>	-0.05*	1.00	
15. Volatility	-0.24*	-0.25*	-0.22*	-0.12*	-0.23*	-0.14*	-0.11*	-0.02 <sup>#</sup>	0.02*	0.02*	-0.31*	-0.03*	0.006	0.10*	1.00

\*, #, <sup>!</sup> denote the correlation is statistically significant at the 1 %, 5 %, and 10 % levels respectively.

### 3.4.3 Empirical results

For each of our three measures of firm financial performance, the estimation results of the fixed effects model<sup>16</sup> are presented in table 3.3. In Eq. 1 only CSR variables and control variables are presented, in Eq. 3 corporate governance quality variable is introduced, finally in Eq. 4 the interaction between corporate governance quality and CSR is added.

In Eq. 2, the impact of CSR on corporate governance quality (CGQ) is positive and highly significant, suggesting a complementary association between CSR and governance quality. This result reinforces the positive association between CSR and governance quality already found in prior studies, and provides the preliminaries for a mediated/moderated association between CSR and financial performance rather than a direct relationship in this study.

Moreover, we observe in general a U-shape relationship between CSR and financial performance (positive coefficients for CSR squared and negative for CSR). The introduction of governance variables (direct and interaction) does not modify the sign of the impact of CSR variables. This U-shape relationship appears to be robust from this point of view. However, the level and the significance of the CSR coefficients are quite similar when the corporate governance variable is introduced (Eq. 3). From these results, there is no evidence to support the assumption of mediation effect.

In addition, in Eq. 4 the coefficients on the interaction terms, (CSR\*CGQ) and (CSR<sup>2</sup>\*CGQ), are significantly different from zero, suggesting the moderation effect occurs in the ROA model and Tobin's Q model. Moreover, the positive coefficients of (CSR\*CGQ) confirm a synergy between CSR and governance quality which helps to alleviate the negative effect of CSR on financial performance at the early stage. So, regarding the quality of governance as a moderator, the U-shaped relation between CSR and financial performance is significant for the ROA model and Tobin's model. In general, the static models provide strong evidence for the U-shaped relation between CSR and financial performance as well as the moderation effect of corporate governance quality on this relation.

The coefficients of firm size, capital intensity and sale growth are consistent with our predictions, while those of R&D intensity, leverage and risk are not. This indicates that firms

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<sup>16</sup> We also run the random effects model with and without industry and country effects. For the random effects specification, the Hausman test is strongly significant in all cases, suggesting that the random effects estimates are inconsistent. So, we focus to analyze the fixed effects estimates. Random effects estimates will be provided if requested.

that expands their scale of operations can become too large and suffer from diseconomies of scale, but the increase of growth opportunity can help to improve firms' financial performance. The coefficients of R&D intensity are negatively significant for ROA and Tobin's Q models but positively significant for total return models, suggesting that the benefit of R&D investment mainly comes from market evaluation rather than its operating efficiency. Similarly, the coefficients of leverage and risk are inconsistent across all regressions. The general idea is that less risky firms have a stable return model. For leverage (firm risk), the results suggest that firms having high debts (high risk) will get less profitability and Tobin's Q but more total return. For stock volatility (market risk), the results suggest that risky firms will get more profitability but less total return.

Table 3.4 presents dynamic panel data estimates using the Arellano and Bond estimator described below. The coefficients on lagged CSRD and squared-lagged CSRD are significantly negative and positive respectively for all measures of financial performance (ROA, Tobin's Q and total return). This result provides strong evidence for the U-shaped relation between CSRD and financial performance, suggesting that increasing reporting CSR information can reduce financial performance at the early stage but enhances a firm's financial performance later. This finding is consistent with the view that CSR investment is a long-term strategy which creates valuable intangible assets. The GMM's results in equation (2) strongly support the complementary association between CSRD and governance quality as presented in Table 3.3. In equation (3), the results reveal that the association between CSRD and the measures of financial performance are quite similar after controlling governance quality, statistically rejecting the role of governance quality as a mediator factor. However, the coefficients on the interaction terms,  $(CSRD * CGQ)$  and  $(CSRD^2 * CGQ)$ , are significantly different from zero for all models even though there is only a significant coefficient on  $(CSRD^2 * CGQ)$  for Tobin's models. These results confirm the conclusion obtained with the fixed effects models. They prove the U-shaped relation between CSRD and financial performance and provide more evidence that governance quality moderates the association between CSRD and financial performance. In unreported results, we also find that these conclusions do not alter if we use the industry-adjusted measures of financial performance.

**Table 3.3: The impact of CSRD and corporate governance on financial performance, using static approach with fixed-effect models**

Independent/ Control variables	CGQ		ROA		Tobin's Q			Total return		
	(Eq. 2)	(Eq. 1)	(Eq. 3)	(Eq. 4)	(Eq. 1)	(Eq. 3)	(Eq. 4)	(Eq. 1)	(Eq. 3)	(Eq. 4)
CSRD <sub>it-1</sub>	0.1153*** (0.000)	-0.00067** (0.016)	-0.00063** (0.024)	-0.021*** (0.001)	-0.0016 (0.536)	-0.0018 (0.480)	-0.134** (0.024)	-0.0092*** (0.000)	-0.0087*** (0.000)	-0.117** (0.026)
CSRD <sup>2</sup> <sub>it-1</sub>		0.0000057 (0.114)	0.0000055 (0.123)	0.0191*** (0.004)	0.000011 (0.731)	0.000012 (0.715)	0.1016* (0.099)	0.000089*** (0.002)	0.000087*** (0.003)	0.0804 (0.142)
CGQ <sub>it-1</sub>			-0.0002*** (0.002)	-0.0105*** (0.008)		0.0011* (0.063)	-0.0873** (0.016)		-0.0027*** (0.000)	-0.0597* (0.064)
(CSRQ * CGQ) <sub>it-1</sub>				0.000027** (0.029)			0.00032*** (0.005)			0.00003 (0.782)
CSRD <sup>2</sup> <sub>it-1</sub> * CGQ <sub>it-1</sub>				-0.0000004** (0.018)			-0.0000037** (0.016)			-0.0000002 (0.901)
LN_ASSET <sub>it-1</sub>	-1.9125*** (0.000)	-0.0364*** (0.000)	-0.0368*** (0.000)	-0.0366*** (0.000)	-0.2896*** (0.000)	-0.2872*** (0.000)	-0.2818*** (0.000)	-0.2252*** (0.000)	-0.2308*** (0.000)	-0.2299*** (0.000)
LEVERAGE <sub>it-1</sub>	0.3625 (0.798)	-0.0364*** (0.000)	-0.0512*** (0.000)	-0.0511*** (0.000)	-0.4464*** (0.000)	-0.4476*** (0.000)	-0.4527*** (0.000)	0.2444*** (0.000)	0.2472*** (0.000)	0.2459*** (0.000)
RD <sub>it-1</sub>	-28.34*** (0.002)	-0.1405*** (0.003)	-0.1477*** (0.002)	-0.1453*** (0.002)	-2.0173*** (0.000)	-1.98*** (0.000)	-1.93*** (0.000)	1.704*** (0.000)	1.61*** (0.000)	1.616*** (0.000)
CI <sub>it1</sub>	-0.2536 (0.883)	-0.0637*** (0.000)	-0.0634*** (0.000)	-0.0632*** (0.000)	-0.404*** (0.000)	-0.4053*** (0.000)	-0.4059*** (0.000)	0.0782 (0.267)	0.0813 (0.248)	0.0808 (0.252)
Growth <sub>it-1</sub>	-0.2309 (0.514)	0.0348*** (0.000)	0.035*** (0.000)	0.0348*** (0.000)	0.1342*** (0.000)	0.1333*** (0.000)	0.1322*** (0.000)	-0.0287 (0.154)	-0.0266 (0.185)	-0.0265 (0.187)
Risk <sub>it-1</sub>	1.6724** (0.013)	0.0073** (0.015)	0.0077*** (0.009)	0.0078*** (0.008)	0.0172 (0.529)	0.0145 (0.596)	0.0164 (0.549)	-0.0688*** (0.005)	-0.0624** (0.010)	-0.0621** (0.011)
Constant	30.202*** (0.000)	0.3871*** (0.000)	0.3923*** (0.000)	0.3563*** (0.000)	3.8074*** (0.000)	3.7783*** (0.000)	3.5195*** (0.000)	1.6501*** (0.000)	1.7187*** (0.000)	1.421*** (0.000)
Industry FE	No	No	No	No	No	No	No	No	No	No
Country FE	No	No	No	No	No	No	No	No	No	No
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,854	12,854	12,854	12,854	12,854	12,854	12,854	12,854	12,854	12,854
R-squared	0.2258	0.0176	0.0158	0.0161	0.0663	0.069	0.0701	0.0995	0.0936	0.0941
Hausman test	159.02 (p<0.0001)	700.56 (p<0.0001)	722.45 (p<0.0001)	711.28 (p<0.0001)	317.52 (p<0.0001)	295.33 (p<0.0001)	270.19 (p<0.0001)	283.85 (p<0.0001)	301.55 (p<0.0001)	297.60 (p<0.0001)

All variables are as defined in Appendix 3.1. In regressions (4), the standardized CSRD and CGQ variables have been used to minimize the multicollinearity. The *p*-values using standard errors clustered by firm and year are in parentheses. \*\*\*, \*\*, \* denote the regression coefficients are statistically significant at the two-tailed 1 %, 5 %, and 10 % levels, respectively.

**Table 3.4: The impact of CSRD and corporate governance on financial performance using Arellano and Bond estimation**

Independent/ Control variables	CGQ		ROA		Tobin's Q			Total return		
	(Eq. 2)	(Eq. 1)	(Eq. 3)	(Eq. 4)	(Eq. 1)	(Eq. 3)	(Eq. 4)	(Eq. 1)	(Eq. 3)	(Eq. 4)
Dependent lag1	0.7312*** (0.000)	0.6405*** (0.000)	0.4363*** (0.000)	0.547*** (0.000)	0.9037*** (0.000)	0.9057*** (0.000)	0.806*** (0.000)	0.0271 (0.455)	0.0221 (0.543)	0.0813** (0.027)
CSRD <sub>it-1</sub>	0.0619*** (0.009)	-0.0075** (0.049)	-0.0079** (0.043)	-0.377* (0.051)	-0.0391*** (0.001)	-0.0383*** (0.001)	-0.646* (0.058)	-0.058*** (0.000)	-0.0562*** (0.000)	-1.814*** (0.000)
CSR <sup>2</sup> <sub>it-1</sub>		0.0001* (0.052)	0.0001** (0.048)	0.360** (0.059)	0.0006*** (0.000)	0.0006*** (0.000)	0.847** (0.022)	0.0008*** (0.000)	0.0008*** (0.000)	2.001*** (0.000)
CGQ <sub>it-1</sub>			0.00047* (0.065)	-0.1853** (0.045)		-0.0063*** (0.000)	-0.1870 (0.205)		-0.0028* (0.086)	-0.7203*** (0.001)
(CSRQ * CGQ) <sub>it-1</sub>				0.0006** (0.049)			0.0008 (0.146)			0.00281*** (0.001)
CSR <sup>2</sup> <sub>it-1</sub> * CGQ <sub>it-1</sub>				-0.000008* (0.057)			-0.00001* (0.066)			-0.00004*** (0.000)
LN_ASSET <sub>it-1</sub>	0.2250 (0.039)	0.0002 (0.917)	-0.0012 (0.483)	-0.0014 (0.314)	-0.0575 (0.000)	-0.0533 (0.000)	-0.0635 (0.001)	-0.0343 (0.001)	-0.0350 (0.000)	-0.0369 (0.000)
LEVERAGE <sub>it-1</sub>	-0.1343 (0.826)	-0.0238 (0.011)	-0.0361 (0.000)	-0.0286 (0.007)	0.1342 (0.004)	0.1276 (0.128)	0.0577 (0.405)	0.1637 (0.001)	0.1646 (0.001)	0.1382 (0.003)
RD <sub>it-1</sub>	2.9773 (0.240)	0.0209 (0.487)	0.0417 (0.219)	0.0193 (0.567)	0.9785 (0.000)	0.9657 (0.000)	1.2809 (0.001)	0.4871 (0.030)	0.4694 (0.035)	0.3577 (0.108)
CI <sub>it</sub>	-0.5793 (0.173)	-0.0132 (0.030)	-0.0158 (0.019)	-0.0066 (0.291)	-0.0895 (0.020)	-0.0898 (0.019)	-0.0578 (0.159)	-0.1577 (0.000)	-0.1599 (0.000)	-0.1092 (0.002)
Growth <sub>it-1</sub>	-6.6559 (0.000)	0.0611 (0.001)	0.0390 (0.040)	0.0637 (0.004)	0.2026 (0.168)	0.2284 (0.119)	0.0641 (0.698)	0.2691 (0.019)	0.2815 (0.014)	0.3697 (0.002)
Risk <sub>it-1</sub>	-1.2137 (0.459)	-0.0350 (0.003)	-0.0525 (0.000)	-0.0432 (0.003)	-0.3516 (0.000)	-0.3255 (0.000)	-0.4024 (0.000)	-0.3836 (0.000)	-0.3706 (0.000)	-0.3691 (0.000)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,752	10,752	10,752	10,752	10,752	10,752	10,752	10,752	10,752	10,752
AR1	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000
AR2	p = 0.444	p = 0.498	p = 0.737	p = 0.557	p = 0.368	p = 0.358	p = 0.428	p = 0.450	p = 0.339	p = 0.838
Hansen test	p = 1.000	p = 0.704	p = 0.849	p = 0.853	p = 1.000	p = 0.509	p = 1.000	p = 0.962	p = 0.994	p = 0.865
Number of instruments	98	103	102	106	101	102	102	100	101	103

All variables are as defined in Appendix 3.1. In regressions (4), the standardized CSRD and CGQ variables have been used to minimize the multicollinearity. AR(1) and AR(2) are tests for first and second order autocorrelation in the different residuals. Hansen is the Hansen test for over-identifying restrictions. The *p*-values using standard errors clustered by firm and year are in parentheses. \*\*\*, \*\*, \* denote the regression coefficients are statistically significant at the two-tailed 1 %, 5 %, and 10 % levels, respectively.

### 3.5 Additional analyses and robustness checks

In this section, we present the robustness tests results, including the multi-dimensionality of CSR reporting and the reliability of the corporate governance quality measure.

#### 3.5.1 Multi-dimensionality of CSR reporting: environmental, social, and governance

CSR is a multi-dimensional concept often grouped into three main pillars: environmental, social and corporate governance (so-called ESG factors) which firms can work well in some dimensions but not in others (Waddock and Graves 1997; Cavaco and Crifo 2014). Given that, different CSR dimensions must be considered simultaneously when examining its effect on financial performance. Based on this view, the disclosure of each CSR dimension might have different impacts on financial performance. To test this argument, we run the regression on financial performance using the disclosure score of three single pillars (Escore, Gscore, Sscore) simultaneously. Table 3.5 (static approach) and Table 3.6 (dynamic approach) present our testing results.

For fixed-effect models, the coefficients on lagged environmental disclosure and its squared value are mostly significant for ROA models and Total return models. The coefficients on lagged governance disclosure and its squared value are also mostly significant at the 1 % level for Tobin's Q models. All significant coefficients have same signs: negative on lagged disclosure score and positive on squared-value of disclosure score. The coefficients on lagged social disclosure are negatively significant for Total return models while its square-value is negative and significant at the 10 % level for ROA models. These results suggest that the U-shaped relationship between CSR and financial performance is mainly contributed by the environmental dimension, and partly donated by the governance component. Furthermore, the coefficients on interaction terms between environmental disclosure and governance quality are significant for ROA models and Total return models; and interestingly after considering the interaction between social disclosure and governance quality, the coefficients on social disclosure itself and on interaction terms between social disclosure and governance quality become significant for the ROA models. These results consolidate the moderation effect of governance quality. The findings remain similar for GMM regression<sup>17</sup>.

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<sup>17</sup> GMM regressions' results are presented in Table 3.6 which can be as requested.

Thus, each CSR dimension has a differentiated stakeholder influence ability when being disclosed. This finding highlights the concern about complimentary or substitution effect within CSR components.

### **3.5.2 The effect of governance measurement: CGQ7**

As a robustness check, we use another governance score, CGQ7, to proxy for governance quality. No matter what approach we use, our main findings still hold. Moreover, we get stronger evidence for the moderation effect rather than mediation. The coefficients on CSRD in Eq. (3) and those on interaction terms in Eq. (4) are all significant in the way we expected, no exception as in Table 3.3 and 3.4. The results suggest that CGQ7 is a better proxy for corporate governance quality in moderating the link between CSRD and financial performance than the aggregate measure, CGQ. This finding emphasizes that the use of a parsimonious index (as proposed in previous works) could be more relevant in corporate governance studies.

**Table 3.5: Disclosure of CSR components and CGQ on financial performance, using a static approach with fixed-effect models**

Independent/ Control variables	CGQ		ROA		Tobin's Q		Total return			
	(Eq. 2)	(Eq. 1)	(Eq. 3)	(Eq. 4)	(Eq. 1)	(Eq. 3)	(Eq. 4)	(Eq. 1)	(Eq. 4)	
Escore <sub>it-1</sub>	0.04337*** (0.000)	-0.00057*** (0.001)	-0.00055*** (0.001)	-0.0253*** (0.000)	0.0010 (0.500)	0.0010 (0.531)	0.002 (0.967)	-0.0027* (0.055)	-0.0024* (0.083)	-0.0970** (0.025)
Escore <sup>2</sup> <sub>it-1</sub>		0.000008*** (0.001)	0.000008*** (0.002)	0.0166*** (0.002)	-0.000019 (0.411)	-0.000018 (0.435)	-0.015 (0.760)	0.000044** (0.027)	0.00004** (0.041)	0.0640 (0.139)
Sscore <sub>it-1</sub>	0.05978*** (0.000)	0.0001 (0.479)	0.00015 (0.378)	0.0088* (0.069)	0.0008 (0.618)	0.0007 (0.672)	-0.068 (0.127)	-0.0038*** (0.007)	-0.0034** (0.017)	-0.0249 (0.529)
Sscore <sup>2</sup> <sub>it-1</sub>		-0.0000038* (0.082)	-0.0000041* (0.064)	0.0001 (0.992)	-0.000018 (0.364)	-0.000017 (0.390)	0.121*** (0.007)	0.000020 (0.269)	0.000016 (0.361)	0.0312 (0.437)
Gscore <sub>it-1</sub>	0.00221 (0.855)	0.0007* (0.087)	0.00050 (0.202)	-0.0011 (0.863)	-0.0161*** (0.000)	-0.0155*** (0.000)	-0.0742 (0.224)	0.0006 (0.858)	-0.0017 (0.600)	0.0149 (0.784)
Gscore <sup>2</sup> <sub>it-1</sub>		-0.00001 (0.107)	-0.000005 (0.253)	-0.0012 (0.871)	0.00015*** (0.000)	0.000146*** (0.000)	-0.011 (0.873)	-0.00001 (0.690)	0.00001 (0.718)	-0.0261 (0.666)
CGQ <sub>it-1</sub>			-0.0002*** (0.005)	-0.0217* (0.066)		0.0007 (0.235)	-0.288*** (0.008)		-0.003*** (0.000)	0.0256 (0.791)
(Escore * CGQ) <sub>it-1</sub>				0.000031*** (0.000)			0.000018 (0.799)			0.00012* (0.050)
Escore <sup>2</sup> <sub>it-1</sub> * CGQ <sub>it-1</sub>				-0.0000003** (0.022)			0.0000002 (0.986)			-0.0000009 (0.342)
(Sscore * CGQ) <sub>it-1</sub>				-0.00002** (0.023)			0.000126 (0.111)			-0.00008 (0.279)
Sscore <sup>2</sup> <sub>it-1</sub> * CGQ <sub>it-1</sub>				-0.00000003 (0.793)			-0.000003*** (0.001)			0.000000001 (0.999)
(Gscore * CGQ) <sub>it-1</sub>				0.000038 (0.127)			0.000330 (0.145)			-0.00015 (0.444)
Gscore <sup>2</sup> <sub>it-1</sub> * CGQ <sub>it-1</sub>				-0.0000003 (0.232)			-0.0000004 (0.835)			0.0000015 (0.407)
LN_ASSET <sub>it-1</sub>	-1.9591*** (0.000)	-0.0361*** (0.000)	-0.0365*** (0.000)	-0.0356*** (0.000)	-0.2948*** (0.000)	-0.2931*** (0.000)	-0.2950*** (0.000)	-0.2247*** (0.000)	-0.2305*** (0.000)	-0.2260*** (0.000)
LEVERAGE <sub>it-1</sub>	0.3412 (0.723)	-0.0515*** (0.000)	-0.0513*** (0.000)	-0.0506*** (0.000)	-0.4457*** (0.000)	-0.4465*** (0.000)	-0.4513*** (0.000)	0.2445*** (0.000)	0.2473*** (0.000)	0.2497*** (0.000)
RD <sub>it-1</sub>	-28.788*** (0.000)	-0.1423*** (0.003)	-0.1486*** (0.002)	-0.1426*** (0.002)	-1.9985*** (0.000)	-1.9741*** (0.000)	-1.9544*** (0.000)	1.7040*** (0.000)	1.6182*** (0.000)	1.6376*** (0.000)
CI <sub>it-1</sub>	-0.2943 (0.794)	-0.0624*** (0.000)	-0.0622*** (0.000)	-0.0617*** (0.000)	-0.4085*** (0.000)	-0.4090*** (0.000)	-0.4157*** (0.000)	0.0832 (0.238)	0.0849 (0.228)	0.0845 (0.231)
Growth <sub>it-1</sub>	-0.1843 (0.566)	0.0345*** (0.000)	0.0347*** (0.000)	0.0335*** (0.000)	0.1377*** (0.000)	0.1370*** (0.000)	0.1365*** (0.000)	-0.0298 (0.138)	-0.0275 (0.171)	-0.0315 (0.118)
Risk <sub>it-1</sub>	1.666*** (0.000)	0.0072** (0.016)	0.0077** (0.010)	0.0086*** (0.004)	0.0201 (0.461)	0.0183 (0.504)	0.0253 (0.354)	-0.0687*** (0.005)	-0.0621** (0.011)	-0.0598** (0.014)
Constant	31.2851*** (0.000)	0.3612*** (0.000)	0.3699*** (0.000)	0.3258*** (0.000)	4.2039*** (0.000)	4.1699*** (0.000)	3.2351*** (0.000)	1.5761*** (0.000)	1.6956*** (0.000)	1.5481*** (0.000)
Industry FE	No	No	No	No	No	No	No	No	No	No
Country FE	No	No	No	No	No	No	No	No	No	No
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,854	12,854	12,854	12,854	12,854	12,854	12,854	12,854	12,854	12,854
R-squared	0.2157	0.0176	0.0161	0.0182	0.0656	0.0672	0.0680	0.0994	0.0937	0.0972

All variables are as defined in Appendix 3.1. In regressions (4), the standardized CSR and CGQ variables have been used to minimize the multicollinearity. The *p*-values using standard errors clustered by firm and year are in parentheses. \*\*\*, \*\*, \* denote the regression coefficients are statistically significant at the two-tailed 1 %, 5 %, and 10 % levels, respectively.

### 3.6 Conclusion

This paper extends the literature on CSR disclosure by investigating whether the relationship between CSR disclosure and financial performance is nonlinear as well as whether this relation is contingent on the presence of corporate governance quality. Since CSR disclosure can be executed not only to get the rewards of society but also to cover misconduct of managers, the effect of CSR disclosure on financial performance is mixed. Since investing in CSR activities generates operating costs whose direct objective is not profit maximization, reporting CSR information can result in negative reactions from shareholders and suspicious audiences who have suspect potential misconduct problems in business. However, since CSR performance can help firm obtain legitimacy and meet the interests of other stakeholders, reporting CSR information connects the company to the community, which is likely to create intangible values in the long run (i.e. reputation, customer satisfaction, employee loyalty, etc.). We therefore test whether the relationship between CSR disclosure and financial performance is U-shaped. Furthermore, since corporate governance quality is related to the managerial incentives and strategy to disclose CSR information which can reduce the information asymmetry between managers and a variety of stakeholders, decreasing the conflicts of interests and agency cost as a result, the effect of CSR disclosure on financial performance might be influenced by the quality of corporate management. Hence, we test whether CSR disclosure is associated with corporate governance to alter financial performance.

Our empirical results provide evidence of a U-shaped relation between CSR disclosure and financial performance, especially when the interaction between CSR disclosure and corporate governance quality is taken into account. Besides, there is strong evidence that corporate governance quality acts as moderator rather than mediator, which influences both the strength and direction of the relation between CSR disclosure and financial performance. Our findings suggest that corporate governance quality is an important contingent variable contributing to the link between CSR disclosure and financial performance. The practical implication of the results is to provide analysts and investors with a long-term view to evaluate the efficiency of CSR disclosure or CSR investment at company level as well as to provide CEOs or managers with another tool to make a decision on CSR engagement. Limitations of this study are the lack of data on CSR disclosure and governance and the contingency problems when using a broad

and multinational sample, which could affect the measurement or the correlation of/between variables.

Our research designs are based on the multiple-theoretical framework, the use of aggregate measures of CSR disclosure and corporate governance, the reliability and completeness of CSR categories and corporate governance measures. We implement the fixed effects and random effect models as well as the one-way system GMM to conduct the moderated/mediated regression analysis. We do not specially address the strength of multivariate methodology in testing the interaction, but generally our results are conclusive that corporate governance quality along with CSR disclosure is more informative.

### Appendix 3.1: Description of variables

<i>Variables</i>	<i>Symbol</i>	<i>Definition / Measurement</i>
<i>Panel A: Performance variables</i>		
<i>Return on assets</i>	ROA	Net income / End of year total assets
<i>Tobin's Q</i>	TOBINQ	Ratio of the market value of a firm to the replacement cost of the firm's assets (Market value of common equity and preferred stock + total debt) / total assets
<i>Total return</i>	1YR_RET	$(P_t - P_{t-1} + DPS_t) / P_{t-1}$ ; where P is yearly closing price and DPS is yearly dividends per share
<i>Panel B: Corporate Social Responsibility Disclosure (CSR D)</i>		
<i>Environmental disclosure</i>	Escore	Environmental disclosure score over [0.1, 100]
<i>Social disclosure</i>	Sscore	Social disclosure score over [0.1,100]
<i>Governance disclosure</i>	Gscore	Governance disclosure score over [0.1,100]
<i>Environmental, Social, and Governance disclosure</i>	ESGscore	ESG disclosure score over [0.1, 100]
<i>Panel C: Corporate Governance Quality (CGQ)</i>		
<i>GOV-score</i>	CGQ	Corporate governance quality score ranges over [0,100]
<i>GOV-7 score</i>	CGQ7	Corporate governance quality score ranges over [0,100]
<i>Panel D: Control variables</i>		
<i>Firm size</i>	SIZE	Ln of total assets
<i>Leverage</i>	LEVERAGE	Total debt / total assets
<i>R&amp;D intensity</i>	RD	R&D expenses / net sales
<i>Capital intensity</i>	CI	Net fixed assets / total assets
<i>Growth opportunity</i>	Growth	$(Revenue_t - Revenue_{t-1}) / Revenue_{t-1}$
<i>Risk</i>	Volatility	The standard deviation of the monthly stock return for the five preceding years, annualized
<i>Industry profile</i>	Industry	Dummy variables according to GICS four-digit classification
<i>Country profile</i>	Country	Dummy variables
<i>Time fixed effect</i>	Year	Dummy variables



# CHAPTER 4



## CHAPTER 4

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# CSR DISCLOSURE, FINANCIAL REPORTING QUALITY, AND INFORMATION ASYMMETRY

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### Abstract

Using firm-level data from 39 countries, we examine the relationship between CSR disclosure and firm's information asymmetry with the presence of financial reporting quality at firm level and country level. We find a negative relationship between CSR disclosure and information asymmetry (bid-ask spread). We also find that financial reporting quality positively determines the amount of CSR information in CSR reports. Using two sub-groups: low-CSRD firms and high-CSRD firms, there also is strong evidence that companies which disclose a greater amount of CSR information have a lower degree of information asymmetry. However, this negative relationship disappears in firms with high financial reporting quality. It means that financial and CSR disclosure act as substitutes to each other in reducing information asymmetry. Finally, there is weak evidence for the negative effect of institutional financial reporting quality on CSRD as well as its influence on the association between CSRD and information asymmetry. This study promotes the contingent role of financial reporting quality in CSRD-related research, enriching the understanding of CSR disclosure and its consequences.

**Keywords:** CSR disclosure, financial reporting quality, information asymmetry.

## 4.1 Introduction

Over a long time, researchers have considerably concentrated on the CSR-related issues. It has become a fundamental concept in management or control research. The consequence of CSR is a hot issue which can explain why companies should perform and disclose CSR activities to their stakeholders. More than half of CSR studies have investigated the economic benefits of CSR such as the link between CSR and firm performance, investment efficiency. Yet, it is not all. CSR, which provides information on non-financial aspects of firm such as internal governance, human resource aspects, products and services, involvement in community activities and environmental protection, etc., is likely to be a valuable source of firm information that can reduce the information asymmetry between the firm and their stakeholders. Some previous studies supported this proposition when providing evidence for the association between CSR and the cost of equity capital or the analyst forecast accuracy (i.e., Byard and Shaw 2003, Nichols and Wieland 2009, Dhaliwal et al. 2011, Dhaliwal et al. 2014, Dhaliwal et al. 2012, El Ghouli et al. 2011). In addition, financial and corporate social responsibility disclosure are two sources of information that can alleviate the adverse selection problem in capital markets by reducing information asymmetry, enabling greater liquidity and lowering the analyst forecast error or the firm's cost of capital (see Glaum et al. 2013, Hope 2003, Botosan 1997, Botosan 2006, Francis et al. 2008, Hail and Leuz 2006: , for financial reporting, and Dhaliwal et al. 2011, Dhaliwal et al. 2014, El Ghouli et al. 2011: , for CSR disclosure). However, they are two streams of literature which have developed separately. There is little academic evidence regarding whether financial reporting quality determines the level of CSR issues and how they are accompanied to each other in improving the quality of corporate information. The answers can reveal the benefit of CSR disclosure to the information transparency as well as the specific setting by which managers can make decision on disclosing CSR information or/and the level of CSR reporting.

In this study, we aim to examine the relationship between CSR and information asymmetry and the essence of the association between CSR and financial reporting quality in reducing the degree of information asymmetry. We propose that firms with good (poor) financial information quality present their high (low) commitment on the creditability of information system and get more (less) the stakeholders' trustiness on voluntary additional information, so they tend to select a higher (lower) level of CSR and receive more rewards (loss) from

issuing CSR information (“complementary hypothesis”). However, financial opacity (financial transparency) increases (decreases) the dissymmetry of information which induces firms to select higher (lower) level of CSRD as a substitutive information source for financial information; the additional CSR information in this setting often achieves a higher (lower) valuation because it is more (less) essential for investors/analysts to replace the lack of financial information (“substitutive hypothesis”). We therefore predict that the association between CSRD and financial reporting quality can be either complementary or substitutive. Given that financial reporting quality determines the level of CSRD as well as their interaction together influences the information asymmetry, we predict that the relationship between CSRD and information asymmetry is moderated by financial reporting quality. This proposition was based on the contingency perspectives which emphasize the “fit” between managers’ decision and firm situation embracing internal and external factors (Anderson and Paine 1975).

We use a sample of 2,591 listed companies that disclose Environmental, Social, Governance data during the period between 2007 and 2015 in the world. Using an aggregate measure of CSRD (esgscore), a measure of information asymmetry (bid-ask spread), several proxies of financial reporting quality at firm-level (Dechow and Dichev’s (2002) accrual quality, Jones’ (1991) abnormal accruals, Khan and Watts’ (2009) conservatism) and country-level, we employ both FEM and the Heckman two-stage regression approach which can control for the potential self-selection bias to examine the hypotheses.

The empirical results show that CSRD improves corporate information quality by reducing information asymmetry. Besides, firm-level financial reporting quality positively determines the level of reported CSR information. Furthermore, we got evidence that the negative relationship between CSRD and information asymmetry vanishes in firms that have a high financial transparency (substitutes). The effects of country-level financial reporting quality do not exist. These results are robust after controlling some potentially factors of information asymmetry, CSR disclosure, the distinct characteristics in CSR activities of “dirty” industry, and the alternative measures of information asymmetry relative to the accuracy and dispersion of analysts’ forecasts.

Our findings contribute to the financial reporting quality and CSR disclosure literature in several ways. First, our study is the first effort to examine the association between CSRD and financial transparency in the international settings. We show that financial transparency is an

important factor that promotes a high level of CSR disclosure. Second, we explore their true association in reducing information quality. Consistent with previous studies which found their substitutes in reducing the cost of equity or increasing the analyst's forecast accuracy, we show a substitutive association between CSRD and financial reporting in reducing the degree of asymmetric information. These findings highlight an alternative benefit of CSRD besides its economic contribution. Furthermore, it points out a specific setting that managers can use to decide the CSRD engagement.

The paper is organized as follow. Section 4.2 discusses the literature review and hypothesis development. Section 4.3 describes sample, data and methodology. Section 4.4 presents the empirical results. Section 4.5 analyzes the additional test. We summarize the finding and present the conclusion in Section 4.6.

## **4.2 Prior research and hypotheses development**

In this section, we summarize the literature on the effect of either financial reporting or CSR disclosure on information asymmetry in the previous studies, and then propose the potential association between these two types of disclosure in reducing the dissymmetry of information. Come along with the literature review, we construct three groups of hypotheses related to the link between three main variables: CSR disclosure, financial reporting quality, and information asymmetry.

### **4.2.1 Firm disclosure and information asymmetry**

Information problem stems from the information differences and conflicting incentives between companies and their investors. Both investors and companies rely on their own information to make rational and value investments. If the information asymmetry problem is not fully resolved, investors cannot differentiate the “good” and “bad” business ideas. They can be fooled by the companies who may run “bad” ideas to serve for their own business strategy or benefits but try to claim that their ideas are as valuable as the “good” ideas for investors. As a result, the capital market may undervalue some good ideas and overvalue some bad ideas relative to information available to companies. In this context, firm disclosure is a solution to information asymmetry problem. As usual, companies provide disclosure through regulated financial reports such as financial statements, footnotes, management discussion and analysis or other regulatory filings. Besides, some voluntary disclosures are performed such as management forecasts, analysts' presentations and conference calls, press

releases, internet sites, or sustainability reports. These media play important roles in mitigating the information asymmetry problem.

In literature, the link between firm disclosure and information asymmetry has been found through studies related to the impact of disclosure on capital market such as stock liquidity (i.e., bid-ask spread), the cost of capital, the information intermediation (i.e., analyst following, the accuracy and dispersion of analysts' forecasts, volatility of analysts' revisions). Specifically, firm disclosure can reduce information asymmetry between informed investors and uninformed investors. Consequently, for the companies having high levels of disclosure, investors feel confident in the "fair price" of any stock transactions and stock liquidity therefore increases. Some empirical papers found the negative relationship between stock liquidity measure (bid-ask spread) and firm disclosure, for example, Welker (1995) provide evidence that analysts' ratings of firm disclosure are negatively significant related to bid-ask spread; Healy and Wahlen (1999) found a parallel increase between analysts' ratings of disclosure and bid-ask spread prior to the disclosure change.

Besides, firm disclosure can reduce the cost of capital for two related thrusts. The first is that firms with high level of disclosure can increase their stock market liquidity, leading to the reduction of transaction costs or the increasing investors' demand for securities which raises stock price and reduces the cost of equity of capital. The second is that firms with high level of disclosure can reduce the information asymmetry, which helps to mitigate the adverse selection risk (estimation risk) stemming from analysts' earnings or payoff distribution forecasts, then lowering investors' demand for risk-related compensation and thus reducing the cost of equity capital. Botosan (1997) found a negative association between the self-constructed disclosure score and cost of equity capital for firms with a low analyst following but no evidence of this relation for firms with a high analyst following. The author explained the latter finding might be caused by the limitation of the own disclosure measure to the information contained in the annual report, thereby becoming a less powerful proxy for overall disclosure level when an accountable amount of information is distributed through independent financial analysts (third parties). Richardson and Welker (2001) provide more evidence for a significant negative relationship between financial disclosure and the cost of equity capital, even in the case of firms with a high financial analyst following. Francis et al. (2008) proved that firms with more voluntary disclosure have lower information asymmetry and thus lower cost of capital. However, this relation is substantially diminished or

disappears as being conventional on earning quality because voluntary disclosure is in fact a response to information quality (proxy by earning quality), so it has a second-order effect on the cost of capital after earning quality which is the first-order driver of the cost of capital. Using an international setting, Hail and Leuz (2006) extended the pricing effect of disclosure on a broad view of legal institution and securities regulation, in particular firms from countries with more extensive disclosure requirements have a lower cost of capital.

Finally, firm disclosure can reduce the cost of information acquisition for analysts and hence increase their supply. For instance, Lang and Lundholm (1996) provide evidence that the firms with more informative disclosure have more accuracy in analysts' forecasts. Using an international setting, Hope (2003) found the positive influence of disclosure quality in annual reports to analyst forecasts accuracy by using the rating of Center for International Financial Analysis and Research (CIFAR). Vanstraelen et al. (2003) show the primary role of non-financial, future-oriented information in the annual reports in improving the accuracy of earning forecast.

Briefly, information asymmetry between managers and outside investors is the cause for firm to provide disclosure through regulated financial reports and voluntary disclosures. A number of papers show that firm disclosure do has a significant impact on reducing information asymmetry problem. This association can be observed through the consequences of firm disclosure on capital market such as stock liquidity, cost of capital, and information intermediation, which are often-used proxies of information asymmetry in the empirical studies.

#### **4.2.2 CSR disclosure and information asymmetry**

To maintain a sustainable development, company's operation covers a huge range of activities not only related to financial aspects but also non-financial issues such as internal governance, human resource aspects, products and services, involvement in community activities and environmental protection, which are conceptualized as corporate social responsibility (Erkens et al. 2015). Such CSR information is typically not reported in financial statements but carries valuable implications for firm value. For instance, Starks (2009) proposes that CSR engagement can affect to firm value through its impact on firm's risk profile like supply chain, legitimation, product and technology risk. A number of scholars found that firms with superior CSR performance engage in better financial performance thanks to the higher productivity, reputation, favorable supports by employees,

customers, and partners (see Banker and Mashruwala 2007, Brown and Dacin 1997, Edmans 2011, Lev et al. 2010, Roberts and Dowling 2002). As a result, outsiders can get useful information from CSR reports. According to the Deloitte, CSR Europe, and EuroNext's survey in 2003, on the basis of 400 mainstream fund managers and financial analysts in nine European countries, there is about 80 percent of the respondents agreeing that CSR adoption is positively associated with firm's market value in long run, and approximately 50 percent of them mentioning that they use CSR information in forecasting process. Empirical studies provide evidence that CSR disclosure not only reduces information asymmetry and estimation risk but also increases the investor's preference effect stemming from their willingness to accept a lower rate of return on CSR-supporting investments, thereby it can increase the accuracy of analysts' earnings forecast (i.e., Byard and Shaw 2003, Dhaliwal et al. 2012, Nichols and Wieland 2009) and lower cost of equity capital (i.e., Dhaliwal et al. 2014, Dhaliwal et al. 2011, El Ghouli et al. 2011). For instance, Nichols and Wieland (2009) found analysts in the U.S. respond to press releases containing product-related and business expansion information. Dhaliwal et al. (2012) empirically proved that the release of stand-alone CSR reports enhances analyst forecast accuracy. This relation is stronger for stakeholder-oriented countries and for firms and countries having poor financial transparency. In the meanwhile, Dhaliwal et al. (2011) and Dhaliwal et al. (2014) attempted to examine the effect of CSR disclosure on the cost of capital through the financial benefit of CSR performance. They posit that since CSR performance significantly engages in firm's risk and value, CSR disclosure which reports firm's CSR performance is likely to mitigate the information asymmetry on these relative dimensions, and hence reducing the cost of capital. The negative association between CSR disclosure and the cost of capital was found for a sample of large U.S. firms (Dhaliwal et al. 2011) and for an international sample including 31 countries in the world (Dhaliwal et al. 2014). Being a source of corporate information, CSR disclosure is likely to reduce information asymmetry between managers and outside investors. Therefore, we posit that:

*Hypothesis 1: Ceteris paribus, CSR disclosure is negatively associated with proxies of information asymmetry.*

### **4.2.3 The association between CSR disclosure and financial reporting in affecting information asymmetry**

While we argue that CSR disclosure can reduce information asymmetry, it is interesting to examine how financial reporting quality influences the association between CSR reporting and information asymmetry. Grounded on a broad view that firms with more information disclosure have less information asymmetry, enabling greater liquidity and lowering the analyst forecast error and the cost of capital (Lang and Lundholm 1996, Healy and Wahlen 1999, Hope 2003, Botosan 1997, Botosan 2006, Francis et al. 2008, Jo and Kim 2007, Jo and Kim 2008), the issuance of CSR information can improve corporate information quality as a whole but whether it is positively (complementary) or negatively (substitutive) related to the quality of financial reporting is not clear. The extent to which CSRD is complementary to or substitutive for financial reporting quality still remains a controversial issue. This is originated from two contradictory propositions about how financial information quality determines the firm's disclosure decision. The first is that information asymmetry between firms and outsiders increases stakeholders' demand and firm's incentives to provide voluntary disclosure because the value of such additional information is greater in these settings, for example, reducing the non-diversifiable estimation risk or reducing the adverse selection component of the bid-ask spread which leads to lower cost of equity capital and higher forecasting accuracy. Accordingly, firms with poor (good) financial reporting quality will issue more (less) extensive disclosure (substitutive hypothesis). For instance, this stream of research includes Grossman and Hart (1980), Milgrom (1981), Verrecchia (1983). The second stream of research which includes Verrecchia (1990), Penno (1997), Francis et al. (2008) suggests that when the information quality of firm's financial system increases, managers tend to select higher level of voluntary disclosure because the good information quality induces investors to treat such voluntary disclosure as more credible. Accordingly, firms with poor (good) financial reporting quality will issue less (more) extensive disclosure (complementary hypothesis).

Basing on such predictions, a few studies have examined the association between CSRD and financial reporting quality but to date no consensus findings. Some scholars have revealed a substitutive effect between CSRD and financial reporting quality in reducing analyst forecast error and the cost of equity capital. For instance, Dhaliwal et al. (2014) empirically found a substitutive interaction between CSRD and financial disclosure in reducing the cost of equity

capital, which is more significant in stakeholder-oriented countries. They suggest that financial opacity increases information asymmetry between firms and investors, so investors are likely to infer the useful information from other sources of information like CSR information. This finding is analogous to D. S. Dhaliwal et al.'s (2012) proposition that CSRD provides a substitutive information source for financial disclosure in analysts' forecasting processes. D. S. Dhaliwal et al.'s (2012) also found the moderation effect of stakeholder orientation on the link between CSRD and analyst forecast accuracy. Thus, in some specific cases such as firms with high financial opacity or in countries having high stakeholder-orientation, CSR disclosure becomes more essential for investors/analysts to reduce information asymmetry because it provides the distinct information from financial information. Indeed, a CSR report which typically contains information about firm's performance in social and environmental activities such as labor, environment, customer policy, charity donation, welfare, primarily serving stakeholders, are barely disclosed in financial reports. Given the same role in communicating firm's activities but presenting distinct aspects toward different target audiences, CSRD is likely to be a substitute for financial disclosure rather than a complementary. Therefore, we suspect that the issuance of CSR information is greater when firms have a lower quality of financial information.

In rebuttal, some scholars suggest that firms with more transparent financial disclosure policies could also have better CSR disclosure. Theoretical research supporting this complementary relation is that firms with higher financial reporting quality presents its high commitment on the creditability of information system which further bring positive externality to firms' nonfinancial disclosures and finally influences the firms' decision to issue CSR reports (Chen et al. 2016, Francis et al. 2008). Besides, the positive relation between CSRD and financial reporting quality can be explained through the complementary effect of being socially responsible on CSRD and earning quality (a proxy for financial reporting quality). In particular, firms with better CSR performance are more likely to disclose their CSR information to distinguish themselves with their counterparts. In the meanwhile, those socially responsible companies typically have a larger concern for ethical issues and less engage in earning management, therefore producing higher quality financial reports. This stream has been supported by several scholars such as Choi and Pae (2011) who provide evidence for a positive correlation between firm's commitment on business ethics and earning quality, thereby promising a sustainable financial reporting quality in the long

term. They posit that firms which have high ethical commitments tend to avoid unethical actions such as abusing authority to manipulate or smooth earnings on their own interests (as Hope et al.'s (2013) opportunistic hypothesis) so that they can maintain corporate transparency in the long term. Similarly, Gao and Zhang (2015) found that firms with higher CSR are more ethical in their reporting behaviors with less accounting manipulation. So the smoothed earnings from such companies vary less than real “undistorted” earnings. As a result, such firm's smoothed earnings are more value relevant and lead to better valuation of the company. On the same line, Martínez-Ferrero et al. (2015) show that firms with high quality of financial reporting are likely to be more conservative in their accounting policies and less willing to smooth or manipulate their earnings. Consequently, they tend to be more social responsible and disclose more CSR-related information. To the extent that CSR and financial reporting quality is complementary with respect to the credibility of information environment and the benefit of being socially responsible, we suspect that firms with higher financial reporting quality select a higher level of CSR disclosure.

In brief, the association between CSR and financial reporting quality is an ongoing debate. Firms having low financial reporting quality tend to disclose more CSR information as a substitute mechanism to take over the lack of financial information. From another standpoint, firms with better financial reporting quality is more likely to disclose CSR information as a result of being socially responsible or to get extra credit of being accountability. Thus, we propose:

*Hypothesis 2a: Ceteris paribus, CSR is negatively related to financial reporting quality.*

*Hypothesis 2b: Ceteris paribus, CSR is positively related to financial reporting quality.*

As discussed above, CSR and financial reporting quality can be either substitutive or complementary to each other, this kind of interaction will be evident in their effects on the quality of information environment. In the fact that both CSR and financial reporting are significant related to information problem whereas they interact to each other in reducing asymmetric information. In other words, the relationship between CSR and information asymmetry will be contingent on the quality of financial reporting. Yet, how it affects to the link between CSR and information asymmetry depends on the nature of the association between CSR and financial reporting quality, a complementary or a substitute. Therefore, we hypothesize that:

*Hypothesis 3a: Ceteris paribus, the association between CSRD and information asymmetry is less pronounced in countries or firms that are more financial transparency (substitutive).*

*Hypothesis 3b: Ceteris paribus, the association between CSRD and information asymmetry is more pronounced in countries or firms that are more financial transparency (complementary).*

### **4.3 Data and Model specification**

In this section we provide the description of the data and sample selection, the detailed definition of the main variables in this study. Besides, we introduce the research model used to test hypotheses.

#### **4.3.1 Sample and data**

Our starting sample includes 2,988 international listed companies for the period between 2007 and 2015, obtained from 58 countries. All those firms have ESG data on Bloomberg during this period. Due to the difference in environmental, social, and governance regulations followed by financial firms (Qiu et al. 2016), we exclude them out of sample and then have a sample of 2,623 companies. The analyses are based on all firms whose data are available for ESG score, information asymmetry, fundamental variables in balance sheet and income statement to measure financial reporting quality and control variables. We winsorize extreme (1th and 99th) percentiles of dependent variable and continuous control variables to prevent the effect of outliers. Our main sample is unbalanced, containing 2,591 companies from 39 countries during the period between 2007 and 2015. Data sources are described along with the definition of all variables in Appendix 4.1.

#### **4.3.2 Variable definition**

Our variables are chosen and measured on the basic of previous studies on CSRD, financial reporting quality, and information asymmetry to ensure their reliability and involvement in the given hypotheses.

##### **4.3.2.1 Information asymmetry**

Generally, proxies variables used to measure the asymmetric information have been classified into three categories: investment opportunity set measures such as market-to-book equity ratio, market-to-book asset ratio, earning price ratio; the analyst's forecasts –based measures such as the accuracy and the dispersion of analysts' forecast; and market microstructure

measures such as bid-ask spread, traded volume. In which, the microstructure-based measures are the ‘better’ proxy for information asymmetry. Clarke and Shastri (2000) prove that they are not only associated with firm characteristics that ex ante should be correlated to information asymmetry, but also able to detect the trends in other information asymmetry measures. Prior studies such as Lin et al. (1995), Huang and Stoll (1997), Madhavan et al. (1997), Clarke and Shastri (2000) showed that the includes three components: order processing, inventory, and adverse selection components in which the adverse selection component dominates the realized spread and increases with the degree of information asymmetry. Therefore, “bid-ask spread” is our proxy to measure the information asymmetry.

*Bid-ask spread (Spread)* is the difference between the selling price and the buying price. Spread is high due to information asymmetry costs. These costs occur when one party of a transaction has more or better information than others. In the extent to which traders who have superior information often buy when the price is too low and sell when the price is too high, the uninformed traders face the risk of loss when trading with informed traders. To reduce such risk, the uninformed traders will tend to raise spreads to minimize losses. Thus, a larger spread indicates a higher degree of information asymmetry or a lower information transparency.

$$\text{Spread}_{i,t} = \left[ \left( \frac{|\text{bid}_{i,t} - \text{ask}_{i,t}|}{(\text{bid}_{i,t} + \text{ask}_{i,t})/2} \right) * 100 \right] / n$$

$\text{Spread}_{i,t}$  = Absolute value of the average difference between the highest purchase price to the lowest selling price based on the daily price of firm i for one year

Ask = Lowest selling price or price request

Bid = Highest purchase price or offer price

n = The number of trading days during the year.

#### 4.3.2.2 Corporate social responsibility disclosure (CSR)

Theoretical research addresses three main dimensions of CSR including Economics, Social and Environment (Carroll 1999, McWilliams and Siegel 2001, Whetten and Mackey 2002). In the meanwhile, Bloomberg’s ESG database is based on “triple bottom line on business approach” including Environmental, Social and Governance aspects to measure the sustainability and ethical impacts of an investment within a company. To the extent that the

concept of CSR and the definition of ESG data on Bloomberg are overlapped, we employ ESG disclosure score obtained from Bloomberg to address the degree of CSR reporting. ESG disclosure score is an overall measure of a firm's reporting on 120 indicators of CSR program ranging from emissions and energy consumption to accident rates and board independence. The score ranges from 0.1 for companies that disclose a minimum amount of ESG data to 100 for those that disclose every data point. ESG information is collected in the annual CSR reporting.

#### 4.3.2.3 Financial reporting quality (FRQ)

There is no agreed-upon meaning of the term “financial reporting quality” as well as an universally accepted measure for FRQ (Dechow et al. 2010). Previous scholars often assume that good (poor) financial reporting quality or good (poor) earnings quality parallels with the transparency (opacity) of financial statements. Transparency refers to the quality of a whole reporting process that “reveals the events, transactions, judgments and estimates underlying the financial statements and their implications” (Pownall and Schipper 1999). This view stems from the requirements of financial reporting regulated by the leading authorities such as the FASB, SEC, which are relevance, faithful representative, comparability, timeliness, verifiability, and understandability. Due to the broad concept of FRQ, a variety of approaches has been developed to measure the quality of financial reporting. Some researchers use self-constructed scoring models (i.e., Botosan 1997, Vanstraelen et al. 2003). Some use the analysts' assessments such as the FAF assessments of US firms' financial reporting and the CIFAR assessments for international settings (i.e., Glaum et al., 2013; Hope, 2003; Welker, 1995). However, the self-developed scoring models has been remarked to be less transparency (Healy and Palepu, 2001). Other researchers use diverse measures of financial reporting quality such as accrual quality, earning variability, absolute abnormal accruals, squared abnormal accruals; accounting conservatism, the probability of misstatement, the probability of material frailty in internal control, audit fee; the readability of financial statements or FOG index (i.e., Francis et al. 2005, Francis et al. 2008, Choi and Pae 2011, Hope et al. 2013, Dhaliwal et al. 2012, Dhaliwal et al. 2014). In this study, we follow prior studies to measure financial reporting quality at both firm-level and country-level because our sample is an international setting and the quality of institutional environment significantly affect the corporate transparency (i.e., Ariff et al. 2013, Bushman et al. 2004, Francis et al. 2005)

*Financial reporting quality at firm – level (FFRQ)* To cover all sides of FRQ and generalize the results, we use multiple measures to proxy for FFRQ. In particular, our measures cover three aspects of FFRQ that previous scholars often used in literature. The first one is the mapping of accounting accruals into past, current, and future operating cash flow, or the quality of accruals. The second is the degree of earning manipulation using accruals or the managerial discretion over accruals. The final dimension is the conditional conservatism which concerns the more timely recognition of economic losses than of the economic gains into accounting earning.

#### *Accruals quality (AQ)*

The principle of accruals suggests that revenues and expenses are recognized when they are made or occurred no matter that cash is received or paid out. It therefore creates the difference between accounting earnings and operating cash flows. If the accruals quality is high, such differences are shrunk, accounting accruals can either reflect past and current cash flows or foresee the future cash flows accurately. Any errors in measuring accruals can distort the mapping of accruals and cash flows. Basing on this premise, Dechow and Dichev (2002) developed a model to estimate expected accruals and interpret the deviation from this expected value as the measurement error in accruals, which is used as an inverse measure of earnings quality. In this study, we use the model in P. M. Dechow and Dichev (2002) being modified by McNichols (2002) and Francis et al. (2005). The following regressions are estimated for each industry-year to prevent the influence of industry characteristics on measurement, where industry is defined as the first two digits of GICS code, with at least 10 firms in year t:

$$\frac{TCA_{it}}{AvgA_{it}} = \beta_0 + \beta_1 \frac{CFO_{i,t-1}}{AvgA_{it}} + \beta_2 \frac{CFO_{i,t}}{AvgA_{it}} + \beta_3 \frac{CFO_{i,t+1}}{AvgA_{it}} + \beta_4 \frac{\Delta REV_{it}}{AvgA_{it}} + \beta_5 \frac{PPE_{it}}{AvgA_{it}} + V_{it} \quad (1)$$

Where:

$AvgA_{it}$  is firm i's average total assets in year t and t-1;

$TCA_{it}$  is firm i's total current accruals or working capital accruals in year t, measured as  $\Delta CA_{i,t} - \Delta CL_{i,t} - \Delta CASH_{i,t} + \Delta STD_{i,t}$ ;

$\Delta CA_{i,t}$  is firm i's change in current assets between year t-1 and year t;

$\Delta CL_{i,t}$  is firm i's change in current liability between year t-1 and year t;

$\Delta CASH_{i,t}$  is firm i's change in cash between year t-1 and year t;

$\Delta STD_{i,t}$  is firm  $i$ 's change in the current portion of long-term debt comprised in total current liabilities between year  $t-1$  and year  $t$ ;

$CFO_{it}$  is firm  $i$ 's cash flow from operations in year  $t$ , computed as  $NI_{it} - TA_{it}$ ;  $NI_{it}$  is firm  $i$ 's net income in year  $t$ ;  $TA_{it}$  is firm  $i$ 's total accruals in year  $t$ , measured as  $TCA_{it} - \Delta STD_{i,t}$ ;

$\Delta REV_{i,t}$  is firm  $i$ 's change in revenues between year  $t$  and  $t-1$ ;

$PPE_{it}$  is firm  $i$ 's gross value of property, plant, and equipment in year  $t$ .

We use the absolute value of residuals from Eq.(1),  $v_{it}$ , as a proxy for accruals quality. A higher value of residuals represents a lower accruals quality, then lower FFRQ. Thus, we multiply it by  $-1$  to get a positive indicator of FFRQ, namely AQ.

### *Earning management (EM)*

In accounting, the discretion in accounting policy choices and estimates allows managers to manipulate financial indicators for their reporting objectives when communicating with outsiders. Therefore, the greater earning management a company produces, the lower quality is company's financial reporting. Earnings management is mostly a function of accruals manipulation, so we concentrate on accruals management rather than real earning or cash flow management. As an oft-used measure of earnings management, we use firm's abnormal accruals computed basing on the Jones (1991)'s approach modified by Kothari et al. (2005). This measure captures firm's accruals deviations from the normal accruals level determined by the changes in firm fundamentals in operating activities, revenues, and property, plant, and equipment (PPE). Such abnormal accruals reflect the degree of earning management. To determine abnormal accruals, we estimate the following regression for each industry-year with at least 10 firms in year  $t$ :

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_0 \frac{1}{A_{i,t-1}} + \beta_1 \frac{(\Delta REV_{i,t} - \Delta AR_{i,t})}{A_{i,t-1}} + \beta_2 \frac{PPE_{i,t}}{A_{i,t-1}} + \beta_4 ROA_{i,t} + \varepsilon_{i,t} \quad (2)$$

where:  $\Delta REV_{i,t}$  is the annual changes in revenues to explain the change in working capital or current accruals;  $\Delta AR_{i,t}$  is the change in accounts receivable;  $PPE_{i,t}$  is the gross value of property, plant, and equipment for firm  $i$  in year  $t$  to explain noncurrent accruals which are mostly depreciated; and  $ROA_{i,t}$  is net income scaled by average total assets for firm  $i$  in year  $t$ , which is additional included to control for firm performance which determines the abnormal levels of accruals (Kothari et al., 2005).

The residuals  $\varepsilon_{i,t}$  from Eq.(3) are treated as abnormal accruals. We use the absolute value of abnormal accruals as a second proxy for earning management. A higher value of abnormal accruals interprets a higher earning manipulation, then a lower earning quality or financial reporting quality. Therefore, we multiply the absolute value of abnormal accruals by -1 so that higher values of EM indicate higher FFRQ, namely EM.

#### *Accounting conservatism (AC)*

Conservatism principle requires to recognize economic losses in earning as soon as possible but to only recognize economic gains in earning when they are assured of being received. This creates the asymmetric timelines of earnings with regards to good news (gains) versus bad news (losses). Although accounting conservatism understates earnings, it can reduce information asymmetry as providing information that managers might not report to outsiders. Furthermore, managerial incentives have been expected to overstate rather than understate earnings on average (Shivakumar 2000, Barth et al. 1999). Therefore, a high degree of conservatism is supposed to contribute to the quality of financial information.

Our conservatism measure is C-score developed by Khan and Watts (2009). C-score is a firm-year measure based on the Basu (1997)'s model of asymmetric timeliness which relies on the idea that conservatism accounting reflects bad news more quickly than good news. This model is as follow:

$$X_i = (\alpha_0 + \alpha_1 Size_i + \alpha_2 MTB_i + \alpha_3 LEV_i) + D_i (\gamma_0 + \gamma_1 Size_i + \gamma_2 MTB_i + \gamma_3 LEV_i) + R_i (\beta_0 + \beta_1 Size_i + \beta_2 MTB_i + \beta_3 LEV_i) + D_i R_i (\delta_0 + \delta_1 Size_i + \delta_2 MTB_i + \delta_3 LEV_i) + \varepsilon_i \quad (3)$$

where X is the net income scaled by the lagged market value of equity; R is the annual stock return by cumulating monthly return in 12 months; D is a dummy variable which equals 1 if R is negative and 0 otherwise; Size is the natural logarithm of the market value of equity; MTB is the market-to-book ratio; LEV is the long-term and short-term debt deflated by the market value of equity.

C-score equals to  $(\delta_0 + \delta_1 Size_i + \delta_2 MTB_i + \delta_3 LEV_i)$  which is computed by the coefficient estimates from equation (3). A high C-score reflects the increasing timeliness of bad news over good news or a high degree of conservatism.

Finally, we construct a composite variable of three above conventional measures of firm-level financial reporting quality, FFRQ. It equals to the average of EM, AQ, Cscore for each

firm-year. We expect that FFRQ is increasing in financial transparency because its components are all positive proxies of financial reporting quality.

#### *Country-level financial reporting quality (CFRQ)*

In the previous studies, country-level financial reporting quality is often measured as the country average of firm-level ranking scores for disclosure ratings in 1991, 1993, and 1995, provided by the Center for International Financial Analysis and Research (CIFAR) (i.e., Hope, 2003; Dhaliwal et al., 2012, 2014). Yet, in our opinion, these indexes are very old to reflect the current state of institutional financial disclosure quality. Besides, they are not available for all countries in our sample. So we decide to use another measure of CFRQ which are the average of country-mean of EM, AQ, Cscore (three proxies of FFRQ). This composite measure is used to proxy for country-level financial reporting quality in our study.

#### 4.3.2.4 Control variables

Our interest is the information environment of a firm represented by the information asymmetry, so we firstly control some factors that potential affect the degree of information asymmetry: firm size, firm age, debt ratio (leverage), intangible assets, and a regulated industry dummy variable. The information production (e.g., press coverage, analyst following, etc.) tend to increase with the size and the age of the firms, so these firms should have a lower degree of information asymmetry. As a result, we control firm size measured as the natural logarithm of net sales ( $SIZE_{sale}$ ) and firm age computed as the natural logarithm of the number of years in business ( $AGE$ ). The degree of information asymmetry increases with the fractions of a firm's assets that are intangible. Therefore, we consider the intangible assets variable measured as the ratio of property, plant, and equipment to total assets or capital intensity ( $CI$ ). Besides, we consider additional factors that are likely to determine the firm's decision to disclose CSR information including firm risk ( $RISK$ ), growth opportunity ( $GROWTH$ ), R&D expenditure ( $RD$ ), corporate governance quality ( $CGQ$ ), CSR performance ( $CSP$ ), profitability ( $ROA$ ), analyst coverage ( $ANALYST$ ), and leading position in industry ( $MKTS$ ) in the CSR disclosure regression. This study is conveyed on an international sample across different types of industry, so it is important to control the idiosyncratic characteristics of country and industry where each firm is located. Therefore, we include country, industry and year dummies. All variables and data sources are described detail in Appendix 4.1.

### 4.3.3 Model specification

We firstly examine the effect of CSR disclosure on the degree of information asymmetry (Hypothesis 1) by using OLS regressions with country, industry and year fixed effects. In doing so, we can control the distinct in characteristics and CSR strategy or disclosure policy among different sectors. We conduct a Hausman test to examine whether the random effect estimators are statistically different from the fixed effect ones. Based on this test, we decide to apply a fixed effects model controlled for time effects as follow:

$$\begin{aligned} \text{Asymmetry}_{i,t} = & \delta_0 + \delta_1 \text{ESGscore}_{i,t} + \delta_2 \text{SIZE\_sale}_{i,t} + \delta_3 \text{Age}_{i,t} + \delta_4 \text{LEV}_{i,t} + \delta_5 \text{CI}_{i,t} \\ & + \delta_6 \text{IFRS/GAAP}_{i,t} + \eta_j + \varepsilon_{i,t} \end{aligned} \quad (4)$$

where: the subscripts  $i$  and  $t$  denote firm  $i$  and year  $t$ , respectively;  $\eta_j$  denotes the country, industry, and year fixed effect. In model (4), CSR is a continuous variable, proxy by ESGscore. The definition of all variables are presented in Appendix. Hypothesis 1 is considered through the coefficients of CSR ( $\delta_1$ ). The negative coefficients will support the inversely association between CSR and the proxies of asymmetric information, indicating that CSR reporting improves the information environment of a firm.

We follow Dhaliwal et al. (2014) using the Heckman (1977)'s two-stage approach to examine Hypothesis 2 and 3 due to the potential self-selection bias in the choice of reporting CSR information. A number of recent studies show that disclosing CSR information depends on some situational factors such as the marginal cost and benefit of CSR disclosure (McWilliams and Siegel 2001, Elsayed and Paton 2005), the stakeholder orientation (Van der Laan Smith et al. 2005, Ariff et al. 2013, Dhaliwal et al. 2012, Dhaliwal et al. 2014), and the quality of financial reporting as discussed above. CSR therefore should be a self-selection process. To solve this problem, we use the Heckman's (1977) two-stage regression estimation. In the first stage, we examine the determinants of CSR reporting with financial reporting quality as one of main contingent variables, thereby we can infer the nature of the relation between CSR and FRQ. In the second stage, we examine the moderation effect of financial reporting quality on the link between CSR and information asymmetry by regressing information asymmetry on CSR with financial reporting quality, control variables and the inverse Mills ratio derived from the first-stage regression (Heckman, 1977). The inverse Mills ratio is presumed to proxy for the effect of self-selection bias, then it serves as a correction in the information asymmetry regression. In doing so, the second-stage

regression can examine the association between CSRD and information asymmetry without the presence of endogeneity resulted from the self-selection. We run OLS regression for both models with country, industry, and year fixed effect. In doing so, we define CSRD variable as an indicator that equals 1 if the concerned firm's ESG disclosure score is in the 4th (medium-high) and 5th (high) quintiles of ESG disclosure score sample, and 0 otherwise. Accordingly, we can estimate the likelihood that firms disclose high level of CSR information and vice versa before going to the main effects.

In the first stage, we follow Dhaliwal et al. (2014) to develop our model as follow:

$$\begin{aligned} \text{Prob}(\text{CSRDi}_{i,t}=1) = & \phi(\beta_0 + \beta_1\text{FRQ}_{i,t-1} + \beta_2\text{CGQ}_{i,t-1} + \beta_3\text{ANALYST}_{i,t-1} + \beta_4\text{CSP}_{i,t-1} \\ & + \beta_5\text{ROA}_{i,t-1} + \beta_6\text{SIZE\_asset}_{i,t-1} + \beta_7\text{LEV}_{i,t-1} + \beta_8\text{RISK}_{i,t-1} + \beta_9\text{GROWTH}_{i,t-1} \\ & + \beta_{10}\text{RD}_{i,t-1} + \beta_{11}\text{CI}_{i,t-1} + \beta_{12}\text{AGE}_{i,t-1} + \beta_{13}\text{MKTS}_{i,t-1} + \beta_{14}\text{IFRS/US GAAP}_{i,t-1} + \eta_i) \\ & + \varepsilon_{i,t} \end{aligned} \quad (5)$$

where:  $\phi$  is the cumulative distribution function of the standard normal distribution. The subscripts  $i$  and  $t$  denote firm  $i$  and year  $t$ , respectively;  $\eta_i$  denotes the country, the industry and year fixed effect. The definition of all variables are presented in Appendix.

In the second stage, we follow Dhaliwal et al. (2014) to develop a model which examines the relationship between CSRD in year  $t$  and asymmetric information in year  $t+1$  as follow:

$$\begin{aligned} \text{Asymmetry}_{i,t+1} = & \alpha_0 + \alpha_1\text{CSRDi}_{i,t} + \alpha_2\text{FRQ}_{i,t} + \alpha_3(\text{FRQ}_{i,t} * \text{CSRDi}_{i,t})_{i,t} + \alpha_4\text{SIZE\_sales}_{i,t} \\ & + \alpha_5\text{AGE}_{i,t} + \alpha_6\text{LEV}_{i,t} + \alpha_7\text{CI}_{i,t} + \alpha_8\text{IFRS/US GAAP}_{i,t} + \alpha_9\text{MILLS}_{i,t} + \eta_j + \varepsilon_{i,t} \end{aligned} \quad (6)$$

where: MILLS is the inverse Mills ratio derived from the first-stage regression. In model (6), the measures of FRQ variables need to be centered to get a revised sample mean of zero so that we can eliminate the multicollinearity effect occurred by using the interaction terms (Aiken et al. 1991, Friedrich 1982). The definition of all variables is presented in Appendix 4.1.

Hypothesis 2 is considered through the coefficients of FRQ ( $\beta_1$ ) in equation 5. The negative coefficients will support the substitution hypothesis (2a) that FRQ restricts a high degree of reporting CSR information. The positive one will support the synergy hypothesis (2b) that firms with higher FRQ will disclose a high degree of CSR information. Hypothesis 3 is represented by the coefficient of interaction terms  $\text{FRQ} * \text{CSRDi}$  ( $\alpha_3$ ) in equation 6.

## 4.4 Results

This section presents the results and our analysis of summary statistics and multivariate tests.

### 4.4.1 Summary statistics

Table 4.1 provides descriptive statistics for full sample (Panel A), two sub-samples (Panel B), and the correlations (Panel C) of the main variables in the models. The first row of panel A shows that our primary variable of interest, spread, is positive with a mean value of 0.570 and a median value of 0.18, indicating there is an information difference among investors. The next row shows the level of CSR disclosure with a mean value of 26.082 and a median value of 21.9, indicating that firms on average provide a significant amount of CSR information. Panel B compares the mean value of all firm-level variables for high-CSR and low-CSR firms. Firstly, the difference mean of bid-ask spread (spread) is negative and significant, suggesting firms with high amount of CSR data point (CSR=1) have a lower degree of information asymmetry than firms with lower level of CSR (CSR = 0). This initially shows a negative relationship between CSR and the degree of information asymmetry. Secondly, high-CSR firms are the better-governed, supporting the proposition that companies with high governance quality will be a better citizen and adopt more socially and environmentally responsibility. It may be the reason why firms disclosing high level of CSR information have higher financial transparency than their counterparts (EM: -0.05 versus -0.08,  $p < 0.001$ ; AQ: -0.03 versus -0.04,  $p < 0.001$ ; FFRQ: 0.03 versus 0.02,  $p < 0.001$ ; CFRQ: 0.021 versus 0.017,  $p < 0.001$ ). This suggests a positive association between financial reporting quality and CSR disclosure (except for Cscore which is a conservatism measure). We also find that the high-CSR firms tend to be significant larger and more mature than their counterparts, supporting the suggestion that larger and mature firms have more resources as much as public pressures to perform CSR activities and to disclose them. They also have a higher leverage ratio (leverage: 0.2532 vs 0.2485,  $p < 0.041$ ), possibly because highly leverage firm need more financing equity, so they issue more additional disclosure to attract equity providers. It also reveals a potential impact of debt holders on pressing managers to report CSR issue in order to manage the downside risk associated with sustainable development in long-term. High-CSR firms have higher R&D and capital intensity expenditure than low-CSR firms, possibly because those firms need more external funds and CSR might help firms to obtain such funds. Consistent with the previous studies that CSR is negatively associated with firm risk, our risk proxy (volatility) has significantly

lower values for high-CSR firms than for low-CSR firms. Companies with higher analyst following and in the leading position in their industry are significantly likely to disclose higher level of CSR information, possibly due to the higher pressure that they face in this setting. Finally, firms with better social performance are the high-CSR disclosing, maybe they want to distinguish themselves from their counter parts.

Table 4.1, Panel C displays the correlations matrix of main variables. Firstly, CSR is negatively significantly correlated with spread. Because spread is a negative measure of information asymmetry, the correlation results suggest a negative impact of CSR disclosure on the degree of information asymmetry, supporting our first hypothesis. Secondly, we observe the same pattern in the correlation between firm-level financial reporting quality (EM, AQ, FFRQ) and information asymmetry, but the correlation between country-level financial reporting quality (CFRQ) and information asymmetry is inversely. Then, the relationship between financial reporting quality and information differs across two scopes: company-level and country-level. Finally, CSR disclosure is significantly and positively correlated with financial reporting quality at both firm-level and country-level. This is consistent with the univariate comparison in Panel B. These correlation results suggest a positive association between financial transparency and CSR disclosure. However, given the significant correlations of CSR and financial reporting quality with various other factors, we estimate multivariate regressions to show more reliable inferences.

**Table 4.1: Summary statistics****Panel A: Descriptive statistics - full sample**

Variable	n	Mean	S.D.	Min	Quantiles			Max	Skewness	Kurtosis
					0.25	Mdn	0.75			
spread	22,818	0.570	1.236	0	0.07	0.18	0.49	9.01	4.78	29.21
esgscore	23,319	26.082	14.457	0.826	13.64	21.9	36.78	86.78	0.75	2.68
GOVscore	23,310	32.994	17.225	0	20	30	46.67	93.33	0.42	2.29
EM	23,157	-0.066	0.088	-0.599	-0.08	-0.04	-0.02	-0.001	-3.49	18.64
AQ	14,749	-0.035	0.039	-0.221	-0.05	-0.02	-0.01	-0.0004	-2.41	10.15
Cscore	23,184	0.143	0.089	-0.088	0.09	0.15	0.2	0.360	-0.15	3.00
FFRQ	23,317	0.023	0.055	-0.352	0	0.03	0.05	0.360	-0.87	7.44
CFRQ	23,319	0.019	0.015	-0.113	0.01	0.02	0.03	0.086	0.06	5.61
size_sales	23,255	7.636	1.810	0	6.49	7.67	8.8	13.093	-0.35	4.09
leverage	23,292	0.250	0.174	0	0.11	0.24	0.37	0.709	0.45	2.58
rd	20,073	0.025	0.047	0	0	0	0.03	0.242	2.88	11.58
ci	23,292	0.339	0.244	0	0.14	0.29	0.5	2.086	0.70	2.62
roa	23,292	0.045	0.070	-0.226	0.02	0.04	0.08	0.232	-0.73	6.70
rev_growth	23,211	0.090	0.249	-0.473	-0.02	0.06	0.16	1.376	2.10	11.51
volatility	23,094	0.127	0.084	0.042	0.08	0.11	0.15	0.727	4.45	29.93
age	22,446	33.789	31.067	0	12	20	52	268.000	1.39	4.96
csp	23,319	0.372	0.483	0	0	0	1	1	0.53	1.28
analyst	22,351	12.582	9.445	0	5.17	11.08	18.08	65.667	0.92	3.88
MKTS	23,287	0.358	0.791	0.001	0.03	0.09	0.3	5.344	4.27	23.57

**Panel B: Descriptive statistics in sub-groups**

Variable	Full sample	CSR=0	CSR=1	Difference	
				= mean(1)-mean(0)	p-value
spread	0.570	0.5832	0.5507	-0.03	0.0520
esgscore	26.082	16.00	41.47	25.47	0.0000
GOVscore	32.994	31.49	35.29	3.80	0.0000
EM	-0.066	-0.08	-0.05	0.03	0.0000
AQ	-0.035	-0.04	-0.03	0.01	0.0000
Cscore	0.143	0.15	0.14	-0.01	0.0000
FFRQ	0.023	0.02	0.03	0.01	0.0000
CFRQ	0.019	0.0172	0.0211	0.0039	0.0000
size_sales	7.636	6.96	8.66	1.70	0.0000
leverage	0.250	0.25	0.25	0.0047	0.0414
rd	0.025	0.02	0.03	0.01	0.0118
ci	0.339	0.33	0.35	0.02	0.0003
roa	0.045	0.05	0.04	-0.01	0.2708
rev_growth	0.090	0.12	0.04	-0.08	0.0000
volatility	0.127	0.14	0.11	-0.03	0.0000
age	33.789	25.41	46.84	21.43	0.0000
csp	0.372	0.22	0.60	0.38	0.0000
analyst	12.582	9.82	16.61	6.79	0.0000
MKTS	0.358	0.17	0.64	0.47	0.0000

All variables are defined in Appendix 4.1

## Panel C: Correlations

Variables	spread	esgscore	GOVscore	wEM	wAQ	wCscore	FFRQ	CFRQ	size_sale	leverage	rd	ci	roa	rev_growth	volatility	age	csp	analyst	MKTS	
Person correlation (obs=10,965)																	Spearman correlation (obs=10,965)			
spread	1	0.0069	-0.4264*	-0.0743*	-0.0586*	0.0249*	-0.0304*	0.0805*	-0.3173*	-0.0344*	-0.0611*	0.0625*	-0.1649*	-0.0383*	0.1654*	0.0166 <sup>†</sup>	-0.2084*	-0.3280*	-0.3041*	
esgscore	-0.0326*	1	-0.0378*	0.1177*	0.1279*	0.0231 <sup>#</sup>	0.1155*	0.1984*	0.5174*	0.0980*	0.1557*	0.1519*	-0.0389*	-0.1239*	-0.2212*	0.2799*	0.3820*	0.3597*	0.5045*	
GOVscore	-0.1957*	-0.0183 <sup>†</sup>	1	0.0762*	0.0198 <sup>#</sup>	-0.1432*	-0.0796*	-0.3041*	0.0464*	0.0248*	-0.1217*	-0.0663*	0.1764*	0.1110*	0.0807*	-0.1732*	0.1294*	0.2141*	0.0211 <sup>#</sup>	
EM	-0.0370*	0.1403*	0.0491*	1	0.3552*	-0.0310*	0.4399*	0.1035*	0.1551*	0.0283*	-0.0365*	0.0838*	-0.0177	-0.0415*	-0.1093*	0.0712*	0.0750*	0.0591*	0.1232*	
AQ	-0.0594*	0.1449*	0.0188 <sup>#</sup>	0.4374*	1	-0.0398*	0.3661*	0.0973*	0.1664*	0.0561*	-0.0736*	0.1247*	0.0072	-0.011	-0.1636*	0.0975*	0.0826*	0.0409*	0.1459*	
Cscore	0.0007	0.0215 <sup>#</sup>	-0.1373*	-0.005	-0.0299*	1	0.7833*	0.1632*	-0.0106	0.0158 <sup>†</sup>	0.0656*	0.0201	-0.0392*	-0.0348*	-0.0438*	0.0497*	-0.0115	-0.0265*	-0.0051	
FFRQ	-0.0366*	0.1324*	-0.0667*	0.6552*	0.5051*	0.7042*	1	0.2173*	0.1142*	0.0330*	0.0123	0.1003*	-0.0268*	-0.0522*	-0.1463*	0.1116*	0.0477*	0.006	0.0964*	
CFRQ	0.0042	0.1761*	-0.2767*	0.1676*	0.1213*	0.1595*	0.2387*	1	0.1362*	-0.0183 <sup>†</sup>	0.2394*	0.0281*	-0.1826*	-0.0847*	-0.1613*	0.3556*	-0.0710*	-0.1324*	0.1083*	
size_sales	-0.1808*	0.4956*	0.0396*	0.2194*	0.2225*	0.0039	0.1846*	0.1243*	1	0.1980*	0.0067	0.0481*	-0.0228 <sup>#</sup>	-0.0435*	-0.3357*	0.1877*	0.5625*	0.5517*	0.9421*	
leverage	0.0227 <sup>#</sup>	0.0637*	0.0196 <sup>#</sup>	0.0027	0.0337*	0.02 <sup>#</sup>	0.0257*	-0.0121	0.1689*	1	-0.1802*	0.2552*	-0.3000*	-0.0643*	-0.0219 <sup>#</sup>	0.0167 <sup>†</sup>	0.0799*	0.0522*	0.2147*	
rd	-0.0313*	-0.0015	0.0432*	-0.1470*	-0.2306*	0.0435*	-0.1148*	0.0577*	-0.1899*	-0.1956*	1	-0.3253*	-0.0053	-0.0270*	-0.0335*	0.1964*	0.0195	0.0141	0.0461*	
ci	0.0008	0.1050*	-0.014	0.1031*	0.1458*	0.0069	0.1026*	-0.0123	0.0308*	0.2587*	-0.3296*	1	-0.1522*	-0.0444*	-0.0153	0.0675*	-0.0462*	-0.0016	0.0712*	
roa	-0.1144*	0.0071	0.1125*	0.0454*	0.1390*	-0.0308*	0.0430*	-0.1237*	0.0909*	-0.2516*	-0.0910*	-0.0901*	1	0.2816*	-0.1356*	-0.0696*	0.1415*	0.1712*	-0.0303*	
rev_growth	0.0048	-0.1244*	0.0957*	-0.1179*	-0.0668*	-0.0235 <sup>#</sup>	-0.0990*	-0.1106*	-0.0919*	-0.0280*	0.0698*	-0.0175 <sup>†</sup>	0.1626*	1	0.0797*	-0.1182*	0.0016	0.0599*	-0.0510*	
volatility	0.1281*	-0.2034*	0.0736*	-0.1615*	-0.1834*	-0.0603*	-0.1828*	-0.1784*	-0.3558*	0.022 <sup>#</sup>	0.0569*	0.0045	-0.1684*	0.1332*	1	-0.2225*	-0.2925*	-0.1088*	-0.3486*	
age	-0.0152	0.2695*	-0.1775*	0.1065*	0.1257*	0.0443*	0.1252*	0.3177*	0.1957*	0.0211 <sup>#</sup>	-0.0043	0.0119	-0.0345*	-0.1195*	-0.2068*	1	0.0166 <sup>†</sup>	-0.0895*	0.1616*	
csp	-0.0596*	0.3783*	0.1306*	0.0757*	0.0911*	-0.01	0.0598*	-0.0681*	0.5200*	0.0605*	-0.0034	-0.0362*	0.1392*	-0.0169 <sup>†</sup>	-0.2551*	0.0234	1	0.5510*	0.5516*	
analyst	-0.1947*	0.3532*	0.1886*	0.0599*	0.0363*	-0.0371*	0.0159 <sup>†</sup>	-0.1219*	0.5278*	0.0229 <sup>#</sup>	0.0766*	0.0255*	0.1500*	0.0203 <sup>#</sup>	-0.1175*	-0.0772*	0.5094*	1	0.5356*	
MKTS	-0.0506*	0.3239*	0.0308*	0.0563*	0.0826*	-0.0239 <sup>#</sup>	0.0371*	0.0424*	0.6205*	0.0784*	-0.0146	0.0199	-0.0019	-0.0275*	-0.1809*	0.0761*	0.3644*	0.3903*	1	

\* p &lt; 0.01, two tailed; # p&lt;0.05, two tailed; † p&lt;0.1, two tailed

#### 4.4.2 Main regression results

Table 4.2 presents the empirical results of the tests of hypothesis 1 using OLS, REM and FEM with the Breusch and Pagan Lagrangian test and the Hausman test to see which approach is more appropriate. According to the significant results of Hausman test, our analysis will be based on the FEM's results. The coefficient of ESGscore is significantly negative, suggesting a negative relationship between CSRD and corporate information asymmetry. This just says that reporting CSR information reduces the information asymmetry and thus improves the firm's information transparency, as predicted in Hypothesis 1. This finding is consistent with the preliminaries in the sub-group different comparison and the correlation results (Table 4.1, panel B and C).

**Table 4.2: The effect of CSRD on information asymmetry (FEM)**

DV <sub>i,t</sub>	spread (+)
ESGscore (-)	-0.0015** (0.050)
size_sale (-)	-0.1121*** (0.000)
age (-)	-0.0002 (0.528)
leverage (-)	0.291*** (0.000)
CI (-)	-0.218*** (0.000)
Constant	2.793*** (0.000)
Country FE	Yes
Industry FE	Yes
Time FE	Yes
Observations	21,899
R-squared	0.1825
Adj.R-squared	0.1799

Table 4.2 presents the FEM regression results for the tests which examine the impact of CSR disclosure on information asymmetry (hypothesis 1). In these regressions, the continuous measure of CSRD, ESGscore, is used. Refer to Appendix 4.1 for detailed definition of each variable. \*, \*\*, \*\*\* indicate statistical significance at the 10% level, at the 5% level, at the 1% level (two-tailed), respectively.

Table 4.3 and Table 4.4 report the Heckman's results for testing hypothesis 2 and 3. Table 4.3 presents the results for the first-stage regression designed to estimate the likelihood of a firm reporting a high level of CSR information. Columns (1), (2), (3), (6) show the results of regressions using individual proxies for FFRQ, and CFRQ as the main independent variables while columns (4) and (5) present the results of tests using three proxies of FFRQ simultaneously and a composite measure of FFRQ, respectively. The coefficients on firm-level financial reporting quality are significantly positive as using either almost each proxy or the aggregate measure of FFRQ (EM, Cscore, and FFRQ). The coefficient on CFRQ is also

positive but insignificant. These results suggest a positive relationship between financial reporting quality and CSR disclosure, especially corporate financial transparency. This refers that a firm with greater financial transparency (FFRQ) would report a greater amount of CSR information in their CSR reports, as predicted in Hypothesis 2b. In addition, most of other variables have the expected signs and are statistically significant at conventional levels. The evidence suggests that a firm with higher quality of corporate governance (GOVscore), greater analysts following (analysts), better social performance (CSP), larger (Size) and mature (Age), lower risk (leverage, volatility, growth), larger R&D and capital expenditure (RD and CI) is likely to issue a higher amount of CSR information in their annual CSR reports.

From the first-stage regression, we derive the inverse Mills ratio and include it in the second-stage OLS regressions. Similar to previous parts, the tests are firstly run with each proxy, all three proxies simultaneously next, the aggregate measure of FFRQ, and CFRQ respectively. The regression results are reported in Table 4.4. There are three remarkable findings. First, the coefficients on CSR<sub>D</sub> are significantly negative in many cases, suggesting that issuing a high amount of CSR information reduces information asymmetry. This finding reinforces the negative association between CSR disclosure and information asymmetry shown in Table 4.3. Second, we observe the same pattern in the relationship between FRQ and information asymmetry as the coefficients on FRQ measures is negative. Further, the coefficients on FRQ\*CSR<sub>D</sub> are positive. Combined with the significantly negative coefficients on CSR<sub>D</sub>, these results suggest that the negative relationship between CSR<sub>D</sub> and the information asymmetry is less pronounced in firms that have better financial reporting quality. In fact, this relationship disappears in firms with high financial transparency, suggesting a substitutive association between these two forms of disclosure as predicted in Hypothesis 3a. This finding is consistent with previous studies that found the substitution between financial reporting and CSR disclosure in reducing the cost of equity or increasing the analyst's forecast accuracy (Dhaliwal et al., 2011, 2012, 2014). However, only coefficients on FFRQ measures are significant whereas those of CFRQ are insignificant, suggesting that the firm-level financial reporting quality seems much more important than the institutional financial disclosure quality.

The empirical analysis show that firm-level financial reporting quality positively determines the amount of CSR information. This just says corporate financial transparency is a factor

that encourages firms to enrich the content of their CSR reports. In addition, they support Hypothesis (1) which states that there is a negative association between CSR disclosure and information asymmetry. The Heckman's results even more reinforce this proposition when providing evidence that firms with greater amount of CSR information in CSR reports have lower degree of information asymmetry. Furthermore, this negative relationship is less pronounced in firms that have better financial transparency, suggesting that CSRD and financial reporting are substitutive to each other in reducing information asymmetry. In other words, the negative link between CSRD and information asymmetry is moderated by financial reporting quality.

**Table 4.3: The likelihood of a firm reporting high level of CSR information**

DV <sub>it</sub>	CSRD					
	(1)	(2)	(3)	(4)	(5)	(6)
EM (+)	0.510*** (0.009)			0.325 (0.195)		
AQ (+)		-0.021 (0.961)		-0.181 (0.690)		
Cscore (+)			0.374** (0.011)	0.460*** (0.005)		
FFRQ (+)					1.098*** (0.000)	
cfrq2 (+)						2.4864 (0.208)
GOVscore (+)	0.0200*** (0.000)	0.0235*** (0.000)	0.0200*** (0.000)	0.0233*** (0.000)	0.0201*** (0.000)	0.0201*** (0.000)
analyst (+)	0.0130*** (0.000)	0.0134*** (0.000)	0.0128*** (0.000)	0.0133*** (0.000)	0.0130*** (0.000)	0.0127*** (0.000)
csp (+)	0.5512*** (0.000)	0.5443*** (0.000)	0.5487*** (0.000)	0.5419*** (0.000)	0.5493*** (0.000)	0.5532*** (0.000)
roa (+)	-0.2449 (0.275)	-0.3572 (0.153)	-0.2613 (0.245)	-0.3670 (0.144)	-0.2687 (0.232)	-0.2396 (0.285)
size_sale (+)	0.3203*** (0.000)	0.3167*** (0.000)	0.3234*** (0.000)	0.3148*** (0.000)	0.3218*** (0.000)	0.3233*** (0.000)
leverage (-)	-0.2749*** (0.003)	-0.2329** (0.022)	-0.2831*** (0.002)	-0.2256** (0.027)	-0.2721*** (0.003)	-0.2841*** (0.002)
risk (-)	-0.2029 (0.262)	-1.7861*** (0.000)	-0.2286 (0.210)	-1.7590*** (0.000)	-0.1841 (0.309)	-0.2279 (0.207)
growth (+)	-0.5027*** (0.000)	-0.4556*** (0.000)	-0.5076*** (0.000)	-0.4496*** (0.000)	-0.4998*** (0.000)	-0.5075*** (0.000)
rd (+)	2.2782*** (0.000)	2.1266*** (0.000)	2.2417*** (0.000)	2.0959*** (0.000)	2.2861*** (0.000)	2.2841*** (0.000)
ci (+)	0.7717*** (0.000)	0.8419*** (0.000)	0.7808*** (0.000)	0.8283*** (0.000)	0.7749*** (0.000)	0.7892*** (0.000)
age (+)	0.0065*** (0.000)	0.0060*** (0.000)	0.0066*** (0.000)	0.0060*** (0.000)	0.0065*** (0.000)	0.0065*** (0.000)
MKTS (+)	0.0129 (0.615)	0.0061 (0.830)	0.0125 (0.624)	0.0104 (0.714)	0.0122 (0.631)	0.0109 (0.668)
Constant	-4.4750*** (0.000)	-4.3183*** (0.000)	-4.5474*** (0.000)	-4.3393*** (0.000)	-4.5462*** (0.000)	-4.5705*** (0.000)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,213	12,673	16,134	12,606	16,227	16,227
Pseudo R	0.4359	0.4206	0.4359	0.4205	0.4364	0.4358

Table 4.3 summarizes the probit model's results (the first-stage) which examine the determinants of CSR disclosure (proxy by the category variable CSRD) plus country, industry and year fixed effects. Columns (1), (2), (3), (6) show the results of regressions using only one proxy of FFRQ and CFRQ as the main independent variables. Columns (4) and (5) present the results of tests using all three proxies of FFRQ simultaneously and the aggregate measure of FFRQ, respectively. Refer to Appendix 4.1 for detailed definition of each variable. \*, \*\*, \*\*\* indicate statistical significance at the 10% level, at the 5% level, at the 1% level (two-tailed), respectively.

**Table 4.4: Financial reporting quality, CSR disclosure and information asymmetry**

DV <sub>i,t+1</sub>	Spread (+)					
IV <sub>it</sub>	(1)	(2)	(3)	(4)	(5)	(6)
CSRSD (-)	-0.0122 (0.643)	0.0009 (0.980)	-0.103*** (0.003)	-0.031 (0.516)	-0.068*** (0.005)	-0.093*** (0.004)
EM (-)	-0.028** (0.021)			-0.023 (0.199)		
EM*CSRSD (-)	0.618** (0.025)			0.419 (0.266)		
AQ (-)		-0.026* (0.077)		-0.019 (0.238)		
AQ*CSRSD (-)		0.608 (0.328)		0.339 (0.618)		
Cscore (-)			-0.0221* (0.063)	-0.0186 (0.228)		
Cscore*CSRSD (-)			0.468** (0.014)	0.347 (0.152)		
FFRQ (-)					-0.042*** (0.001)	
FFRQ*CSRSD (-)					1.186*** (0.001)	
cfrq2 (-)						-0.0070 (0.766)
cfrq2*CSRSD (-)						2.6571** (0.026)
size_sale (-)	-0.0041 (0.696)	0.0388*** (0.003)	-0.0023 (0.823)	0.0376*** (0.004)	-0.0029 (0.782)	-0.0025 (0.813)
age (-)	0.0002 (0.503)	0.0004 (0.321)	0.0003 (0.467)	0.0004 (0.346)	0.0003 (0.458)	0.0002 (0.490)
leverage (-)	0.2797*** (0.000)	0.2932*** (0.000)	0.2882*** (0.000)	0.3029*** (0.000)	0.2763*** (0.000)	0.2777*** (0.000)
ci (-)	0.0247 (0.649)	0.0523 (0.461)	0.0219 (0.687)	0.0522 (0.465)	0.0279 (0.606)	0.0243 (0.654)
inv mills	0.2187*** (0.000)	0.3692*** (0.000)	0.2300*** (0.000)	0.3634*** (0.000)	0.2229*** (0.000)	0.2264*** (0.000)
Constant	1.4256*** (0.000)	1.1452*** (0.000)	1.3926*** (0.000)	1.1553*** (0.000)	1.4007*** (0.000)	1.4060*** (0.000)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,903	10,475	15,832	10,420	15,917	15,917
R-squared	0.1645	0.1810	0.1645	0.1812	0.1651	0.1645
Adj.R-squared	0.1608	0.1757	0.1609	0.1755	0.1615	0.1609

Table 4.4 presents the second-stage regression results of the two-stage least square regression. Columns (1), (2), (3), (6) show the results of regressions that only use one proxy of FFRQ and CFRQ as the main independent variables. Columns (4) and (5) present the results of tests which uses all three proxies of FFRQ simultaneously and the aggregate measure of FFRQ, respectively. Refer to Appendix 4.1 for detailed definition of each variable. Inv mills is the inverse Mills ratio generated from the first stage regression. \*, \*\*, \*\*\* indicate statistical significance at the 10% level, at the 5% level, at the 1% level (two-tailed), respectively.

#### 4.5 Robustness test

In this section, we report the results of additional tests conducted to see whether our main findings are robust. We first focus on the impact of polluting industries' characteristics which can alter the content of CSR reports. The use of proxy variables may also influence the results, so we apply other measures of the main variable, information asymmetry, which are related to the accuracy and dispersion of analysts' earnings forecasts, to determine whether the results obtained with the bid-ask spread are generally confirmed.

#### 4.5.1 The impact of polluting industry

CSR disclosure varies across the types of industry due to their distinct characteristics in organizational structure, business strategy as well as risk, competition, potential growth, society effect and government interference. Sweeney and Coughlan (2008) found a significant difference in reporting CSR information among organizations in different industries. Gao et al. (2005) provide evidence that different types of industry have different impact on the level, content and location of corporate social and environmental reporting. In this same vein, the impact of environmentally sensitive companies on CSRD is the most common finding. Harte and Owen (1991) show that industry sensitivity towards the environment will affect the CSR disclosure. In particular, environment-sensitive companies are more likely to inform their environmental performance than less environment-sensitive companies. Manufacturing sectors that have negative impact on environment such as mining, petroleum, chemical companies tend to disclose environment, health and safety issues because of the greater public pressures; whereas companies in finance and service industries tend to focus on human resources and therefore disclose more employee-related activities or social issues and donations. It is the reason why we conduct a robustness check by using a sample of companies in “dirty” industries to see whether industry difference interferes our results.

Many studies have used a sample of firms in mining, resource, paper and pulp, electric power, water resource, chemical and medical industries as those that have a high impact on the environment (Mani and Wheeler 1998, Hoffman 1999). Those have been considered as “dirty” industries which are defined as those which have had a high amount of abatement expenditure intensity (Robison 1988, Mani 1996) or have had a high rank on actual (air/water/heavy metals) emissions intensity (Hettige et al. 1995, Mani and Wheeler 1998). Basing on such criteria, five leading sectors for “dirty” industries include Iron and Steel, Non-Ferrous Metals, Industrial Chemicals, Pulp and Paper, and Non Metallic Mineral Products (Mani and Wheeler 1998, Hettige et al. 1998). Due to the existence of data, we use 6-digit GICS code rather than 3-digit SIC code like Mani and Wheeler (1998) to define “dirty” industries. But, we compare the content themes of two coding systems to ensure the similarity between them. In doing so, the polluting industries in our study encompass Metals & Mining (151040) replacing for Iron and Steel and Non-Ferrous Metals; Chemicals (151010) replacing for Industrial Chemicals; Paper & Forest Products (151050) replacing for

Pulp and Paper; Construction Materials (151020) and Containers & Packaging (151030) replacing for Non-Metallic Mineral Products. Our sub-sample contains 3,294 firm-year observations.

The Heckman's results are displayed in Table 4.5 and Table 4.6. The positive impact of financial reporting quality on the amount of CSR information holds still for firms in “dirty” industry even though only coefficient on FFRQ is significant (see Table 4.6). The influence of financial reporting quality on the negative association between CSRD and information asymmetry remains as well, in particular the substitution between CSRD and firm-level financial transparency are found as using a sample of firms in “dirty” industry (see regression 4.5 in Table 4.6). This says that the specific characteristics of polluting industry towards CSR activities haven't interfered our results.

**Table 4.5: The likelihood of a firm reporting high level of CSR information**

DV <sub>it</sub>	CSRD					
IV <sub>it-1</sub>	(1)	(2)	(3)	(4)	(5)	(6)
EM (+)	0.070 (0.906)			-0.473 (0.533)		
AQ (+)		0.404 (0.734)		0.775 (0.551)		
Cscore (+)			0.642 (0.141)	0.648 (0.187)		
FFRQ (+)					1.447* (0.093)	
CFRQ (+)						0.9943 (0.871)
GOVscore (+)	0.0200*** (0.000)	0.0260*** (0.000)	0.0213*** (0.000)	0.0265*** (0.000)	0.0205*** (0.000)	0.0200*** (0.000)
analyst (+)	0.0171** (0.016)	0.0261*** (0.001)	0.0168** (0.017)	0.0254*** (0.002)	0.0165** (0.020)	0.0169** (0.018)
csp (+)	0.4735*** (0.000)	0.3530*** (0.003)	0.4757*** (0.000)	0.3563*** (0.002)	0.4735*** (0.000)	0.4737*** (0.000)
roa (+)	-0.7183 (0.243)	-1.0596 (0.121)	-0.8096 (0.189)	-1.1516 (0.094)	-0.8171 (0.187)	-0.7102 (0.248)
size_sales (+)	0.4250*** (0.000)	0.4646*** (0.000)	0.4247*** (0.000)	0.4690*** (0.000)	0.4198*** (0.000)	0.4261*** (0.000)
leverage (-)	-0.1391 (0.618)	0.0083 (0.979)	-0.0872 (0.756)	0.0180 (0.954)	-0.0916 (0.744)	-0.1389 (0.618)
risk (-)	-0.0253 (0.961)	-0.5949 (0.522)	-0.0183 (0.972)	-0.6682 (0.473)	0.0008 (0.999)	-0.0264 (0.959)
growth (-)	-0.4522*** (0.005)	-0.3955** (0.027)	-0.4391*** (0.006)	-0.3791** (0.034)	-0.4336*** (0.008)	-0.4523*** (0.005)
rd (+)	10.1774*** (0.000)	9.3609*** (0.000)	10.0173*** (0.000)	9.2709*** (0.000)	9.9497*** (0.000)	10.2016*** (0.000)
ci (+)	0.8613*** (0.001)	0.7588** (0.010)	0.8163*** (0.002)	0.7618** (0.010)	0.8247*** (0.001)	0.8643*** (0.001)
age (+)	0.0101*** (0.000)	0.0095*** (0.000)	0.0098*** (0.000)	0.0092*** (0.000)	0.0100*** (0.000)	0.0101*** (0.000)
MKTS (+)	-0.2037 (0.102)	-0.3478** (0.023)	-0.1954 (0.117)	-0.3482** (0.024)	-0.1923 (0.125)	-0.2040 (0.101)
IFRS/GAAP (+)	0.0193 (0.922)	-0.0610 (0.804)	-0.0052 (0.979)	-0.0552 (0.823)	0.0332 (0.866)	0.0178 (0.927)
Constant	-4.8241*** (0.000)	-4.9700*** (0.000)	-4.8877*** (0.000)	-5.1296*** (0.000)	-4.8337*** (0.000)	-4.8490*** (0.000)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,199	1,687	2,181	1,674	2,199	2,199
Pseudo R	0.4814	0.4538	0.4826	0.4542	0.4824	0.4814

Table 4.5 summarizes the probit model's results (the first-stage) which examine the determinants of CSR disclosure, using the sample of firms in "dirty" industry. Columns (1), (2), (3), (6) show the results of regressions using only one proxy of FFRQ and CFRQ as the main independent variables. Columns (4) and (5) present the results of tests using all three proxies of FFRQ simultaneously and the aggregate measure of FFRQ, respectively. Refer to Appendix 4.1 for detailed definition of each variable. \*, \*\*, \*\*\* indicate statistical significance at the 10% level, at the 5% level, at the 1% level (two-tailed), respectively.

**Table 4.6: Financial reporting quality, CSR disclosure and information asymmetry**

DVi,t+1	Spread (+)					
IVi,t	(1)	(2)	(3)	(4)	(5)	(6)
CSR (-)	-0.0219 (0.795)	-0.0837 (0.441)	-0.174 (0.103)	-0.199 (0.189)	-0.123* (0.097)	-0.179* (0.066)
EM (-)	-0.078* (0.080)			0.016 (0.810)		
EM*CSR (-)	1.194 (0.203)			-0.033 (0.981)		
AQ (-)		-0.054 (0.218)		-0.062 (0.201)		
AQ*CSR (-)		0.353 (0.859)		0.410 (0.851)		
Cscore (-)			-0.0343 (0.374)	-0.0316 (0.525)		
Cscore*CSR (-)			0.635 (0.266)	0.848 (0.238)		
FFRQ (-)					-0.103** (0.012)	
FFRQ*CSR (-)					2.143* (0.053)	
CFRQ (-)						-0.0220 (0.776)
CFRQ*CSR (-)						5.0655 (0.164)
size_sales (-)	-0.0633** (0.039)	-0.0322 (0.389)	-0.0623** (0.042)	-0.0328 (0.389)	-0.0605** (0.044)	-0.0630** (0.038)
age (-)	-0.0028** (0.012)	-0.0019 (0.140)	-0.0026** (0.018)	-0.0018 (0.173)	-0.0025** (0.023)	-0.0027** (0.015)
leverage (-)	0.3216*** (0.071)	0.4648** (0.047)	0.3190* (0.076)	0.4835** (0.041)	0.2941 (0.101)	0.3057* (0.086)
ci (-)	0.0146 (0.928)	-0.1319 (0.529)	0.0210 (0.896)	-0.1162 (0.584)	0.0263 (0.869)	0.0143 (0.929)
IFRS/GAAP (-)	0.1535 (0.337)	0.1246 (0.569)	0.1548 (0.344)	0.1316 (0.550)	0.1401 (0.382)	0.1600 (0.317)
inv mills	0.1498* (0.086)	0.2548** (0.018)	0.1575* (0.074)	0.2460** (0.025)	0.1724** (0.047)	0.1516* (0.082)
Constant	1.9084*** (0.000)	1.8823*** (0.003)	1.8979*** (0.000)	1.8813*** (0.000)	1.8488*** (0.000)	1.9223*** (0.000)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,148	1,381	2,130	1,370	2,148	2,148
R-squared	0.1712	0.1969	0.1853	0.1975	0.1881	0.1858
Adj_R-squared	1.1313	0.1969	0.1705	0.1752	0.1730	0.1707

Table 4.6 presents the second-stage regression results of the two-stage least square regression, using the sample of firms in "dirty" industry. Columns (1), (2), (3), (6) show the results of regressions that only use one proxy of FFRQ and CFRQ as the main independent variables. Columns (4) and (5) present the results of tests which use all three proxies of FFRQ simultaneously and the aggregate measure of FFRQ, respectively. Refer to Appendix 4.1 for detailed definition of each variable. Inv mills is the inverse Mills ratio generated from the first stage regression. \*, \*\*, \*\*\* indicate statistical significance at the 10% level, at the 5% level, at the 1% level (two-tailed), respectively.

#### 4.5.2 Alternative measures of information asymmetry

The results can be biased by the variable selection, especially the interest variables such as information asymmetry in our case. Hence, a test using other proxies of information

asymmetry is essential. Given that bid-ask spread, a microstructure-based measure, is a good proxy for information asymmetry (Clarke and Shastri 2000), the analysts' earnings forecast-based measures such as the accuracy and the dispersion of analysts' forecasts are also oft-used ones in literature (i.e., Lang and Lundholm 1996, Vanstraelen et al. 2003, Martínez-Ferrero et al. 2015, Dhaliwal et al. 2012). The link between analysts' earnings forecast-based measures and information asymmetry relies on the idea that opinions tend to converge when the amount of available information about firm increases. Thereby, a higher accuracy or a smaller dispersion of analysts' forecasts indicates a greater availability of information or less information asymmetry. According to the prior studies, forecast error (FERROR) is constructed to proxy for the analysts' forecasts accuracy, which is calculated as the absolute value of actual earnings per share minus the mean of one-year ahead forecasted earnings per share, scaled by the absolute value of actual earnings per share:

$$\text{FERROR}_{i,t} = \frac{|\text{EPS}_{i,t} - \text{Mean of forecasted EPS}_{i,t}|}{|\text{EPS}_{i,t}|}$$

where  $\text{EPS}_{i,t}$  is the actual earnings per share reported at the fiscal year  $t$  of firm  $i$ , and Mean of forecasted  $\text{EPS}_{i,t}$  is the mean of analysts' one-year ahead earnings forecasts for the fiscal year  $t$  of firm  $i$ . This measure is transformed into logarithm to induce the symmetry and normality in such data. The second one is the standard deviation of analysts' forecasts (Dispersion):

$$\text{Dispersion}_{i,t} = \frac{\text{SD}_{i,t}}{|\text{EPS}_{i,t}|}$$

where:  $\text{SD}_{i,t}$  is the standard deviation of all analysts' earnings forecasts for firm  $i$ , at the fiscal year  $t$ . This variable is also converted into log form for the same reason.

The FEM's results in Table 4.7 show the coefficients on ESGscore are negative and significant, indicating firms with high level of CSR disclosure have a lower analysts' forecast error, no evidence for the dispersion models. These results reinforce our first hypothesis that disclosing CSR information helps to decrease the level of information asymmetry. It is consistent with the results in Table 4.2.

For short, we only show the second-stage regressions' results testing the association between CSR and information asymmetry with regarding to the effect of financial reporting quality.

The results in Table 4.8 and Table 4.9 show that firms with higher firm financial reporting quality have a lower analysts' forecasts error and dispersion, consistent with the results in Table 4.4. In addition, the significant and positive coefficients on the interaction between EM, AQ, Cscore, FFRQ and CSRD suggest that firms having high level of CSR disclosure and financial reporting quality simultaneously experience a loss in the balance of information, proving the substitution association between financial reporting and CSR disclosure in reducing firm's information asymmetry. One difference is that most of coefficients on CSRD are positive, even though they are only significant in 2/6 cases, these results do not totally confirm our main finding that CSR disclosure reduces information asymmetry. Finally, as the same with main results, there is no support of country-level financial reporting quality to the link between CSR disclosure and information asymmetry at firm-level.

**Table 4.7: The effect of CSRD on information asymmetry (FEM)**

DV <sub>i,t</sub>	FERROR (+)	Dispersion (+)
ESGscore (-)	-0.0042*** (0.000)	-0.0009 (0.269)
size_sale (-)	-0.1638*** (0.000)	-0.1000*** (0.000)
age (-)	-0.0021*** (0.000)	-0.0025*** (0.000)
leverage (-)	1.2353*** (0.000)	0.8909*** (0.000)
CI (-)	0.3538*** (0.000)	0.4346*** (0.000)
Constant	-1.6521*** (0.000)	-2.2735*** (0.000)
Country FE	Yes	Yes
Industry FE	Yes	Yes
Time FE	Yes	Yes
Observations	18,359	17,644
R-squared	0.1981	0.3318
Adj.R-squared	0.1950	0.3292

Table 4.7 presents the FEM regression results for the tests which examine the impact of CSRD on information asymmetry, using FERROR and Dispersion of analysts' forecasts to proxy for information asymmetry (hypothesis 1). In these regressions, the continuous measure of CSRD, ESGscore, is used. Refer to Appendix 4.1 for detailed definition of each variable. \*, \*\*, \*\*\* indicate statistical significance at the 10% level, at the 5% level, at the 1% level (two-tailed), respectively.

**Table 4.8: Financial reporting quality, CSR disclosure and information asymmetry**

DVi,t+1	FERROR (+)					
IVi,t	(1)	(2)	(3)	(4)	(5)	(6)
CSRSD (-)	0.0883** (0.024)	0.0923* (0.056)	-0.054 (0.289)	-0.027 (0.683)	0.021 (0.559)	0.028 (0.567)
EM (-)	<b>-0.055***</b> (0.004)			0.003 (0.906)		
EM*CSRSD (-)	0.530 (0.191)			0.344 (0.509)		
AQ (-)		<b>-0.168***</b> (0.000)		<b>-0.169***</b> (0.000)		
AQ*CSRSD (-)		<b>1.525*</b> (0.077)		1.354 (0.150)		
Cscore (-)			<b>-0.0453**</b> (0.013)	<b>-0.0618***</b> (0.005)		
Cscore*CSRSD (-)			<b>0.899***</b> (0.001)	<b>1.050***</b> (0.002)		
FFRQ (-)					<b>-0.104***</b> (0.000)	
FFRQ*CSRSD (-)					<b>1.925***</b> (0.000)	
cfrq2 (-)						0.0150 (0.673)
cfrq2*CSRSD (-)						1.7551 (0.327)
size_sale (-)	-0.0187 (0.233)	0.0213 (0.246)	-0.0196 (0.211)	0.0203 (0.271)	-0.0204 (0.191)	-0.0221 (0.158)
age (-)	-0.0006 (0.255)	-0.0008 (0.184)	-0.0005 (0.335)	-0.0007 (0.222)	-0.0006 (0.262)	-0.0006 (0.242)
leverage (-)	0.8456*** (0.000)	0.6446*** (0.000)	0.8736*** (0.000)	0.6680*** (0.000)	0.8384*** (0.000)	0.8573*** (0.000)
ci (-)	0.5588 (0.485)	0.6607*** (0.000)	0.5398*** (0.000)	0.6487*** (0.000)	0.5617*** (0.000)	0.5400*** (0.000)
inv mills	0.5287*** (0.000)	0.5975*** (0.000)	0.5451*** (0.000)	0.6028*** (0.000)	0.5262*** (0.000)	0.5290*** (0.000)
Constant	-3.1072*** (0.000)	-3.2763*** (0.000)	-3.1209*** (0.000)	-3.3033*** (0.000)	-3.1144*** (0.000)	-3.0531*** (0.000)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,252	9,685	14,176	9,624	14,265	14,265
R-squared	0.2074	0.2428	0.2089	0.2454	0.2093	0.2072
Adj_R-squared	0.2035	0.2376	0.2050	0.2398	0.2055	0.2033

Table 4.8 presents the second-stage regression results of the two-stage least square regression examining the influence of FRQ on the association between CSRSD and information asymmetry, using FERROR of analysts' forecasts to proxy for information asymmetry. Columns (1), (2), (3), (6) show the results of regressions that only use one proxy of FFRQ and CFRQ as the main independent variable. Columns (4) and (5) present the results of tests which use all three proxies of FFRQ simultaneously and the aggregate measure of FFRQ, respectively. Refer to Appendix 4.1 for detailed definition of each variable. Inv mills is the inverse Mills ratio generated from the first stage regression. \*, \*\*, \*\*\* indicate statistical significance at the 10% level, at the 5% level, at the 1% level (two-tailed), respectively.

**Table 4.9: Financial reporting quality, CSR disclosure and information asymmetry**

DVi,t+1	Dispersion (+)					
IVi,t	(1)	(2)	(3)	(4)	(5)	(6)
CSRSD (-)	0.1079*** (0.000)	0.1089*** (0.002)	0.002 (0.966)	0.063 (0.192)	0.043 (0.095)	0.046 (0.181)
EM (-)	-0.069*** (0.000)			-0.043** (0.026)		
EM*CSRSD (-)	0.584** (0.047)			0.765** (0.044)		
AQ (-)		-0.123*** (0.000)		-0.108*** (0.000)		
AQ*CSRSD (-)		0.913 (0.145)		0.378 (0.580)		
Cscore (-)			-0.0219* (0.098)	-0.0252 (0.114)		
Cscore*CSRSD (-)			0.582*** (0.004)	0.527** (0.032)		
FFRQ (-)					-0.084*** (0.000)	
FFRQ*CSRSD (-)					1.657*** (0.000)	
cfrq2 (-)						0.0268 (0.307)
cfrq2*CSRSD (-)						1.7047 (0.193)
size_sale (-)	-0.0049 (0.664)	0.0184 (0.165)	-0.0074 (0.516)	0.0178 (0.182)	-0.0088 (0.433)	-0.0082 (0.469)
age (-)	-0.0016*** (0.000)	-0.0015*** (0.000)	-0.0016*** (0.000)	-0.0015*** (0.000)	-0.0016*** (0.000)	-0.0016*** (0.000)
leverage (-)	0.6544 (0.000)	0.5166 (0.000)	0.6842 (0.000)	0.5294 (0.000)	0.6567 (0.000)	0.6689 (0.000)
ci (-)	0.6162*** (0.000)	0.6811*** (0.000)	0.5874*** (0.000)	0.6798*** (0.000)	0.6043*** (0.000)	0.5925*** (0.000)
inv mills	0.3408*** (0.000)	0.4028*** (0.000)	0.3524*** (0.000)	0.4004*** (0.000)	0.3348*** (0.000)	0.3429*** (0.000)
Constant	-3.1671*** (0.000)	-3.3345*** (0.000)	-3.1554*** (0.000)	-3.3352*** (0.000)	-3.1435*** (0.000)	-3.1068*** (0.000)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,878	9,574	13,803	9,513	13,892	13,892
R-squared	0.3418	0.3571	0.3415	0.3583	0.3429	0.3411
Adj_R-squared	0.3385	0.3526	0.3381	0.3535	0.3396	0.3378

Table 4.9 presents the second-stage regression results of the two-stage least square regression examining the influence of FRQ on the association between CSRSD and information asymmetry, using Dispersion of analysts' forecasts to proxy for information asymmetry. Columns (1), (2), (3), (6) show the results of regressions that only use one proxy of FFRQ and CFRQ as the main independent variable. Columns (4) and (5) present the results of tests which use all three proxies of FFRQ simultaneously and the aggregate measure of FFRQ, respectively. Refer to Appendix 4.1 for detailed definition of each variable. Inv mills is the inverse Mills ratio generated from the first stage regression. \*, \*\*, \*\*\* indicate statistical significance at the 10% level, at the 5% level, at the 1% level (two-tailed), respectively.

## 4.6 Conclusion

This paper extends the literature on the consequences of CSR disclosure by examining the association between CSR disclosure and information asymmetry with regarding to the influence of financial reporting quality at both firm- and country-level in an international setting. As a source of firm information, CSR disclosure can provide firm's information on CSR activities that may reduce the imbalance of information between the firm and their stakeholders. We therefore examine the impact of CSR disclosure on the quality of corporate

information by using the degree of information asymmetry as an interest variable. Since CSR disclosure provides valuable information related to firm prospects in the long-term, it can substitute financial reporting to reduce the dissymmetry of information caused by the lack of financial information. Yet, CSR information is distinct with financial information, CSRD thus can be an additional source of firm information besides financial reporting. Therefore, their effect on information asymmetry should be magnified when they are both performed simultaneously. Generally, the association between CSRD and financial reporting in reducing information asymmetry can be either substitution or complementary. That's why we examine the essence of this association in reducing the degree of information asymmetry so that we can see how financial reporting quality moderates the link between CSRD and information asymmetry.

Our empirical results provide evidence that CSR disclosure reduces information asymmetry. Second, financial reporting quality positively determines the high amount of CSR information in the company's CSR reports. It is an important factor that motivates the issuance of CSR reports with a rich content. Finally, we found that the negative relationship between issuing high level of CSR information and information asymmetry does not exist anymore in firms that have high financial transparency, suggesting a substitution association between financial reporting and CSR disclosure. These findings still remain with regarding to the effect of polluting industry and the bias of selecting information asymmetry proxies. Our findings highlight the contingent role of financial reporting quality in CSR-related studies. Researchers should not neglect this variable when studying CSR disclosure. Our study contributes to the literature on the consequences of CSR disclosure and the contingency theory in management.

### Appendix 4.1: Variable definitions and data sources

<i>Variables</i>	<i>Definition</i>
	<i>Dependent variables</i>
<i>Spread</i>	The absolute value of the average difference between the highest purchase price to the lowest selling price based on the daily price of firm i for one year.
<i>FERROR</i>	The logarithm value of the absolute value of actual earnings per share minus the mean of one-year ahead forecasted earnings per share, scaled by the absolute value of actual earnings per share.
<i>Dispersion</i>	The logarithm value of the standard deviation of analysts' forecasts which is calculated as the absolute value of actual earnings per share minus the mean of one-year ahead forecasted earnings per share, scaled by the absolute value of actual earnings per share.
	<i>CSR information disclosure</i>
<i>ESGscore</i>	ESG disclosure score indicates the level of reporting CSR information provided by Bloomberg, ranging from 0.1 for companies that disclose a minimum amount of ESG data to 100 for those that disclose every data point on 120 indicators in three dimensions of CSR: environment, social and governance.
<i>CSRD</i>	An indicator variable equals to 1 if the concerned firm has ESG disclosure score in the 4 <sup>th</sup> (medium-high) and 5 <sup>th</sup> (high) quintiles of ESG disclosure score sample, and 0 otherwise, converted from ESG disclosure score.
	<i>Corporate governance quality</i>
<i>GOVscore</i>	An aggregate measure of corporate governance quality is computed on the basis of 40 firm-specific provisions on both internal and external governance. Following to Brown and Caylor (2006)'s methodology, we used the ISS Corporate Governance: Best Practices User Guide and Glossary (2003) to code each of 40 factors either 1 or 0 depending on whether ISS considers the firm's governance to be minimally acceptable, and then sum all binary variables to create a firm-specific summary measure. It is reported on a percentile basis ranging from 0 to 100 per cent. A high GOVscore indicates a high level of governance quality.
	<i>Financial reporting quality (FRQ)</i>
	<i>Firm-level reporting quality (FFRQ)</i>
<i>Accrual quality (AQ)</i>	<p>Using the modified Dechow and Dichev's (2002) model, the following regressions is estimated for each industry-year, where industry is defined as the first two digits of GICS code, with at least 10 firms in year t:</p> $\frac{TCA_{it}}{AvgA_{it}} = \beta_0 + \beta_1 \frac{CFO_{it-1}}{AvgA_{it}} + \beta_2 \frac{CFO_{it}}{AvgA_{it}} + \beta_3 \frac{CFO_{it+1}}{AvgA_{it}} + \beta_4 \frac{\Delta REV_{it}}{AvgA_{it}} + \beta_5 \frac{PPE_{it}}{AvgA_{it}} + v_{it}$ <p>Where: AvgA<sub>it</sub> is firm i's average total assets in year t and t-1; TCA<sub>it</sub> is firm i's total current accruals or working capital accruals in year t, measured as ΔCA<sub>it</sub> - ΔCL<sub>it</sub> - ΔCASH<sub>it</sub> + ΔSTD<sub>it</sub>; ΔCA<sub>it</sub> is firm i's change in current assets between year t-1 and year t; ΔCL<sub>it</sub> is firm i's change in current liability between year t-1 and year t; ΔCASH<sub>it</sub> is firm i's change in cash between year t-1 and year t; ΔSTD<sub>it</sub> is firm i's change in the current portion of long-term debt comprised in total current liabilities between year t-1 and year t; CFO<sub>it</sub> is firm i's cash flow from operations in year t, computed as NI<sub>it</sub> - TA<sub>it</sub>; NI<sub>it</sub> is firm i's net income in year t; TA<sub>it</sub> is firm i's total accruals in year t, measured as TCA<sub>it</sub> - ΔSTD<sub>it</sub>; ΔREV<sub>it</sub> is firm i's change in revenues between year t and t-1; PPE<sub>it</sub> is firm i's gross value of property, plant, and equipment in year t. Absolute values of residuals from Eq.(1), v<sub>it</sub>, are used as a proxy for accruals quality. A higher value of residuals represents a lower accruals quality, then lower FFRQ. Thus, we multiply it by -1 (AQ) to get a positive indicator of FFRQ.</p>
<i>Earning management (EM)</i>	<p>Modified Jones's (1991) abnormal accruals are proxy by the residuals ε<sub>it</sub> from the following regression:</p> $\frac{IA_{it}}{A_{it-1}} = \beta_0 \frac{1}{A_{it-1}} + \beta_1 \frac{(\Delta REV_{it} - \Delta AR_{it})}{A_{it-1}} + \beta_2 \frac{PPE_{it}}{A_{it-1}} + \beta_3 ROA_{it} + \varepsilon_{it}$ <p>where: ΔREV<sub>it</sub> is the annual change in revenues to explain the change in working capital or current accruals; ΔAR<sub>it</sub> is the change in accounts receivable; PPE<sub>it</sub> is property, plant, and equipment for firm i in year t; and ROA<sub>it</sub> is net income scaled by average total assets for firm i in year t (Kothari et al. 2005). We use the absolute value of abnormal accruals as a second proxy for earning management. A higher value of abnormal accruals interprets a higher earning manipulation, then a lower earning quality or financial reporting quality. Therefore, we multiply the absolute</p>

<i>Accounting conservatism (Cscore)</i>	<p>value of abnormal accruals by -1 so that higher values of EM indicate higher FFRQ. C-score developed by Khan and Watts (2009) reflects the increasing timeliness of bad news over good news. It is measured basing on the Basu (1997)'s model of asymmetric timeliness as follow:</p> $X_i = (\alpha_0 + \alpha_1 Size_i + \alpha_2 MTB_i + \alpha_3 LEV_i) + D_i(\gamma_0 + \gamma_1 Size_i + \gamma_2 MTB_i + \gamma_3 LEV_i) + R_i(\beta_0 + \beta_1 Size_i + \beta_2 MTB_i + \beta_3 LEV_i) + D_i R_i(\delta_0 + \delta_1 Size_i + \delta_2 MTB_i + \delta_3 LEV_i) + \varepsilon_i$ <p>where X is the net income scaled by the lagged market value of equity; R is the annual stock return by cumulating monthly return in 12 months; D is a dummy variable which equals 1 if R is negative and 0 otherwise; Size is the natural logarithm of the market value of equity; MTB is the market-to-book ratio; LEV is the long-term and short-term debt deflated by the market value of equity. C-score equals to <math>(\delta_0 + \delta_1 Size_i + \delta_2 MTB_i + \delta_3 LEV_i)</math> which is computed by the coefficient estimates from the above equation. A high C-score reflects a high degree of conservatism, so it is a positive indicator of FFRQ.</p>
<i>FFRQ</i>	<p>A composite measure of firm-level financial reporting quality equals to a firm-year mean of three proxies of firm-level financial transparency: EM, AQ, Cscore. A high FFRQ corresponds to a high quality of financial reporting at firm level.</p>
<i>Country-level financial reporting quality (CFRQ)</i>	
<i>CFRQ</i>	<p>A measure of country-level financial reporting quality equals to the mean of a country's average of EM, AQ, Cscore, three proxies of firm-level financial reporting quality. A high CFRQ corresponds to a high quality of financial reporting at country level.</p>
<i>Control variables</i>	
<i>SIZE<sub>sales</sub></i>	<p>Firm size is measured as the natural logarithm of firm's net assets at the end of year.</p>
<i>LEV</i>	<p>Leverage is measured as the ratio of total debt to total assets.</p>
<i>RD</i>	<p>Research and development expenditure is measured as the ratio of R&amp;D expenses to net sales.</p>
<i>CI</i>	<p>Capital intensity is measured as the ratio of net fixed assets to total assets.</p>
<i>GROWTH</i>	<p>Growth opportunity is compute as the percentage of revenue changes from prior year to current year: <math>(Revenue_t - Revenue_{t-1})/Revenue_{t-1}</math></p>
<i>RISK</i>	<p>A measure of firm risk, computed as the volatility or the standard deviation of the monthly stock return for the five preceding years, annualized.</p>
<i>AGE</i>	<p>Firm age is measured as the natural logarithm of the number of years in business.</p>
<i>CSP</i>	<p>An indicator of a firm's CSR performance that takes a value of 1 if the firm is comprised in the Dow Jones Sustainability World Index (DJSWI) in any year in the period between 2008 and 2015, and 0 otherwise. The choice of DJS index is caused by the selection of companies in this index relying on their leading in sustainability performance in industry. This index comes from RobecoSAM, an investment specialist focused exclusively on Sustainability Investing. Prior studies show that firms with better CSR performance tend to disclose more CSR information to distinguish them with counterparts.</p>
<i>ANALYST</i>	<p>Source: RobecoSAM's website: <a href="http://www.robecosam.com/en/sustainability-insights/about-sustainability/corporate-sustainability-assessment/review.jsp">http://www.robecosam.com/en/sustainability-insights/about-sustainability/corporate-sustainability-assessment/review.jsp</a></p>
<i>MKTS</i>	<p>Analyst coverage is measured as the natural logarithm of the average number of analysts following the firm through the year.</p> <p>Market share proxy for the firm's leading position in industry, computed by the ratio of the firm's sales in a year to the total sales of all companies in the same industry in the same year. Industries are classified on the basic of two-digits SIC code.</p>
<i>Country effect</i>	<p>Dummy variables for each country.</p>
<i>Industry effect</i>	<p>Dummy variables according to SIC two-digit classification.</p>
<i>Year effect</i>	<p>Dummy variables for each year.</p>



# GENERAL CONCLUSION

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The increasing trend of CSRD in the world has put a weight on the “true” benefit of this activity towards organizations. In this study, we focus on the impact of CSRD on firm performance and information environment to explain why firms should concern on this kind of disclosure and how they can adopt it effectively with the presence of its side effects. In literature, there is a bunch of research regarding to the effect of CSRD on firm performance, firm valuation, and firm risk. Studies show that CSRD can mitigate firm risk thanks to its ability to create intangible resources. However, empirical results show a mixed relationship between CSRD and firm performance. Several papers make an effort to explain this non consensus by employing the view of contingent theory to suspect the errors in variable measurement or choice, unsuitable models or the lack of crucial variables, etc. Although research on this subject is bulky, a few scholars attempt to study CSRD incorporated with managerial factors that can influence the decision of managers to inform CSR. This fact is surprising because CSR is a strategic choice that can produce long term value but also nonprofit cost for company. Besides, a few attempts have been made to study the role of CSRD in reducing information asymmetry whereas CSRD is also a channel of firm information. In the context that financial reporting is mandatory, whether the impact of CSRD still remains is an open question.

The aim of our thesis is to enrich these streams of research by looking for situational factors that can mediate or moderate the influence of CSRD on firm performance and information quality. By doing so, we can see the actual consequence of this disclosure at enterprise-level. Particularly, we provide an explanation for the mixed relationship between CSRD and firm performance by examining the relationship between CSRD and CSP, regarding the presence of CSP variable in CSRD-related research, the lack of CSP might lead to some bias. Further, we found that the relationship between CSRD and financial performance is U-shaped which is moderated by corporate governance quality. By providing a new situational factor, corporate governance quality, we extend the literature on the effect of situational factors to the link between CSRD and firm performance. Finally, our research contributes to the literature on the consequences of CSRD by examining the impact of CSRD on firm’s information environment, specifically the interaction between CSRD and financial reporting

in reducing information asymmetry. Our main question in this PhD dissertation was: “In which situation does CSR lead to beneficial outcomes for the business entity?”. After investigating the matters from different viewpoints, we provide evidence that reporting CSR information is a strategic choice that is affected by the quality of corporate governance and financial reporting, its impact on firm performance and information environment therefore is altered depending on the circumstances of firm’s governance and financial reporting quality. The questions we suggest in this thesis were as follows:

- Does CSR lead to CSP or vice versa?
- Does corporate governance quality affect to the relationship between CSR and financial performance?
- Does financial reporting quality alter the effect of CSR on information asymmetry?

# RESEARCH FINDINGS

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Using a worldwide set of CSR members over the period ranging from 2007 to 2015, along with corporate governance score and CSR performance rate self-constructed on the basis of ESG Bloomberg database, we empirically assessed the impact of CSRD on firm performance and explained why their relationship was not consensus in the literature by contingency perspectives.

In chapter 2, we show that the relationship between CSRD and CSP is positive and further it runs from both sides. In particular, firms doing good CSP tend to disclose more CSR information, and inversely firms having high CSRD tend to superior its CSP. However, this virtuous circle is not a lead-lag relationship. We cannot demonstrate a causality relationship with Granger test. These results support the voluntary disclosure theory which emphasizes the benefit of CSR adoption as satisfying the demand of stakeholders on voluntary information. They still hold as we use a separated-dimension CSRD score and a sample during financial crisis. Our findings confirm the correlation between CSRD and CSP in the previous CSR-related studies. We further contribute to this stream of research by showing the nature and the direction of this relationship (i.e., positive from both sides) and providing a theoretical explanation for it.

In chapter 3, we find that the relationship between CSRD and financial performance is U-shaped and that governance quality moderates this U-shaped relationship. Specifically, CSRD adoption can improve financial performance due to the intangible assets creation resulting from the increasing legitimacy and stakeholders' support but it may increase the capital cost instead of economic benefits as well as this action does not aim to the sustainability in business but cover the bad behavior or performance in other activities. That's why relationship between CSRD and financial performance is not consensus in previous studies. One of the factors results in the imbalance between cost and benefit of CSRD is the quality of corporate governance quality. Our empirical results show that both strength and direction of CSRD-CFP link are affected when corporate governance is concerned. This finding supports the contingency perspective which considers CSR adoption as a strategic management depending on firm situation and managers' decision. Our findings are hold as we use an

alternative measure of corporate governance quality or a sample of selected country or industry. To our knowledge, our work presents the first attempt to prove that corporate governance quality is one of important situation factor which determines the effect of CSRD on financial performance. In addition, we provide additional insight into how each dimension of CSRD can influence financial performance depending on the quality of corporate governance.

Finally, in chapter 4, we show that CSRD can improve the transparency at organizational level by reducing information asymmetry. However, this effect becomes weaker when CSRD is considered in correlation with financial reporting quality. In other word, financial reporting quality moderates the impact of CSRD on information asymmetry, and CSRD acts as a substitute to financial reporting. Again, our findings confirm the contingency view in CSR adoption which emphasizes the specific situation that CSRD should or shouldn't be adopted. To our knowledge, financial reporting quality is a new situational factor that has not existed in previous studies. This work is also the first attempt to consider two types of disclosure (CSRD and financial reporting) in reducing information asymmetry simultaneously. Our findings still remain when we use an alternative measure of information asymmetry or a sample of specific industry (polluting industry).

# CONTRIBUTIONS AND PRACTICAL IMPLICATIONS

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In general, our work has several significant contributions to the CSR and firm performance literature. First, we complement a very thin literature linking CSRD and CSR performance. Indeed, the relationship between CSRD and CSP has been found in the empirical studies but there is a scarcity of academic research regarding to what the nature of the link CSRD-CSP is, which direction it runs, and which link is stronger. We contribute to the CSR literature by showing that CSRD and CSP are both matters and are important determinants of each other. We provide more insights when showing that neither CSRD nor CSP is a precedent to the other or this relationship is not causality. These understandings are very important in practical application because any neglect would cause severe bias in research. As a consequence, researchers should pay attention on this link in doing CSR studies.

Second, our findings contribute to the CSR debate on whether CSRD ultimately provides firms with economic benefits such as improving financial performance or reducing information risk. In particular, we provide explanations for the mixed impact of CSRD on financial performance. It is that the link between CSRD and financial performance is a U-shaped, and furthermore, the cause of this U-shaped relationship might be resulted from the moderation effect of corporate governance quality. Our findings complement previous empirical studies showing that the association between CSRD and financial performance has been altered due to the moderation or mediation effect of situation factors. These findings support the perspective of contingency theory which emphasizes CSR adoption is a strategic action that depends on the “fit” between managers’ decision and firm situation. The quality of corporate governance is a new situational factor that we suggest. In short, CSRD is not always good for the company because it can enhance or reduce financial performance depending on firm’s actual circumstances, for example, the quality of corporate governance in our case. As a consequence, managers can improve financial performance by using CSRD in correlation with the state of corporate governance.

In addition, we also contribute to CSR study by showing that CSRD is a matter in reducing information asymmetry at organizational level, and the association between CSRD and financial reporting will change this effect. Our findings continue to confirm the contingency perspective which explains the link between CSRD and its economic benefit in correlation with situational factors, in our case the quality of financial reporting has been called. This is the second situational factor that we suggest to explain why CSRD can be good or bad for firms. Managers can use CSRD to improve the information environment in correlation with the circumstance of financial reporting. CSRD adoption is indeed a strategic plan in business.

Third, while most of previous studies focus on particular national contexts, we take worldwide perspective and conduct the work basing on an international sample of socially firms. In doing so, we interestingly enhance previous works as providing a global picture, in line with the increasingly global trend of CSRD outlined above (section 1.1.2).

Finally, we construct a measure of corporate governance quality and CSR performance basing on the ESG data provided by Bloomberg by ourselves due to the lack of governance and CSR performance score for a global sample. We match the available data on Bloomberg to the common guidance in rating corporate governance and CSR activities in term of quality to ensure the comparability between our self-construct and the other indices provided by other rating organizations. This is our big effort to create an analysis at the international sample.

## LIMITATIONS AND SUGGESTIONS

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As other studies, our work meets some limitations which can provide future research opportunities. First, our work relies on Environmental, Social, and Governance data provided by Bloomberg, our conclusions therefore depends on these ratings. The use of Bloomberg data enables us to do analysis at the international level, however it could be interesting to make similar studies using alternative CSR measures in order to ensure that the rating provided by different providers do not lead to different outcomes.

Besides, our sample is at international level, the differences in CSR policy and practices may emphasize the country and industry effects in technical analysis that can lead to potential bias in our results. Moreover, CSR adoption is a selection process that depends on situational factors, the selection bias is also a problem in testing. We make effort to control these endogeneity problems by using some popular models such as FEM, GMM, and Heckman's two-stage approach as well as using separated-country or - industry sample. However, our findings will be more evidence if the research can be analyzed by the alternative models that can eliminate the endogeneity more effectively (i.e., SEM).

We also acknowledge that our sample size was largely driven by the availability of ESG data in Bloomberg. This problem leads to the limitation in constructing and measuring governance quality and CSR performance scores in our work. As a consequence, further self-constructed measures of these variables are promising as the availability of such data increase, our findings will be reinforced by such new studies.

Finally, CSR concept in our studies focus on three commonly accepted components of CSR (i.e., social, environmental, and governance). Although these dimensions are a good base to access the impact of CSR, it is possible that specific CSR items can drive our findings as well. To eliminate this problem, future studies using decomposition CSR characteristics should be conducted to overcome this problem.

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**Titre :** Les conséquences de l'information sur la responsabilité sociale des entreprises

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**Mots clés :** information sur la responsabilité sociale des entreprises (RSE), performance RSE, performance financière, qualité de la gouvernance d'entreprise, asymétrie d'information.

**Résumé :** La thèse traite des conséquences de l'information portant sur la responsabilité sociale des entreprises. Après avoir expliqué l'intérêt de cette problématique et réalisé une revue de la littérature, nous analysons la relation susceptible d'exister entre l'information RSE et les performances RSE en utilisant l'approche de la causalité au sens de Granger. Ensuite, nous portons notre attention sur l'impact de l'information RSE sur les performances de l'entreprise en testant le caractère médiateur ou modérateur de la qualité du système de gouvernance. Pour terminer, nous étudions les effets de l'information RSE sur le niveau d'asymétrie d'information en lien avec la qualité de l'information financière. Les principaux résultats, la contribution de ce travail et les perspectives de recherche sont alors présentés en conclusion.

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**Title:** The consequences of Corporate Social Responsibility Disclosure

**Keywords:** Corporate social responsibility disclosure, corporate social responsibility performance, financial performance, corporate governance quality, information asymmetry

**Abstract:** The dissertation includes four chapters. All chapters cover the overall topic: *The consequences of corporate social responsibility disclosure*. Chapter 1 introduces the motivation of thesis and summarizes an overview of the literature. Chapter 2 investigates the relationship between CSRD and CSR performance using Granger causality approach. Chapter 3 studies the impact of CSRD on financial performance under the moderation of corporate governance quality. Chapter 4 investigates the effect of CSRD to the level of information asymmetry with the presence of financial reporting quality. The main findings, contribution and discussion for future research are presented at the end of thesis.

**VU :**  
**La Directeur de Thèse**

**VU :**  
**La Responsable de l'école Doctorale**

**Jean-Laurent VIVIANI**

**Lionel TOUCHAIS**

**VU pour autorisation de soutenance**  
**Rennes, le**  
**Le président de l'Université de Rennes 1**

**David ALIS**

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**Le président de Jury**