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[THE STRATEGIC VALUE OF SUSTAINABILITY AND ITS DISCLOSURE]

Three essays on the Impact of Sustainability Performance, Disclosure & Reputation on the Firms' Financial Performance

THESE

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“If you cannot explain it simply, you do not understand it well enough”

Albert Einstein

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Introduction

In 1987 the Brundtland Commission defined sustainable development as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). Since then, the concept of sustainability has been raised in different strata of society. When the first United Nations Conference on Sustainable Development[1] was organized in Rio (1992), it gathered 172 governments to agree on the sustainable development principles that should guide future policies. The concept of sustainability had gained institutional legitimacy.

Subsequently, sustainability gradually diffused in the organizational field and firms increasingly implemented sustainability strategies. More and more firms see in the poorest strata of the population both business opportunities and a way to support economic and social development. (Prahalad & Hart, 1999; Prahalad, 2010). Several companies went out with "green products" that respect the natural environment (Reinhardt, 1998). Environmental management systems standards such as the ISO 140001 diffused (Delmas & Montes-Sancho, 2011), and fair trade practices with suppliers are now common standards in several industries (Schuler & Christmann, 2011; White, MacDonnell, & Ellard, 2012). As a result, several activists groups are now pressuring companies to transfer from the state to the private sector the responsibility to cope with social and environmental issues (den Hond & de Bakker, 2007).

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[1] Formerly known as the United Nations Conference on Environment and Development

The concept of sustainability dramatically questioned the economic paradigm of business strategies, and therefore academic literature investigated the subject. Why would firms limit their environmental damage or remunerate their suppliers beyond what regulation imposes? Why would firms care about indigenous communities that are not directly related to their sales activities? Why would a firm develop products for the poorest when it knows that 80% of its turnover can be achieved from the 20% richest strata of the population?

Academics adopted several lenses to investigate sustainability as a business concept. On the one hand earlier economists refused the rationale that firms should bear the burden of sustainable development. A firm's only objective is to meet the needs of their shareholders (Friedman, 1970), while the state should ensure the ability of future generations to meet their own needs. In such a view no firm should act to protect the environment or society beyond what regulation imposes. However, latter behavioural economists recognized that individuals are likely to reward pro-social behaviours, and stigmatize irresponsible ones, which may lead to individual altruism (Bénabou & Tirole, 2006). Organizations being made of individuals, this view also diffused to theories of the firm. In this economic perspective a focal firm evolves in an environment made of distinct entities that affect or are affected by its operations (Suppliers, Customers, Shareholders, Community…), namely its stakeholders (Freeman & Reed, 1983). Stakeholders reward firms' pro-social behaviours and therefore sustainability strategies can be explained by firms' delegated exercise of sustainable behaviours on behalf of stakeholders (Bénabou & Tirole, 2010; Brekke & Nyborg, 2008; Bridoux, Coeurderoy, & Durand, 2011; Cespa & Cestone, 2007). In this perspective sustainability is a profitable strategy that firms could implement to differentiate themselves and get stakeholders' endorsement (Cavaco & Crifo, 2009; Hull & Rothenberg, 2008; Surroca, Tribo, & Waddock, 2010; Waddock & Graves, 1997).

On the other hand sociologists also became interested in the phenomena. In their perspective the world is made of institutions that create normative pressures and reward the conformity to norms. The concept of sustainability being institutionalized, it nowadays appears as one of those norms (Philippe & Durand, 2011). By processes of coercive, mimetic and normative isomorphism firms tend to conform to norms and in return gain legitimacy in their organizational field (DiMaggio & Powell, 1983). Therefore in this sociological perspective sustainability is a strategy that stakeholders' pressure imposes on firms and that may increase firms' legitimacy.

This thesis aims at a deeper understanding of sustainability strategies and of their consequences in terms of financial performance. It discusses the validity of the economic perspective in light of normative pressure to underscore the conditions under which normative pressure prevents firms from acting strategically. It more specifically concentrates on the construct of sustainability disclosure: the extent of information about a firm and what it may reveal about its degree of sustainability. It identifies the crucial role of disclosure in moderating the relationship between sustainability and financial performance; it also inspects its drivers, and its consequences in terms of financial returns.

The first chapter defines the main constructs, the research gap, research question, and the methodological tools deployed in the dissertation. Chapters 2, 3 and 4 encompass three essays on the research gap, the antecedents and the consequences of sustainability disclosure. Finally chapter 5 discusses the theoretical, methodological and managerial implications of the findings.

Chapter 1: The Strategic Value of Sustainability and its Disclosure

A. BACKGROUND TREND: THE STRATEGIC VALUE OF SUSTAINABILITY

Past literature defined the constructs of "sustainable responsibility", "sustainability actions", and "sustainability performance", and developed a theoretical approach that proposes sustainability performance as a driver of financial performance. However, an empirical debate still exists on the validity of this relationship and questions the reliability of its theoretical foundations.

1. Definition of Sustainable Responsibility, Sustainability Actions and Sustainability Performance

Firms' sustainability has been central to academic literature for some years now. Early scholars first took an interest in firms' corporate social responsibility, the responsibility of firms toward society (Carroll, 1979; Friedman, 1970). Later academics further grasped the granularity of the concept and clearly differentiated between "corporate social responsibility", "corporate social actions" and "corporate social performance". "Corporate social responsibility" refers to the responsibility of firms toward society, "corporate social actions" to the corporate actions that this responsibility implies, and "corporate social performance" to the impact of those actions on society (Barnett, 2007; Brammer, Pavelin, & Porter, 2009; Marquis, Glynn, & Davis, 2007). However, the prefix "corporate social" might be confusing, as it excludes firms' responsibility, actions and impact on the natural environment. This dissertation thus considers the terms of "sustainable responsibility", "sustainability actions" and "sustainability performance", to encompass firms' responsibility, actions and impact on any components of society, including the environment.

Following the literature, this dissertation defines sustainable responsibility as the "economic, legal, ethical, and discretionary expectations that society has of organizations" (Carroll, 1979). "Sustainable responsibility" refers to the responsibility of a firm to act in conformity to its stakeholders' expectations, stakeholders that literature defines as "any identifiable group who can affect the achievement of an organization's objectives, or who are affected by the achievement of an organization's objectives" (Freeman & Reed, 1983). "Sustainability actions" are corporate "behaviours" that arise from sustainable responsibility and are intended to increase social benefits or mitigate social problems of stakeholders (Marquis et al., 2007). Whereas other corporate investments are focused on improving the wealth of shareholders, sustainability actions involve efforts to improve social welfare as a whole such as preserving natural resources, eradicating poverty, enhancing education… (Barnett, 2007). Finally "sustainability performance" is the outcome of sustainability actions, the benefits stakeholders receive from sustainability actions (Waddock & Graves, 1997; Wood, 1991). While sustainable responsibility is disposition, sustainability actions are behaviours, and sustainability performance the impact of those behaviours, such that if firms are responsible, they can achieve a certain degree of sustainability performance through investments in several sustainability actions (Barnett, 2007). A responsible firm can implement fair trade practices with its suppliers, reduce the amount of waste it produces, and limit its CO^2 emissions, actions which will all result in a certain degree of beneficial impact on its stakeholders: its sustainability performance. Differentiating responsibility, actions and performance is crucial. On the one hand an irresponsible firm may act without its stakeholders in mind and still benefit them, in doing so it may still highlight a certain degree of sustainability performance. On the other hand it may happen that some firms' sustainability actions trigger unintended detrimental consequences. Those firms thus perform at low degrees of sustainability performance. Sustainable responsibility does not necessarily lead to sustainability actions, and

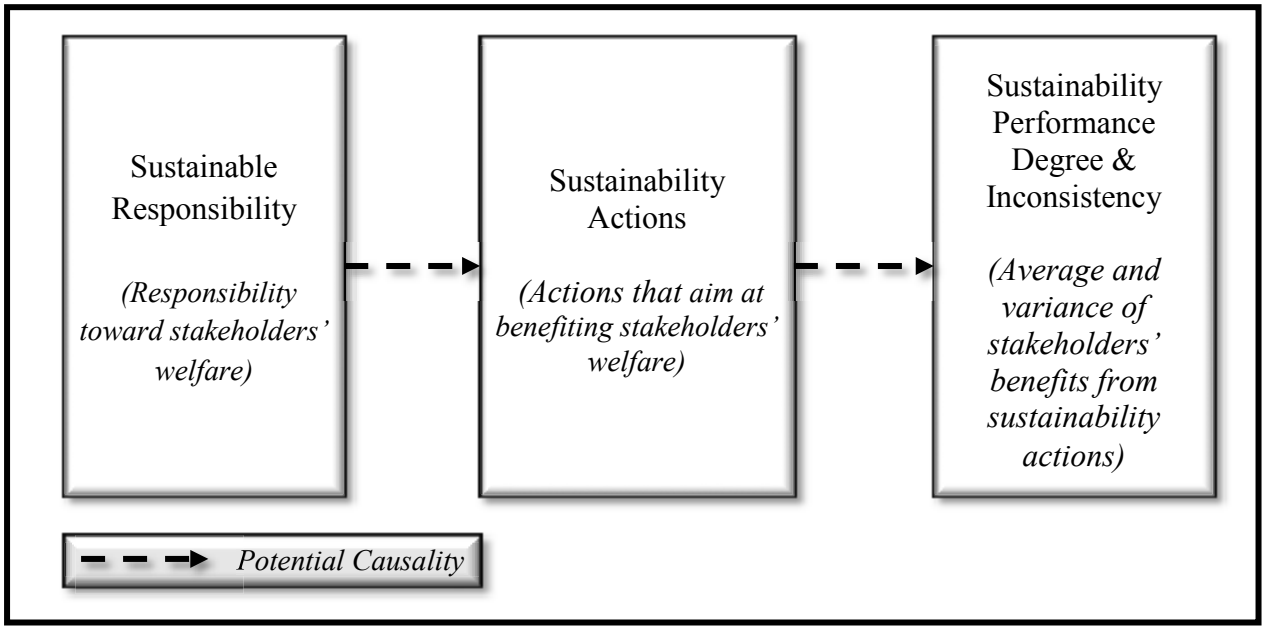
sustainability actions do not always transform into sustainability performance.

Finally, it is fundamental to recognize the heterogeneity of sustainability performance. Stakeholders are heterogeneous and diverse. They encompass governments, customers, competitors, employees, etc… groups that cannot all be targeted by a single sustainability action. Fair trade practices target the welfare of suppliers, prevention of child labour the well-being of employees, while the reduction of CO^2 emissions benefits the community as a whole. Consequently sustainability actions may trigger a heterogeneous sustainability performance. Sustainability actions may favour certain stakeholders but not others. Equally, they may benefit some stakeholders while being detrimental to others. Firms may protect their employees in developed countries while accepting child labour in their foreign facilities. They may implement practices favourable to suppliers but at the same time degrade the environment. Firms are never good or bad but almost always good and bad at the same time (Strike, Gao, & Bansal, 2006). They can both perform well on some sustainability dimensions and be poorly rated on some others. (Delmas & Blass, 2010). This dissertation therefore considers sustainability performance both in degree and inconsistency. The degree of sustainability performance relates to the average level of sustainability performance achieved, while sustainability performance inconsistency refers to the heterogeneity in the outcome of firms' sustainability actions. In other words, sustainability performance inconsistency expresses the variance of a firm's sustainability performance at a certain point in time.

While this dissertation will mainly concentrate on firms' sustainability performance, it recognizes that sustainability performance is a construct different from sustainable responsibility and sustainability actions. Sustainable responsibility is a disposition that may lead to several sustainability actions, and the diversity of those actions may lead to sustainability performance

that can be conceptualized both in degree and inconsistency (see Figure 1). These main constructs being defined, it is then interesting to understand why some firms are responsible, act in favour of their stakeholders, and benefit them.

Figure 1: The relationship between sustainable responsibility, sustainability actions & sustainability performance



2. The role of Sustainability Performance in triggering stakeholders' support

Most academics who tried to explain sustainability performance and its consequences used the lens of the firms-stakeholders relationship (Jones, 1995). Stakeholders are individuals or organizations that have stakes in a firm's operations (Freeman & Reed, 1983). They encompass diverse groups that are more or less salient (Mitchell, Agle, & Wood, 1997). From primary stakeholders such as employees, shareholders or customers without which the organizations cannot survive, to secondary stakeholders such as governments, NGOs, local communities or interest groups; all have the opportunity to affect firms in the realization of their objectives (Clarkson, 1995). Employees may adjust their productivity, suppliers provide lesser quality

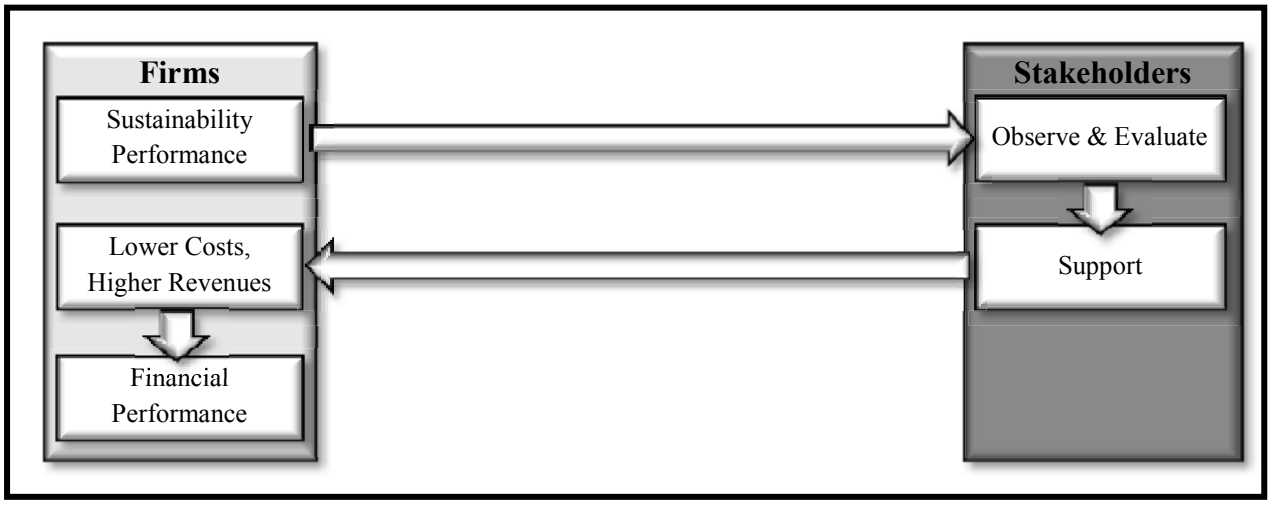
materials, NGO's raise public awareness against or in favour of a firm and governments enact laws that either accommodate or prevent a firm's operations. Therefore an organization in the pursuit of its objectives not only seeks for stakeholders' participation, but further for their support (Jones, 1995). For instance a firm does not only expect employees' contracting, but further their full engagement in their daily work. It not only seeks from governments a license to operate, but further favourable legislation.

Sustainability performance demonstrates a firm's engagement toward its stakeholders' welfare. Stakeholders observe and evaluate a focal firm's sustainability performance. By aligning this firm and its stakeholders interests, sustainability performance triggers stakeholders' cooperation, which in return benefits the firm in the realization of its objectives (Jones, 1995). A highly sustainable firm enjoys reduced wages, an increased supply of qualified labour (Turban & Greening, 1997), and more innovative managers (Porter & Kramer, 2007). It mitigates the likelihood of negative regulatory actions from governments and attracts socially conscious consumers (Hillman & Keim, 2001).

With this rationale in mind, literature explained firms' degree of sustainability performance by the salience of their environmental and social stakeholders (Brammer & Millington, 2004), the impact of these firms on their natural and social environment (Bansal & Roth, 2000b), and their willingness to limit stakeholders' pressures (Delmas & Toffel, 2008). Sustainability actions in this framework can be considered as behaviours proactive to governments' regulations (Aragon-Correa, 1998), reactions to interest groups' activism (Baron, Harjoto, & Jo, 2009; Lenox & Eesley, 2009), or ways to differentiate toward customers (Delmas, Russo, & Montes-Sancho, 2007; Hull & Rothenberg, 2008).

The underlying assumption of those findings is that firms financially benefit from stakeholders' support and thus see economic opportunities in solving their stakeholders' issues (Buehler & Shetty, 1974; Hillman & Keim, 2001; Porter & van der Linde, 1995), that firms comply to stakeholders' interest to the extent that those stakeholders affect their financial performance. (Berman, Wicks, Kotha, & Jones, 1999). While some scholars envisaged sustainability performance as a way to reach reputational gains (Brammer & Pavelin, 2006; Fombrun, 2005; Turban & Greening, 1997), or a specific capital structure (Girerd-Potin, Jimenez-Garcès, & Louvet, 2012a; Graves & Waddock, 1994), most of them tried to dig deeper into its implications in terms of competitive advantage and financial performance (Barnett & Salomon, 2006; Surroca et al., 2010; Waddock & Graves, 1997). This literature that investigated the relationship between sustainability performance and financial performance made the assumption that stakeholders observe and evaluate firms' sustainability performance. It argued that when a focal firm reaches the degree of sustainability performance its stakeholders expect; stakeholders in return support this focal firm. In such situations both the firm and its stakeholders are in a mutual cooperation equilibrium, which triggers higher profits for the firm (Jones, 1995) (see Figure 2).

Figure 2: The process in which sustainability performance transforms into financial performance



While at first sight this theoretical rationale might be appealing, several other scholars tried to empirically test its main proposition: that there exists a positive relationship between firms' sustainability performance and financial performance. The results appear to be more of a contrast.

3. The empirical debate over the relationship between Sustainability Performance and Financial Performance

Financial performance relates to firms' generation of financial profits from their operations. It can be envisaged as an overall performance, the amount of profits extracted from operations, or relative to investments and costs incurred along those operations, measured then in terms of returns.

Finding a link between sustainability performance and financial performance has been a long and over-studied topic. In 1997 Griffin and Mahon already entitled their publication "Corporate Social Performance and Corporate Financial Performance, Twenty Five Years of Incomparable Research" (Griffin & Mahon, 1997). Friedman in the New York Times first kicked academics' mindset in arguing that "there is one and only one social responsibility of business,: to use its resources and engage in activities designed to increase its profits" (Friedman, 1970), assessing thus that any sustainability action whose objective was not to benefit shareholders was a strategic mistake. First academic essays on this topic therefore date back from the same period, focusing first on ways for responsible investors to select socially responsible stocks (Moskowitz, 1972, 1975), then trying to quantify their returns (Bowman & Haire, 1975). In the quest for a potential link between sustainability performance and financial performance, early scholars faced the difficulty of measuring a concept as broad as the one of sustainability performance, which

includes dimensions as diverse as the ones of firms' environmental performance, impact on communities, or employees' health and safety. Due to this measurability issue first scholars only focused on specific dimensions of sustainability performance such as environmental performance (McGuire, Sundgren, & Schneeweis, 1988). It is only at the end of the 90's, thanks to newly born extra-financial rating agencies which collect and aggregate data on all the dimensions of sustainability performance, that some studies finally tested the positive relationship between sustainability and financial performance with exhaustive measures of sustainability (Waddock & Graves, 1997). However, at the same period and with similar data, several essays also denied this positive relationship. Some scholars argued that the cost of implementing sustainability performance was covering its benefits (McWilliams & Siegel, 2000, 2001). Some others assumed that sustainability actions were an inefficient use of a firm's resources due to managers' opportunism (Bénabou & Tirole, 2010). While shareholders want managers to use a firm's resources with an objective of profitability, they cannot fully control those managers. Managers therefore may not act in shareholders' interest, but regarding their own preferences for social initiatives. Finally literature also argued that positive empirical evidence was an artifact of reverse causality: It is not by investing in sustainability performance that firms can reach higher financial performance, but because some firms have slack financial resources that they invest in sustainability (Waddock & Graves, 1997)..

Consequently scholars from the past decade concentrated on refining their empirical approach. They first focused on proving that sustainability performance was a necessary but not sufficient condition for financial performance. They underscored that sustainability performance enhanced the impact of R&D and advertising (Hull & Rothenberg, 2008), that it strengthened differentiation and cost reduction strategies (Berman et al., 1999; Brammer & Millington, 2008),

and mediated the intangible resources' influence on returns (Surroca et al., 2010). They secondly tried to identify further the characteristics of the relationship between sustainability performance and financial performance. They differentiated the impact of sustainability performance on profits between different typologies of sustainability (Cavaco & Crifo, 2009; Delmas, Etzion, & Nairn-Birch, 2013; Girerd-Potin, Jimenez-Garcès, & Louvet, 2012b), between already poorly and highly performing firms (Choi & Wang, 2009), between emerging and stabilized industrial sectors (Russo & Fouts, 1997; Surroca et al., 2010), and over long periods of time (Choi & Wang, 2009). However, forty years and several meta-analyses later, no clear result emerges from literature. There is still an ongoing debate on whether sustainability performance may trigger financial performance, and it is still possible to count as many publications proposing a positive effect, as there are for a negative or a neutral one (Griffin & Mahon, 1997; Margolis & Walsh, 2003; Orlitzky, Schmidt, & Rynes, 2003; Ullmann, 1985).

This dissertation argues that the incapacity of the literature to reach a consensus does not come from an empirical issue, but from an insufficient theoretical foundation. Years of literature only prove that refining the empirical approach will only lead to more debate. However, questioning the main assumptions and mechanisms that relate sustainability performance to financial performance is necessary.

B. RESEARCH GAP: THE STRATEGIC VALUE OF SUSTAINABILITY DISCLOSURE

Literature that investigated the firms-stakeholders relationship made the strong assumption that stakeholders are able to observe and evaluate firms' sustainability performance. However when this assumption is relaxed, two constructs appear crucial to understand the relationship between firms and stakeholders: firms' sustainability disclosure, the extent of information that a firm reveals about its sustainability performance, and firms' prior reputation, the general assessment that stakeholders made in the recent past about firms' key capabilities and character.

1. Sustainability Performance is a latent construct

The past literature that investigated the firms-stakeholders relationship is based on one, crucial unspoken assumption: **Stakeholders are able to clearly observe and objectively evaluate firms' sustainability performance**. Under this condition stakeholders are able to select and support firms that better match their request for sustainability performance, which benefits sustainable firms in return.

However it is hard to believe that stakeholders are able to continuously inspect firms' sustainability performance. Sustainability actions may target populations that are geographically distant; and it is hard to imagine that stakeholders can organically have a continuous focus on firms' actions. Consumers hardly observe firms' educational programmes in developing countries, and most misbehaviours such as child labour or corruption would never be known if not revealed via the media. "Customers cannot determine by inspection whether or not the cotton in a pair of trousers was grown in an organic manner, or a pound of coffee beans was grown under a natural forest canopy." (King & Toffel, 2007).

In addition, it is also hard to believe that stakeholders objectively evaluate firms' sustainability performance. First because sustainability performance is a complex construct that encompasses several dimensions. From environmental pollutant emissions to governance structures it appeals to different techniques and competences that most stakeholders do not have; Secondly, because the stakeholders' evaluation of a firm is based and biased by a firm's past behaviour (Mishina, Block, & Mannor, 2012; Philippe & Durand, 2011). When evaluating a firm's sustainability performance stakeholders not only consider its actual actions, but further the whole history of its past behaviours. Stakeholders' objective evaluation of firms' sustainability performance is a myth. Consumers most often do not have competences to evaluate a firm's true pollutant emissions, and when they do, they most certainly better evaluate a firm that for years has been proved to act against climate change, than one whom earlier was caught in environmental disasters.

The assumption that stakeholders are able to clearly observe and objectively evaluate firms' sustainability performance is thus a clear gap in the strategy and management literature. This dissertation relaxes this strong assumption and assumes instead that stakeholders do not observe a focal firm's sustainability performance, but only its sustainability disclosure, that stakeholders do not objectively evaluate a firm's sustainability performance, as they consider this firm's prior reputation as a baseline of their evaluation.

2. Stakeholders observe Sustainability Performance through the filter of Sustainability Disclosure

While literature made the unspoken assumption that stakeholders were able to observe firms' sustainability performance, this dissertation takes the opposite direction and assumes that **stakeholders are not able to clearly observe sustainability performance.** Sustainability

performance is in fact a latent construct that is either distant from stakeholders or that stakeholders cannot continuously inspect (King & Toffel, 2007; King, Lenox, & Terlaak, 2005; Ruihua Joy & Bansal, 2003). Stakeholders consequently only observe what an organization is willing to reveal: its sustainability disclosure. Sustainability disclosure is the procedure that a firm implements to transmit information about its sustainability performance. Firms control this procedure and thus the information they are willing to transmit. They may adjust, coat or even try to hide this information.

Sustainability Disclosure therefore is not a dichotomous procedure. Firms do not either communicate or do not. They strategically select what and how they communicate. For instance they may communicate about investments in green facilities, but omit the impact of those investments on local communities. Sustainability information can be buried in annual reports, or clearly published as a stand-alone document (Philippe & Durand, 2011). Firms strategically adjust the amount of sustainability information they disclose. For instance a firm publishing both about its actions toward poverty reduction and its waste management processes provides a higher amount of information than if it had only communicated on its pro-poor operations.

This dissertation consequently defines sustainability disclosure as the amount of available indicators that characterize a firm's sustainability performance. Higher numbers of disclosed indicators is associated with a more extensive sustainability disclosure, whereas a lower amount of indicators indicates information in lower quantity, and thus a limited sustainability disclosure. Firms implement the procedure of sustainability disclosure more or less extensively (Philippe & Durand, 2011). They can disclose extensively their sustainability performance, but also hide certain indicators. In such a case the sustainability disclosure is said to be limited. It is an incomplete signal of sustainability performance (Crawford & Sobel, 1982).

In the case of a limited disclosure, stakeholders estimate firms' sustainability performance with less accuracy and comparability than when the disclosure is extensive. Sustainability disclosure in that sense modifies stakeholders' perception of a firm's sustainability performance. It is strategically valuable for a firm willing to control its relationship with stakeholders, and gain their support (Reid & Toffel, 2009). Consequently, academics willing to investigate the impact of sustainability performance on firms' financial performance should not only consider the degree of sustainability performance that firms achieved, but further the characteristics within which firms disclose their sustainability performance (Ullmann, 1985). They should consider the strategic properties of sustainability disclosure, investigate why firms adjust their disclosure, and understand the consequences of such adjustments on financial performance.

3. Stakeholders evaluate Sustainability Performance through the prism of firms' Prior Reputation

In prior literature another main assumption appears to be misleading: In addition to the assumption that stakeholders clearly observe sustainability performance, whereas they only observe a more or less extensive sustainability disclosure, researchers also assumed that stakeholders objectively evaluate sustainability performance.

This dissertation also relaxes this second assumption as it considers that **stakeholders are not able to evaluate a firm's sustainability performance independently of its past reputation.** Sustainability performance is a complex construct whose evaluation requires techniques and knowledge that stakeholders most often lack. In addition stakeholders hardly access information about sustainability performance. When they do, this information had already passed through the filter of sustainability disclosure and is thus likely to be limited or biased. Disclosure also limits stakeholders' capacity to evaluate sustainability performance. Scholars determined that in

situations where information is imperfect and outcomes difficult to observe, firms' prior reputation then works as a reference point that sets the baseline of stakeholders' evaluation (Weigelt & Camerer, 1988).

Scholars defined reputation as how firms compare to their competitors in terms of quality of their products, management, strategy and prospects (Fombrun & Shanley, 1990). Reputation is constructed by the set of general information that stakeholders gathered over time about firms (Fombrun & Shanley, 1990; Rindova, Williamson, Petkova, & Sever, 2005). Stakeholders continuously receive information on firms' products, management, and strategic choices (Basdeo, Smith, Grimm, Rindova, & Derfus, 2006; Heil & Robertson, 1991). The outcome of this process is a general evaluation of those firms underlying key capabilities (what firms are able to do, in terms of products and management) and character (what firms would like to do, their strategy and prospects) (Mishina et al., 2012). Scholars labeled this general evaluation: firms' reputation.

When stakeholders cannot easily evaluate a firm's characteristic, they then base their evaluation on another characteristic that is presumably highly correlated with the initial one, and in particular on firm's prior reputation (Akerlof, 1970; Fombrun & Shanley, 1990; Spence, 1973; Weigelt & Camerer, 1988). As stakeholders cannot easily evaluate a firm's sustainability performance, but have formed an assessment of its reputation, they form expectations on this firm's sustainability performance based on its reputation (Philippe & Durand, 2011). They expect a focal firm to reach a degree of sustainability performance equivalent to its reputational achievements. Stakeholders therefore consider a firm's prior reputation as a reference point and only inspect the sustainability performance signal relative to this baseline (Love & Kraatz, 2009). Prior reputation consequently acts as a distorting prism that influences how stakeholders perceive a firm's actual sustainability performance.

It is interesting to note that stakeholders also consider a firm's sustainability performance in their assessment of its reputation (Brammer & Pavelin, 2006; Cho, Guidry, Hageman, & Patten, 2012; Philippe & Durand, 2011). However this sustainability performance is only one of the several components that constitute stakeholders' reputational assessment. When evaluating the reputation of a firm stakeholders also take into account the firm's financial performance, market risk, the extent of its institutional ownership, the nature of its business activities, the quality of its products, and are further influenced by the firm's efforts to stay in their minds through media campaigns (Brammer & Pavelin, 2006; Rindova et al., 2005). Consequently prior reputation is an evaluation from stakeholders that only weakly depends on firms' sustainability performance.

In addition reputation is both constructed from elements a firm controls, such as its disclosed signals, and external factors, such as certifications from outside intermediaries or support from high status actors (Rindova et al., 2005). Furthermore reputation does not only depend on information that stakeholders can directly observe, but further on a whole set of information that they have gathered over time (Fombrun & Shanley, 1990). Therefore prior reputation is an evaluation over which firms have little control because it is embedded in a whole variety of behaviours.

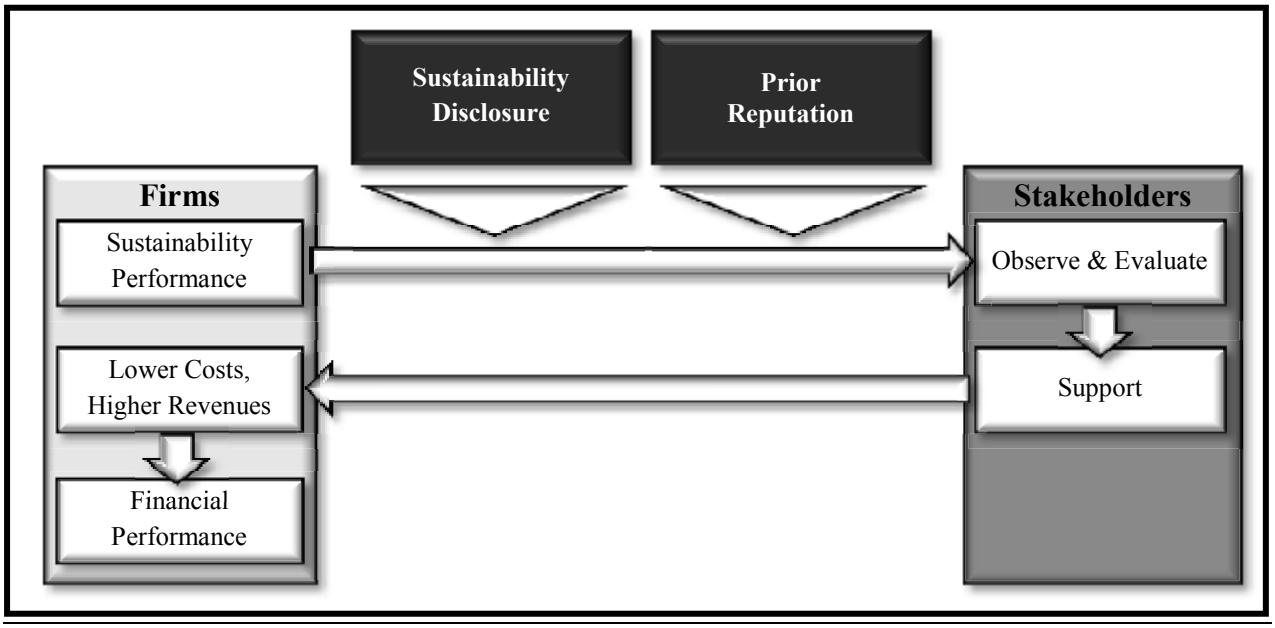
As a result, firms' prior reputation constrains their relationship with stakeholders. Stakeholders do not evaluate the sustainability performance that a firm discloses as an objective signal, but in comparison with a baseline of previous behaviours that are embedded in its reputation, and on which a firm has limited control (Ruihua Joy & Bansal, 2003). As an example stakeholders will not evaluate in the same way two companies involved in child labour if one was known for the low overall quality of its strategic decisions, and the other one for having always behaved in trustworthy, ethical ways.

Therefore academics willing to investigate the impact of sustainability performance in the firm-stakeholders relationship should not only envisage what a firm communicates to its stakeholders (i.e. its sustainability performance), but also how much this firm communicates to its stakeholders (i.e. its sustainability disclosure), and further how stakeholders perceive this firm (i.e. which depends on a firm's prior reputation).

To sum up, prior literature explained sustainability performance and its consequences by considering a simplified framework where stakeholders clearly observe and objectively evaluate firms' sustainability performance and support sustainable firms, which in return access higher profits (see Figure 2). This thesis identifies two theoretical gaps: On the one hand stakeholders do not clearly observe sustainability performance. They only do so through firms' more or less extensive sustainability disclosure. On the other hand stakeholders cannot objectively evaluate a firm's sustainability performance. They only evaluate this firm's sustainability performance relative to its prior reputation (See

Figure 3).

Figure 3: The role of sustainability disclosure and prior reputation in the firms-stakeholders relationship



These two new assumptions have deep consequences on how the strategy and management literature analyzed the firms-stakeholders relationship. They raise many questions, two of which this thesis will try to answer: When do firms limit their sustainability disclosure? And what are the consequences of incomplete signals in terms of financial performance?

C. RESEARCH QUESTION

When one considers the moderating role of sustainability disclosure and prior reputation in the relationship between sustainability performance and stakeholders' capacity to observe this performance, several questions arise, but contradicting answers can be given. More specifically, a signaling perspective that sees a limited disclosure as a way to appease stakeholders is counterbalanced by a normative view which points at transparency as a norm that stakeholders value even more.

1. The role of Sustainability Disclosure in the firms-stakeholders relationship

1.1. The signaling perspective and its propositions on the antecedents and outcomes of Sustainability disclosure

Sustainability disclosure is strategically valuable in the sense that firms control whether they want to hide or reveal their actual sustainability performance. There exists in the strategy literature a well-defined theory about motivations and consequences of disclosure and signals: the signaling perspective.

The signaling perspective is grounded in economics literature and more specifically in Signaling Theory (Akerlof, 1970; Crawford & Sobel, 1982; Milgrom & Roberts, 1982; Spence, 1973). In this perspective, while an extensive disclosure ensures stakeholders of the characteristic it discloses, a limited disclosure creates uncertainty among those stakeholders. Incomplete signals leave stakeholders with the decision to form their own opinion about a firm's unobservable characteristic. A limited sustainability disclosure does not provide stakeholders with accurate information but with a large range of probable values in which may lay the firms' sustainability performance (Crawford & Sobel, 1982; Hertzendorf, 1993). For the signaling perspective, a firm with extensive sustainability disclosure releases information on its sustainability performance to

limit stakeholders' uncertainty, while a firm with a limited disclosure controls the information available to stakeholders to maintain doubts and mislead them about its true sustainability performance (Delmas & Burbano, 2011; Laufer, 2003; Lyon & Maxwell, 2005). Consequently in this perspective a limited disclosure is seen as a way to mislead stakeholders and prevent them from evaluating the firms' actual sustainability performance.

In addition, from the signaling perspective sustainability disclosure is a double-edged sword. On the one hand it is a signal that might reveal to stakeholders that a firm achieved the degree of sustainability performance they expected, and thus triggers their support. But on the other hand disclosure may also reveal an actual sustainability performance that is at odd with stakeholders' expectations, and may thus trigger their withdrawal. Sustainability disclosure triggers both benefits and costs. It may trigger benefits by reducing the information asymmetry between a firm and its shareholders, but may create costs when it reveals information that is at odds with what stakeholders expected to observe (Cormier & Magnan, 1999; Pinghsun & Yan, 2012). Sustainability disclosure is valuable when it reveals stakeholders the beneficial impact they expected, but it also create risks when it reveals social or environmental liabilities that stakeholders did not expect (Bansal & Clelland, 2004; Philippe & Durand, 2011). Firms face a trade-off between the potential benefits of disclosing extensively, and the risks that such strategy induces. For instance firms voluntarily committing to sustainability agreements benefit from greater licenses to operate and public recognition, but also incur the risk of having regulators use the information provided to undertake lawsuits (Delmas & Terlaak, 2001). Firms' motivation for an extensive disclosure is to enhance their image by revealing their beneficial impact on society (Adams, 2002). When firms' impact on society is detrimental they better avoid stakeholders' punishment by limiting their disclosure. Therefore in the signaling perspective sustainable firms

adopt an extensive disclosure, while less sustainable firms prefer to limit their disclosure. A higher sustainability performance is associated with a more extensive sustainability disclosure (Cormier & Magnan, 1999), and when information about poor sustainability results is disclosed (by rating agencies for instance), firms tend to increase their sustainability performance (Chatterji & Toffel, 2010)

Finally, according to the signaling perspective, an extensive disclosure is seen as a way for a sustainable firm to prove its engagement toward stakeholders, and gain their support. A limited disclosure and the coating of detrimental results is the wrong way for a low sustainability performer to mitigate stakeholders' expectations, fool them and still gain few votes. Firms face a trade-off between the cost of disclosing extensively poor sustainability results, and the benefits they may gain in letting stakeholders remain uncertain about their actual sustainability performance with a limited disclosure. In the same way as brand advertising is only profitable for firms which have invested in a product's quality (King & Toffel, 2007), a firm with high sustainability results will achieve a higher financial performance with an extensive disclosure, whereas a firm with poor sustainability results avoids financial losses by limiting its disclosure. Therefore academic literature that adopted the signaling view assumed that sustainable firms were associated with more extensive disclosure and economic performance, while less sustainable ones limited the losses due to poor sustainability results with a limited disclosure (Al-Tuwaijri, Christensen, & Hughes Ii, 2004). Firms with high sustainability performance disclose their good results by adopting the ISO 9000 standard, attract more customers (Terlaak & King, 2006) and reach higher financial returns (Corbett, Montes-Sancho, & Kirsch, 2005). However, when facing an environmental scandal, a firm has the option to deny or accommodate its role with a limited disclosure, which in return will trigger less financial losses (Marcus & Goodman,

1991).

1.2. The normative perspective questions propositions of the signaling perspective

The signaling perspective assumes that firms in adjusting their signals are able to interact with stakeholders expectations. Even if stakeholders pressure for sustainability, less sustainable firms, in limiting their disclosure, can still gain some stakeholders' support. As a result less sustainable firms achieve a higher financial performance when limiting their disclosure, and when their sustainability performance increases, they also tend to increase the extent of their disclosure.

However, all academics do not agree with this strong assumption. Another view exists on sustainability disclosure and develops propositions that contradict the ones of the signaling view. **The normative perspective** is sociologically grounded and appeals to firms' pressure for conformity to norms and values of their field (DiMaggio & Powell, 1983; Durand & Jourdan, 2012; Durand, Rao, & Monin, 2007; Lounsbury, 2001; Zucker, 1989). It posits that external market and non-market constituents such as stakeholders set norms and exert pressure on firms to conform to them. In this perspective sustainability performance is a norm that stakeholders value.

However, in contrast to the signaling perspective, in the normative view sustainability disclosure is also associated with a norm, the one of transparency. Transparency can be defined as the provision of precise and extensive information. A transparent firm provides sustainability information of quality, in quantity (Ullmann, 1985). A firm that discloses quantified indicators on its sustainability performance (i.e. precise information) is more transparent than a firm providing only qualitative indicators. A firm that provides information on both its polluting emissions and its waste management operations (i.e. extensive information) is more transparent than a firm that only discloses information on its waste operations. Sustainability disclosure refers only to the

extent of sustainability information, the quantity of information transmitted to stakeholders. In that sense sustainability disclosure participates in firms' conformity to the norm of transparency (Huang & Kung, 2010).

Therefore in the normative perspective stakeholders pressure firms not only for high degrees of sustainability performance, but also for an extensive disclosure (Philippe & Durand, 2011; Reid & Toffel, 2009). Firms' decision to adopt standards such as the ISO14001 is not driven by firms' characteristics but by coercive pressure from stakeholders or governments (Christmann & Taylor, 2001; King & Toffel, 2007; Short & Toffel, 2008). While the signaling perspective assumes that stakeholders only pressure for sustainability performance, and that firms may play with their disclosure to avoid such pressure, in the normative perspective a dual pressure exists for both sustainability performance *and* disclosure. The degree of normative pressure for transparency may depend on stakeholders' power and strategic posture (Roberts, 1992), on the firms' country of operation (Adams, 2002), or the firms' visibility to stakeholders as assessed by their size or profits (Delmas & Burbano, 2011; Patten, 2002). Therefore all these factors may influence firms' propensity to more or less extensively disclose their sustainability performance. Following this perspective several scholars argued that regulative, coercive and normative forces do play a role in the adoption of sustainability standards such as the ISO 14001 (Boiral, 2003; Delmas & Montes-Sancho, 2011). Stakeholders do press for the adoption of such complete signals, and the greater the pressure the more likely will firms adopt the standards (Delmas & Toffel, 2004). Consequently, firms will be more likely to adopt the ISO 14001 when governments endorse this standard, or some NGO pressure for its adoption (Delmas & Montiel, 2008).

In the normative perspective, conformity to norms is always valued and thus disclosure can be used as a legitimization tool. For firms with historically poor sustainability results that are subject

to high stakeholders' pressure, an extensive disclosure is a way to appease stakeholders and gain legitimacy. Consequently, in contrast to the signaling perspective, in the normative perspective firms with low sustainability performance, as a way to legitimize themselves, adopt an extensive sustainability disclosure (Cho et al., 2012; Cho & Patten, 2007; Patten, 2002). This legitimization perspective leads to situations where firms that certified with the ISO 14001, or with the most advanced reporting processes, are in fact ones more detrimental to the environment (Delmas & Blass, 2010; King et al., 2005). For instance some scholars showed that members of the Sustainable Slopes program for ski areas had an inferior sustainability performance than non-members (Rivera & de Leon, 2004). While the signaling view assumes that firms with low sustainability performance have an interest to hide their detrimental impact with a limited disclosure, in the normative view firms with poor sustainability results have an incentive to disclose extensively (Cho et al., 2012; Cho & Patten, 2007; Patten, 2002). **Therefore a pertinent question seeks to understand if firms align with the signaling perspective, where more sustainable firms adopt an extensive disclosure, or if a normative pressure exists, and leads less sustainable firms to adopt an extensive disclosure?**

In addition, according to the normative perspective, disclosure is seen as a demonstration of conformity toward stakeholders. It therefore positively impacts the firms' financial performance (Cho et al., 2012). While the signaling perspective assumes that lower sustainability results lead to lower financial results, but that firms may limit this negative impact with a limited disclosure, in the normative perspective poor sustainability results also penalize firms' financial performance, but it is an extensive disclosure that acts as a buffer on financial losses. If the two perspective's outcomes are the same: firms can mitigate the negative impact of poor sustainability results on financial performance by adjusting their sustainability disclosure, the

mechanisms differ. In the signaling perspective firms buffer the negative impact of poor sustainability results when hiding them with a limited disclosure. In the normative perspective firms buffer this negative impact by gaining legitimacy with an extensive disclosure. **Therefore another pertinent question seeks to understand if firms align with the signaling perspective, where less sustainable firms limit financial losses when adopting a limited disclosure, or if a legitimization process exists, that allows less sustainable firms to limit financial losses when adopting an extensive disclosure?**

Sustainability disclosure therefore appears in the literature as a crucial construct in the firms-stakeholders relationship. In the same way prior reputation has also been shown to have a crucial impact on the firms-stakeholders relationship. It biases stakeholders' evaluations of firms' sustainability performance. A deeper investigation is also needed to understand its role in shaping the firms' strategies.

2. The role of Prior Reputation in the firms-stakeholders relationship

2.1. Prior Reputation as a constraint on Sustainability disclosure in both the signaling and normative perspectives

Reputation has often been considered as a strong asset leading to competitive advantage (Rindova et al., 2005). However few scholars have been interested in the constraint it represents. Reputation is constructed over time and depends on a firm's past actions (Mishina et al., 2012). It sticks in stakeholders' minds and influences their expectations in terms of sustainability performance. In driving stakeholders' expectations, prior reputation shapes their assessment of a firm's sustainability signals. Prior reputation influences the degree of sustainability performance that stakeholders evaluate from sustainability disclosure. Firms cannot quickly adjust and adapt their reputation, but have to consider stakeholders' assessment of the information they disclose.

Therefore firms, when defining their disclosure strategy, have to consider the constraint of their prior reputation. Following this rationale scholars determined that prior reputation plays a huge role in firms' sustainability behaviours and disclosure (Michelon, 2011). Firms are receptive to the expectations of market and non-market constituents and adapt their signaling strategy as a function of those expectations (Delmas & Toffel, 2008), expectations that depend on the firms' prior reputation.

However, in the same way as normative pressure may limit propositions of the signaling perspective about antecedents and consequences of sustainability disclosure, normative pressure may also limit propositions of the signaling perspective about the role of prior reputation in shaping the firms' disclosure strategies. While signaling theory considers that incomplete signals allow firms to deflect the pressure of prior reputation, some scholars argue that prior reputation creates an inherent normative pressure for conformity to the norm of transparency.

The signaling perspective considers that prior reputation sets stakeholders' expectations in terms of sustainability performance. Stakeholders infer from a firm's high reputation that it also achieved a high sustainability performance. The higher a firm's prior reputation, the more stakeholders expect it to be sustainable (Barnett, 2007; Delmas & Toffel, 2004; Heil & Robertson, 1991; Philippe & Durand, 2011). As a consequence, when the prior reputation of a firm increases, stakeholders' expectations also increase, and thus the risk of being at odds with those expectations also increases. Stakeholders' prior beliefs shape the evaluation of a targeted firm and therefore with great reputation come greater risks (Mishina et al., 2012). A firm with high prior reputation to insure itself against the risk of deceiving stakeholders therefore has an interest in leaving its stakeholders uncertain about its actual sustainability results. It may do so by limiting its sustainability disclosure. The increased cost of legal or political exposure due to a

high reputation can lead to less disclosure (Cormier & Magnan, 1999). As a consequence firms with high reputation, expected to be sustainable, such as firms listed in sustainability indexes, may be the ones more likely to limit their disclosure (Buzby, 1975). In the signaling perspective incomplete signals act as "safety nets", a way to insure firms against high stakeholders' expectations (Fombrun & Gardberg, 2000). Consequently in the signaling perspective, when the reputation of a firm increases, this firm limits its disclosure as a way to limit the risk of deceiving stakeholders.

The normative perspective would contradict such a proposition. In the normative perspective stakeholders impose pressure for transparency. Disclosure is a procedure and stakeholders set an extensive disclosure as the way this procedure should be achieved (Philippe & Durand, 2011). Stakeholders infer from a firm's high reputation not only that it should conform to the norm of sustainability performance, but also that it should conform to the norm of transparency. The higher a firm's prior reputation, the more stakeholders expect this firm to conform to both norms (Philippe & Durand, 2011). Therefore the higher a firm's prior reputation, the more stakeholders pressure for this firm to disclose extensively. Firms are better off when conforming to the normative pressure of their field (DiMaggio & Powell, 1983). Therefore with high reputation comes great responsibilities: Firms with higher reputation have an incentive to conform to the transparency norm with an extensive disclosure (Michelon, 2011). While in the signaling perspective high reputation players limit their disclosure to avoid the risk of stakeholders' disapproval about their sustainability performance, in the normative perspective reputed firms disclose more extensively to avoid stakeholders' disapproval about their disclosure itself. **Consequently, a last pertinent question seeks to understand if firms align with the signaling perspective, where more reputed firms adopt a limited disclosure, or if normative pressure**

exists, and leads more reputed firms to adopt an extensive disclosure?

It is therefore interesting to see that by relaxing the assumption that stakeholders clearly observe and objectively evaluate firms' sustainability performance, and by introducing sustainability disclosure as a moderator, two theoretical lenses exist and two empirical research questions emerge on the antecedents and consequences of disclosure: **Are less sustainable and more reputed firms more likely to limit their disclosure? Can less sustainable firms achieve higher financial performance when adopting a limited disclosure?** The signaling perspective would answer positively to those two research questions, but the normative perspective, which considers that normative pressure for transparency exists, would by contrast answer negatively (See Figure 4).

Figure 4: Contradicting propositions between the signaling and the normative perspectives on sustainability disclosure:

	Signaling Perspective	Normative Perspective
Are less sustainable and more reputed firms more likely to limit their disclosure?	Yes	No
Can less sustainable firms achieve higher financial performance when adopting a limited disclosure?	Yes	No

3. A main research question: What are the normative limitations to the strategic use of Sustainability Disclosure?

Past literature which concentrated on firms' sustainable behaviours made the strong assumption

that stakeholders are able to observe and objectively evaluate firms' sustainability performance. By relaxing this assumption this thesis highlights sustainability disclosure as a moderator between firms' actual sustainability performance and stakeholders' assessment of it, a moderator that firms control. This dissertation also considers the constraint of prior reputation that, in setting stakeholders' baseline evaluation of a firm's sustainability performance might influence their willingness to support this focal firm. As a consequence sustainability performance, disclosure and reputation are deeply related (Al-Tuwaijri et al., 2004; Ullmann, 1985). Sustainability performance is the outcome of a firm's sustainability actions, sustainability disclosure a filter through which this performance is disclosed to stakeholders, and prior reputation the prism through which stakeholders evaluate the disclosure.

However, the introduction of these two constructs does not make the firms-stakeholders relationship clearer. While the well-grounded signaling perspective makes pertinent propositions on the antecedents and consequences of sustainability signals, the existence of normative pressure may contradict and weaken those propositions. Signaling perspective defines sustainability disclosure as a more or less complete signal. It assumes that stakeholders value sustainability performance, but that a firm in limiting its disclosure is able to leave its stakeholders uncertain about its actual sustainability performance. As a consequence less sustainable and more reputed firms are likely to send incomplete signals, and leave their stakeholders unable to evaluate the achieved sustainability performance. In doing so those firms are likely to reach higher financial profits. However, the normative perspective points at limitations to those propositions. It describes a socially embedded process where stakeholders not only value a high sustainability performance, but also extensive disclosure. In this perspective normative pressure for transparency prevents firms from strategically adjusting their disclosure. Low sustainability

performers and reputed firms have an incentive to disclose extensively, as a way to gain or maintain legitimacy, and stakeholders downgrade firms with limited disclosure. As a consequence firms with limited disclosure are less likely to achieve higher profits than ones with extensive disclosure.

This thesis aims to understand whether norm-based pressure exists, and the conditions under which it influences firms in the strategic use of their signals. Therefore this dissertation aims to answer the following research question:

What are the normative limitations to the strategic use of sustainability disclosure?

By answering this research question, this thesis aims for a better understanding of the firms-stakeholders relationship. It aims to examine the role of sustainability performance, sustainability disclosure, and prior reputation in triggering stakeholders' support, and thus higher financial performance. In doing so this thesis assesses the impact of normative pressure on the propositions of the signaling perspective, and therefore tries to understand the conditions under which normative pressure may prevent firms from strategically adjusting their signals.

In a broader view, by questioning the capacity of stakeholders to evaluate the firms' sustainability performance, this thesis questions the economic efficiency of those market mediators. If firms are able to mislead stakeholders with a limited disclosure, and if therefore raters are not able to evaluate the firms' sustainability performance, then sustainable firms in return cannot distinguish themselves from unsustainable ones. This may trigger at the macro level a trend toward fewer investments in sustainability, which may threaten social welfare as a whole.

D. THESIS STRUCTURE

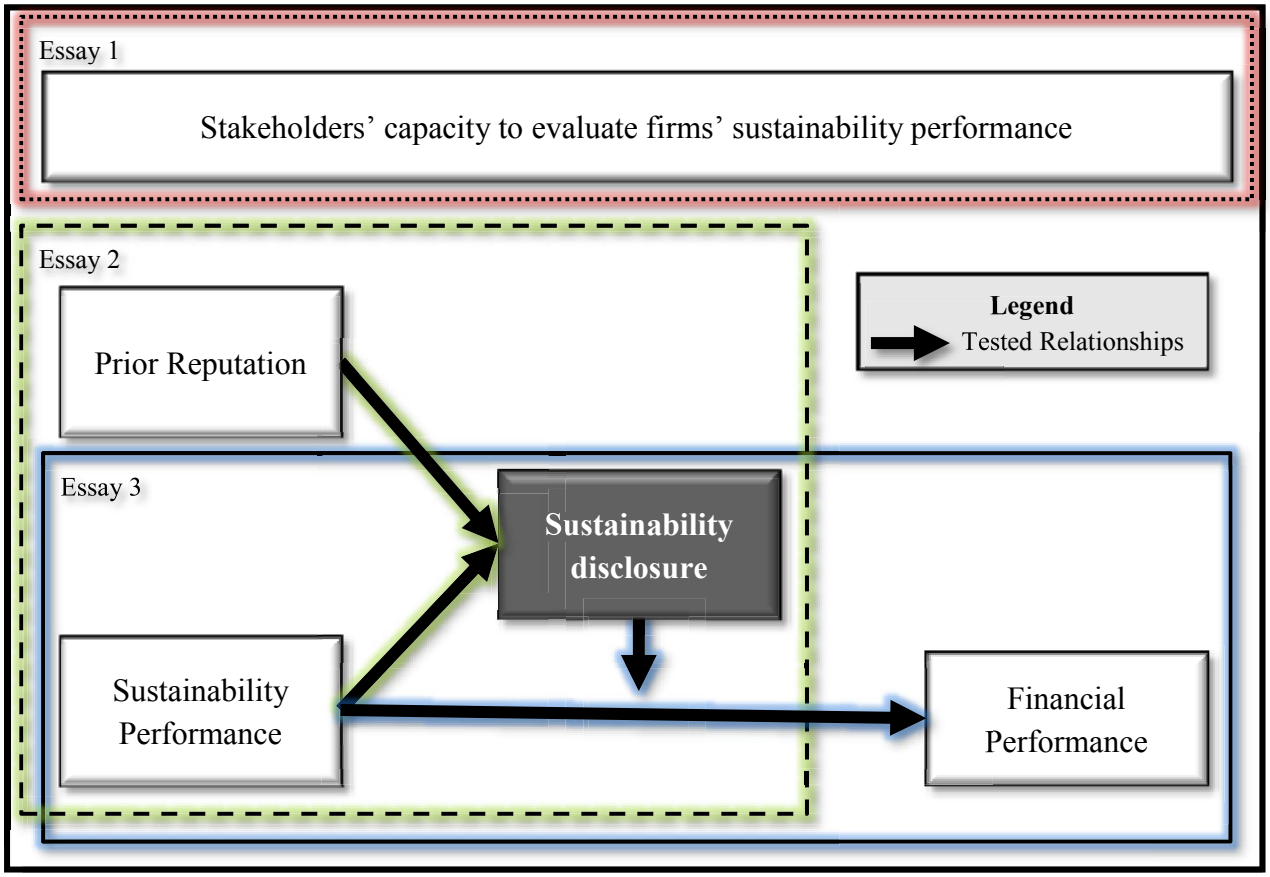
1. Three essays on the relationships between Sustainability Performance, Prior Reputation, Sustainability Disclosure and Financial Performance

The signaling perspective on sustainability disclosure assumes that stakeholders are not able to observe a firm's latent sustainability performance, and that by limiting its sustainability disclosure, a firm limits the ability of its stakeholders to evaluate its actual sustainability performance. As a consequence firms adjust their sustainability disclosure in order to garner stakeholders' support. Less sustainable and more reputed firms are more likely to limit their disclosure. Less sustainable firms achieve a higher financial performance when they adopt a limited disclosure. Therefore in order to support the signaling perspective, one needs to first assess the major assumption that stakeholders are not able to evaluate firms' sustainability performance, and secondly to answer the two following empirical questions:

- Are less sustainable and more reputed firms more likely to limit their disclosure?
- Can less sustainable firms achieve higher financial performance when adopting a limited disclosure?

This thesis is constructed in three essays. A first essay confirms the research gap by testing if stakeholders converge in their assessment of firms' sustainability performance. A second one tests whether firms increase the extent of their disclosure as a function of their sustainability performance, and limit their disclosure as a function of their prior reputation. Finally a last essay inspects if less sustainable firms, in limiting their sustainability disclosure, positively impact their financial performance (see Figure 5). While essay 1 tests if stakeholders are able to evaluate firms' actual sustainability performance, essay 2 assesses how firms, by limiting their disclosure, prevent stakeholders from doing so, and essay 3 identifies the outcome of this mechanism in terms of financial performance.

Figure 5: Three essays on the relationships between sustainability performance, disclosure, prior reputation and financial performance



Few studies envisaged the interrelations between the three constructs of sustainability performance, disclosure and prior reputation. Some of them underlined the opacity of sustainability performance as a motivation for disclosure (Ruihua Joy & Bansal, 2003), showed that sustainability performance needed to fit reputation to trigger beneficial effects (Brammer & Pavelin, 2006), and some other studies found that both sustainability performance and disclosure were an asset to reputation (Cho et al., 2012; Philippe & Durand, 2011). Several scholars investigated the impact of sustainability performance on financial performance (Barnett & Salomon, 2006; Brammer & Millington, 2008; Surroca et al., 2010; Waddock & Graves, 1997), some others the one of disclosure (Belkaoui, 1976; Frankle & Anderson, 1978). However none of

them envisaged how both sustainability performance and sustainability disclosure jointly interacted to impact firms' financial performance.

While literature still debates on whether sustainability performance positively (Al-Tuwaijri et al., 2004; Clarkson, Li, Richardson, & Vasvari, 2008) or negatively impacts sustainability disclosure (Cho, Patten, & Roberts, 2006; Patten, 2002), this dissertation assumes that no consensus can be reached without taking into account stakeholders' prior beliefs (i.e. firms' prior reputation). While literature also debates on whether sustainability performance positively (Waddock & Graves, 1997) or negatively impacts firms' financial performance (Wright & Ferris, 1997), this thesis argues that no answer can be valid if the moderating effect of disclosure is omitted. In the following sections are summarized the three essays that compose this thesis.

2. Essay 1: The capacity of stakeholders to evaluate firms' Sustainability Performance[2]

The question of whether stakeholders are actually able to measure a firm's sustainability performance is not new in management literature (Chatterji, Levine, & Toffel, 2009; Delmas et al., 2013). Some stakeholders have opposite theorizations on what sustainability performance is, and thus no consensus on how to measure it exists (Chen & Delmas, 2011). As a consequence, one extra-financial rating agency, which is supposed to reflect stakeholders' evaluations of firms' sustainability performance, might consider one firm as a good performer, whereas another agency will consider this same firm as a bad performer (Delmas & Blass, 2010). This difficulty of raters to converge in their assessments questions their ability, and the ability of stakeholders, to

[2] This essay is co-authored with Aaron Chatterji, associate professor at Duke University, Rodolphe Durand, professor at HEC Paris, and David Levine, professor at the University of California Berkeley. It is currently under review in the Academy of Management Journal

evaluate and predict a firm's sustainability performance (Chatterji et al., 2009).

In this essay we assess if different rating agencies, that reflect stakeholders' evaluation of firms' sustainability performance, are able to evaluate and to agree on whether a firm is sustainable or not. Scholars have shown that objective and common evaluation is possible when a field is theorized and they accept common measures of the concepts (Rao, Monin, & Durand, 2003; Sauder & Espeland, 2009). We realize that the field of sustainability is not yet theorized, which leaves room for different interpretations of what stakeholders accept as a definition of sustainability performance. As a consequence some rating agencies will consider economic sustainability and governance structure as part of the construct of sustainability performance, while some others will circumscribe it to social and environmental performance. In addition stakeholders' evaluation of sustainability is biased by a lack of commensurability. The construct of sustainability performance is not measured by a common standard. Certain rating agencies will consider that sustainability performance is an absolute measure, leaving, as an example, tobacco firms at the bottom of their ranking, while others will consider sustainability performance as a relative measure, accepting in their top performers indexes the most sustainable firms of the tobacco industry.

This essay therefore explains that rating agencies diverge in their assessment of firms' sustainability due to a lack of theorization and commensurability of the field. However, it also tests whether if theorization and commensurability were to exist, raters and thus stakeholders would be then able to objectively evaluate firms' sustainability performance. It appears that extra-financial agencies, even when their ratings are adjusted for commensurability and common theorization, still do not converge. This then points to the existence of a remaining measurement error that the lack of commensurability and theorization cannot explain. This insight leaves room

for different explanations. Sustainability performance may be inherently unpredictable which could explain why stakeholders cannot readjust their assessment over time. There may exist normative geographical pressure which leads close raters to evaluate firms in a homogeneous manner. Finally, a last explanation would be that firms, by limiting their disclosure, are able to manipulate stakeholders. Those stakeholders left in uncertainty are thus not able to homogeneously evaluate firms' sustainability performance.

Therefore this essay confirms the base assumption of this thesis: stakeholders are not able to objectively evaluate firms' sustainability performance, which opens the way for the following essays that aim to test the signaling perspective.

3. Essay 2: The drivers of Sustainability Disclosure[3]

This essay aims to study the antecedents of firms' extent of sustainability disclosure. It argues that firms adjust the extent of their disclosure depending both on what they can disclose, i.e. the degree and consistency of their sustainability performance, and on what stakeholders expect to observe, which depends on firms' prior reputation. This essay specifically considers not only the average degree of sustainability performance that firms achieve, but further the heterogeneity of this sustainability performance, which is labelled as firms' sustainability performance inconsistency.

Firms first assess the degree and inconsistency of their sustainability performance. As

[3] This essay is co-authored with Rodolphe Durand, professor at HEC Paris. It was presented in its earlier versions at the European Group for Organizational Studies 2011 & 2012 colloquium, the Academy of Management 2012 annual meeting and the Strategic Management Society 2012 annual conference

stakeholders value actions toward their welfare (Jones, 1995), sustainable firms have in general a strategic interest in adopting a more extensive disclosure. More inconsistent firms for their part find in an extensive disclosure an opportunity to disclose their detrimental impact in the light of more positive behaviours, a way to reassure stakeholders of their efforts toward being sustainable. However, stakeholders rely on firms' prior reputation to set their baseline expectation on the signal they receive (Mishina et al., 2012; Philippe & Durand, 2011). The higher a firm's reputation, the higher is the risk of not conforming to stakeholders' expectations. As a consequence, a reputable firm has a strategic interest in limiting its disclosure, and to leave its stakeholders uncertain about its actual environmental and social impact.

This essay is in line with the signaling perspective: less sustainable and more reputed firms limit their disclosure. They do so to mislead their stakeholders on the true nature of their sustainability performance, and protect themselves from the risk created by an excellent reputation. However this essay also argues that in certain conditions normative pressure exists and prevents this process. Stakeholders socially construct low and high sustainability performers as distinct categories. They scrutinize and value the few good behaviours of sustainable firms, but by contrast, punish the few detrimental practices of less sustainable firms. As a consequence highly sustainable firms with heterogeneous performance are less likely to disclose extensively than ones with lower sustainability performance. In addition stakeholders infer from firms' prior reputation a first order pressure for sustainability performance, which lead reputable firms to limit their signals, but also lead to a second order pressure for transparency. As a consequence, whereas firms with low sustainability performance always limit their disclosure as their prior reputation increases, firms with high sustainability, which can afford an extensive disclosure, do not limit their disclosure when their reputation increases.

To sum up, this essay hypothesizes that in line with the signaling perspective more sustainable and inconsistent firms tend to disclose more extensively their degree of sustainability, while more reputed firms have an incentive to limit their signals. However, when firms achieve a certain degree of sustainability performance and reputation, normative pressure exists and inconsistent firms send incomplete information, while reputed firms send clear signals. Therefore high degrees of reputation and sustainability performance create normative limitations to the strategic use of sustainability disclosure.

4. Essay 3: The Impact of Sustainability Disclosure on firms' Financial Performance[4]

While essay 1 assesses that stakeholders are not able to evaluate firms' sustainability performance, and essay 2 shows that by limiting their signals firms prevent stakeholders from doing so, essay 3 identifies the consequences of this strategic use of signals in terms of financial performance. In line with the signaling view it argues that sustainability disclosure participates in a revelation mechanism. An extensive disclosure reveals to stakeholders a firm's actual degree of sustainability performance. Therefore when the revelation mechanism is effective, sustainability disclosure moderates the impact of sustainability performance on financial performance. However this essay also assesses that normative pressures (and thus a conformity mechanism) exist. Stakeholders value firms that signal their conformity to the norm of transparency with an extensive disclosure. Therefore when the conformity mechanism is effective, the extent of firms' sustainability disclosure impacts positively on their financial performance.

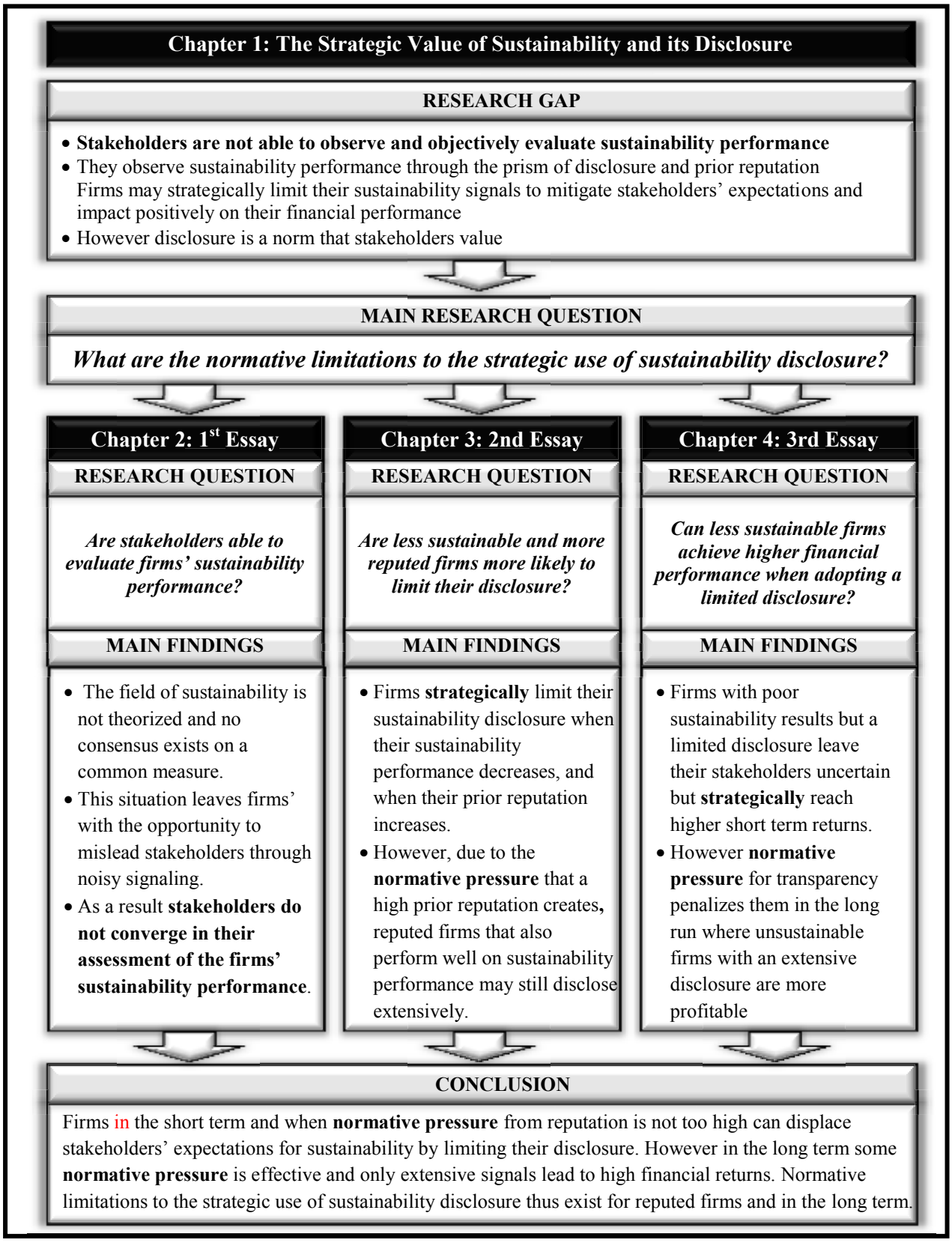
Empirical results show that in the short term unsustainable firms with limited disclosure are more

[4] This essay was presented in its earlier version at the Strategic Management Society 2012 annual conference

profitable than unsustainable players that adopt an extensive disclosure. In the short term stakeholders do not punish firms with limited disclosure from which they are not able to evaluate the true sustainability performance. The revelation mechanism is thus effective in the short term. This first conclusion is in line with the signaling view. It highlights that a firm, in limiting its disclosure, can leave its stakeholders uncertain about its actual sustainability performance, yet still gain their votes.

However this essay also shows that an extensive sustainability disclosure impacts positively on firms' financial performance in the long run but in the long run only. The conformity mechanism is effective in the long run and therefore in the long run less sustainable firms achieve a higher financial performance with an extensive disclosure rather than with a limited disclosure. This conclusion highlights that if, in the short term, stakeholders do not penalize a firm for which they are not able to evaluate the sustainability performance; they penalize such a firm in the long run for its lack of transparency. If in the short term firms can strategically avoid with a limited disclosure the pressure and penalty of being unsustainable, in the long term this non-conformity to the transparency norm is punished. This final result is in line with the signaling view in the short term, but highlights that effectively normative pressure for transparency exists in the long term, and disqualifies propositions of the signaling perspective. While firms can strategically use their signals to play with their normative environment in the short term, they cannot avoid normative pressure and its consequences in the long term.

5. Structure of the thesis



E. RESEARCH DESIGN

1. Methodology

Each essay in this dissertation is based on econometrical analyses of quantitative data. Several reasons explain the deployment of quantitative instead of qualitative methods. First this dissertation appeals to firm level theories, all other intra-organizational characteristics being considered as constant. Therefore deep-level investigations of a small number of selected companies will not be reliable in proving this dissertation's empirical validity. In addition the base assumption of this dissertation is that stakeholders are not able to objectively evaluate firms' sustainability performance. Therefore interviewing stakeholders to investigate firms' sustainability would have been by nature in contradiction with the main postulate of this research. Finally sustainability is a broad concept that addresses both firms' operations in their country of origin and in their foreign operations. Therefore field investigations, to be consistent, should have covered several firms in several countries, which was materially impossible. By contrast econometric analysis offers the opportunity to access data from firms located throughout the whole world, to bypass stakeholders' biased assessments, and consequently to assess the reliability of firms level theories.

2. Data

Data in this thesis were extracted from different sources. The measures of sustainability performance and disclosure were provided by Asset4, an extra-financial rating agency. Prior reputation was extracted from *Fortune* Magazine's reputations scores. I did proxy stakeholders' evaluation of firms' sustainability performance with a set of stock indexes provided by different rating agencies, namely the KLD Large Cap Social Index, KLD Broad Market Social Index, the

KLD Domini Social index 400, the Calvert Social Index, the Down Jones Sustainability Index, the FTSE 4 Good index, Innovest's Top 100 Leaders in Sustainability and Asset4 firms which received an A+ grade. Finally financial performance variables and controls were extracted from Bureau van Dijk's ORBIS database.

2.1. Essay 1

In essay 1 I proxy stakeholders' assessment of a firms' sustainability through sustainability scores, sub-scores and indexes membership of several extra-financial rating agencies. I collected data from six major social raters: KLD, Calvert, FTSE4Good, DJSI, Innovest and Asset4. Taken together, these raters and ratings are among the most popular and well established in the field. This data covered the 2002-2010 periods for KLD and Asset4, and dated from 2004, 2005 or 2006 for Calvert, FTSE4Good, DJSI and Innovest. These six raters have quite similar rating processes. They collect raw quantitative and qualitative data and then implement proprietary methodologies to issue scores and sub-scores on top level categories such as environmental impact, human rights compliance, and governance. Finally, they often provide a list of firms that they consider as the most sustainable in the form of an equity index.

The final database was assembled by coding for each firm with a 1 when it was included in a raters' sustainability index, and a 0 when it just belonged to its universe of selection[5]. In addition to membership, I collected more detailed data for all firms rated by KLD and Asset4, and some firms rated by Calvert, DJSI and Innovest. For KLD, I extracted the 98 detailed sub-scores that

[5] Those universes are most similar either to the S&P 500, the Russell 1000 or the Russell 3000. The overlapping universe of all the raters includes 413 firms most similar to the S&P 500.

rate firms on more specific aspects of their sustainability performance (i.e. Environment, Community …)[6]. For Asset4 I accessed the 1359 raw data for all firms in the selection universe. Raw data were quantitative or qualitative indicators which reflect precise dimensions of firms' sustainability performance. I also obtained scores and sub-scores that Asset4 computes from those raw data: 15 sub-scores for each of the 15 sub-categories[7], and three scores for the three top-level categories: Governance, Environment, and Social. I finally accessed for Calvert the five high-level scores of the 100 largest firms they rate[8], for DJSI the three high-level scores for 78 firms which represented the within-industry top 10% plus one "runner-up" per industry, and for Innovest the sustainability grade of each firm in their universe[9] for three top-level dimensions (Social, Environment, and Governance).

The final database encompasses a set of 3134 firms being in at least one of the raters' selection universe. For each firm it was possible to identify if it belonged to a rater's selection universe, its sustainability index, or none of them. Additionally, the database encompasses detailed sustainability scores and sub-scores over the 2002-2010 period for 374 firms in 2002, up to 839 in 2010.

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[6] Community, Diversity, Employment, Corporate Governance, Employee Relations, Environment, Human Rights, Products.

[7] Board Functions, Board Structure, Compensation Policy, Vision and Strategy, Shareholder Rights, Emission Reduction, Product Innovation, Resource Reduction, Product Responsibility, Community, Human Rights, Diversity and Opportunity, Employment Quality, Health & Safety, Training and Development)

[8] Environment, Workplace, Business Practices, Human Rights, and Community Relations

[9] Innovest grades in decreasing order: AAA, AA, A, BBB, BB, B, CCC

2.2. Essays 2 and 3

Essays 2 and 3 rely on the same dataset. To build it I first selected measures of sustainability performance and disclosure for firms in the Asset4 database. Asset4 is a Swiss based subsidiary of Thomson Reuters which provides extra-financial ratings for the largest firms in the world. Started in 2002 with 959 rated firms, the database encompassed in 2010 a set of 3598 firms that fully covered major financial indexes from the largest worldwide stock exchanges[10]. Asset4 analysts gather 1359 raw data on firms' sustainability performance, and disclosure (Quantitative and Yes/No data), through all publicly available sources (Annual reports, CSR reports, Newspapers, NGO websites…). Those raw data are then transformed through a proprietary algorithm in several sustainability ratings and sub-ratings. Asset4 is at this date the world's largest database for extra-financial information.

While most of the management literature measured sustainability related constructs using databases from KLD (Barnett & Salomon, 2006; Surroca et al., 2010; Waddock & Graves, 1997), I relied on Asset4 which compared to its competitors provided more granularity, validity and adequacy for this dissertation's theoretical setting. Asset4 ratings seemed more valid as they relied on raw data, ratings being obtained through algorithm and not through subjective evaluation of analysts. Asset4 ratings were thus limited in any cognitive bias that may arise in other extra-financial ratings databases. In addition Asset4 better fitted the framework of this dissertation as it clearly differentiated firms' sustainability performance, and sustainability disclosure. While most stakeholders hardly observe sustainability performance, Asset4 analysts

[10] FTSE 250 (UK), S&P 500, NASDAQ 100, Russell 1000 (US), S&P Composite (Canada), SMI (Switzerland), DAX (Germany), CAC 40 (France), S&P ASX 200 (Australia) DJ STOXX (Europe), MSCI World (World)

collect and analyze hundreds of data and spend hours digging for information to evaluate precisely firms' actual degree of sustainability. They are consequently able to evaluate the difference between what firms actually do (their sustainability performance) and what they disclose (their sustainability disclosure).

In line with the literature I then completed my initial sample with reputational measures from *Fortune* magazine's annual survey of "World's Most Admired Companies" over the 2003-2009[11] period (Basdeo et al., 2006; Fombrun & Shanley, 1990; Roberts & Dowling, 2002). *Fortune* creates its sample by first selecting the 1000 largest US firms ranked by revenue; the 500 largest foreign firms, and the top foreign companies operating in the US. It then sorts the companies by industry and selects the 15 foreign firms and 10 US firms with highest revenue per industry. On average *Fortune* rates 349 firms a year issued from 27 different countries. As the construct of interest was "Prior Reputation", *Fortune's* scores where lagged by one year, therefore matching Asset4 data over the 2004-2010 period.

I finally collected from Bureau van Dijk's ORBIS database and for all firms included at least one year in Asset4 database their financial performance as measured by their return on total assets or Tobin's Q, and control variables such as industry classification, geographical information, solvency ratios, total assets etc.

For essay 2 the final dataset is an unbalanced sample of 429 firms belonging to all industrial

[11] Ratings of companies for the year 2010 are published in early 2011; Ratings of companies for the year 2009 are published in early 2010, and so on…

sectors[12] and 27 different countries (including most developed countries[13] and major emerging ones[14]). Those firms are the ones belonging to the major indexes from the largest stock exchanges worldwide[15], and for which there was availability of both sustainability and reputational data. The final dataset contains 1,742 observations on the 2004 – 2010 period (2003-2009 for data issued from Fortune Magazine) and is unbalanced due to some unavailable data over the whole 7 years. On average the final sample includes 249 firms per year and each of the 429 firms appear 4.1 consecutive years in the dataset.

For Essay 3 the final dataset contains all firms ever rated by Asset4. It is an unbalanced sample of 3,307 firms belonging to all industrial sectors and 63 different countries[16]. It contains 13,662 observations on the 2005 – 2010 period and is unbalanced due to Asset4's progressive coverage of the 3,307 firms. On average the final sample includes 2,277 firms per year and each of the 3,307 firms appears for 4.1 consecutive years in the dataset.

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[12] Energy, Basic Materials, Industrials, Cyclical Consumer Goods & Services, Non-Cyclical Consumer Goods & Services, Financials, Healthcare, Technology, Telecommunications Services, Utilities

[13] Australia, Belgium, Bermuda, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Italy, Japan, Korea; Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, United Kingdom, United States of America

[14] Brazil, China, India, Mexico, Russian Federation, South Africa

[15] FTSE 250 (UK), S&P 500, NASDAQ 100, Russell 1000 (US), S&P Composite (Canada), SMI (Switzerland), DAX (Germany), CAC 40 (France), S&P ASX 200 (Australia) DJ STOXX (Europe), MSCI World (World)

[16] Australia, Austria, Bahamas, Belgium, Bermuda, British Virgin Islands, Canada, Cayman Islands, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hong Kong, Hungary, Ireland, Isle of Man, Israel, Italy, Japan, Jersey, Republic of Korea , Luxembourg, Marshall Islands, Netherlands, New Zealand, Norway, Panama, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom, United Sates of America, Brazil, Chile, China, Colombia, Egypt, India, Indonesia, Kuwait, Malaysia, Mauritius, Mexico, Morocco, Papua New Guinea, Philippines, Qatar, Russian Federation, Saudi Arabia, Singapore, South Africa, Taiwan , Thailand, Turkey, Ukraine, United Arab Emirates

3. Methodological choices

This section does not aim at describing all the empirical methods used in this thesis but at providing an overview of the main issues encountered and of the methodological solutions deployed to cope with them.

3.1. Tetrachoric and Spearman correlations in essay 1

The main purpose of essay 1 was to test the convergence of six different raters in their evaluation of firms' sustainability performance. We obtained firms' membership in six raters' sustainability indexes and the sustainability sub-ratings for 5 of those raters. The main objective of this essay was thus to test the correlation among indexes' memberships and sub-ratings. However in both cases the classical Pearson correlation was not adapted to the true nature of data.

Raters in their indexes' allocation have different universes of selection and different cut-off levels. Some raters include a high number of firms while other raters only select the few that are at the top end in terms of sustainability performance. For these reasons the classic Pearson correlations would have provided biased results. I therefore estimated for indexes membership data their tetrachoric correlations, a maximum likelihood technique that estimates the correlation of two raters' unobserved continuous ratings based on their observable cut-off level. Tetrachoric correlation is a correlation adjusted for the dichotomous nature of data and the cut-off level of each rater. As an illustrative example, if two psychiatrists analyze the same population, even when their assessment on patients' depression is identical, they will not prescribe drug therapy to the same number of people. They may have different cut-off points at which they prescribe. In this case the Pearson correlation between treated and not treated patients of the two psychiatrists will be low, while the tetrachoric correlation will score high.

Furthermore scores and sub-scores I obtained were ordered measures but were not compulsorily scaled. As an example Asset4 provides scores from 0 to 100%, KLD 0/1 dummies, and Calvert, DJSI or Innovest rank variables. I therefore measured the convergence between those ordered but non-scaled variables by estimating their Spearman correlation. As opposed to Pearson correlations which assume scaled and ordered variables, Spearman pairwise correlations allow for relaxing the scale assumption.

3.2. Sample selection bias, heteroskedasticity, non-normal distribution of variables, and endogeneity in essays 2 and 3

In essays 2 and 3 the main methodology deployed is the multivariate regression analysis. In essay 2 the dependent variable is "*Sustainability Disclosure*" and the main independent variables "*Sustainability Performance*", "*Sustainability Performance Inconsistency*", "*Prior Reputation*", and their interactions. In essay 3 the dependent variables are firms' "*Short and Long Term Financial Performance*" and the independent ones firms' "*Sustainability Performance*" and firms' "*Sustainability Disclosure*". Along those regression analyses appeared four main technical issues: sample selection bias, heteroskedasticity, non-normal distribution of variables, and endogeneity.

First there existed in the dataset and specifically for essay 2 a potential selection bias. Fortune's dataset with 2,443 observations was much smaller than the Asset4 one (18,270 observations), and Asset4 analysts' coverage increased over time. As a consequence there existed some reasonable doubts that the sample selection was not purely random. Firms included in the final samples were at the intersection of the Asset4 and the Fortune datasets (Orbis covering both fully). Those firms were thus selected regarding Fortune's analysts bias toward bigger and more profitable firms, and Asset4 strategy to first cover European and US firms to then historically increase its coverage to

developing and smaller countries. To cope with this bias I followed Heckman's methodology (1979) to correct for sample selection by regressing on a selection dummy the potential factors of selection (firms' turnover, profits before taxes, geographical regions of origin...), computing then an inverse mills ratio included in all models estimated. Essay 3 did not include data from Fortune. Therefore several tests supported the idea that the selection sample from Asset4 was not significant, and did not necessitate the Heckman procedure as a control.

Secondly there existed heteroskedasticity issues in the estimated models. *Sustainability disclosure* and *Financial Performance* may have a multitude of antecedents and while I tried to control for most of them, there still existed doubts of omitted variables that could create heteroskedasticity. In addition certain variables such as *Sustainability Performance* or *Sustainability Disclosure* were not normally distributed, but more stretched over negative than positive values. This may have been due to the initial selection bias, but also to firms' behaviours: They either conform to the one norm of sustainability, or position themselves in the whole range of values that are lower than this norm. To cope with those two issues I estimated regression models in essays 2 and 3 with a Generalized Method of Moments (GMM) estimation technique (Hansen & Singleton, 1982), with robust, for heteroskedasticity, estimations of standard errors. The Generalized Method of Moments is more robust than the basic Least Squares one (LS) as it does not make any assumptions on variables' distribution and is sufficient for arbitrary heteroskedasticity.

Finally there existed initially endogeneity and multicolinearity issues inherent to my constructs. *Sustainability Performance* and *Sustainability disclosure* seemed jointly determined. Firms simultaneously select their sustainability performance and disclosure strategies (Al-Tuwaijri et al., 2004), which results in a very high correlation between the two measures (0.92). I therefore in

essay 2 instrumented *Sustainability Performance* by its first difference[17] (Bond, 2002). While some simultaneous equations techniques would have been possible (Al-Tuwaijri et al., 2004), this instrumental variable technique allowed for more control on the relationships. Several robustness tests supported the reliability and exogeneity of the first difference of sustainability performance as an instrument of sustainability performance. For essay 3 the instrumental variables method did not provide stable results. I therefore analyzed the moderating effect of *Sustainability Disclosure* in the relationship between *Sustainability Performance* and *Financial Performance* by splitting the initial sample between firms with *Extensive Sustainability Disclosure* and firms with a *Limited Sustainability Disclosure*, and analyzed the estimated coefficients of *Sustainability Performance* on *Financial Performance* in both cases. Using Chow tests of equality of coefficients (Chow, 1960) I did support the idea that in the short term *Sustainability Performance* only impacts the *Financial Performance* of firms with *Extensive Sustainability Disclosure*, and that *Sustainability Disclosure* only impacts firms' *Long Term Financial Performance*. I finally estimated ANOVAs and MANOVAs models to determine whether less sustainable firms achieve a higher short or long term financial performance when adopting an *Extensive* or a *Limited Sustainability Disclosure*. ANOVAs and MANOVAs were estimated with a dependent variable firms' predicted *Financial Performance.* The predicted *Financial Performance* measures were issued from the initial models that estimated the impact of *Sustainability Performance* on *Financial Performance* for sub-samples of firms. However the predictions were computed over the whole sample of firms. As an example I computed the predicted *Financial Performance* of

[17] First differentiation is a mathematical transformation of temporal data. For a random variable X with realizations in year t: x_t, the first difference formula is as follow: $D(x_t) = x_t - x_{t-1}$

firms with *Limited Sustainability Disclosure* by estimating the impact of *Sustainability Performance* on *Financial Performance* for firms with a *Limited Sustainability Disclosure* only, but I then generated the predictions of this model for the whole sample of firms (even those with an *Extensive Sustainability Disclosure*). Firms were then allocated to two groups depending on whether they had a *High* or *Low Sustainability Performance*. Those groups were thus adjusted for any sample selection biases (The whole sample including both firms with *High* and *Low Sustainability performance*), and thus no endogeneity issue could exist in the estimation procedure.

4. Structure of the research design

	Research Question	Data	Method
Chapter 3: 2nd Essay	***Are stakeholders able to evaluate firms' sustainability performance?***	• ***KLD, Calvert, FTSE4Good, DJSI, Innovest and Asset4 indexes and sustainability scores:*** *Stakeholders' evaluation of firms' sustainability*	• Tetrachoric Correlations • Spearman Correlations • T-test • ANOVA • Least Squares Regressions
Chapter 2: 1st Essay	***Are less sustainable and more reputed firms more likely to limit their disclosure?***	• **Asset4 ratings***:* *Sustainability Performance, Performance Inconsistency, and Disclosure* • **Fortune Magazine Scores:** *Prior Reputation*	• Fixed effects panel regressions with instrumented variables, Heckman corrections, and Two Stages Generalized Method of Moments estimation technique
Chapter 4: 3rd Essay	***Can less sustainable firms achieve higher financial performance when adopting a limited disclosure?***	• **Asset4 ratings***:* *Sustainability Performance, and Disclosure* • **Orbis database:** *Short and Long term Financial Performance*	• Fixed effects panel regressions on split samples and Chow tests of coefficients equality • ANOVAs and MANOVAs on adjusted for endogeneity split samples

In the next three chapters the essays that compose this thesis are developed. Chapter 5 finally develops the conclusion of this dissertation, its contribution to research and practitioners, its limitations and avenues for future research.

Chapter 2: Essay 1

When Do Raters Converge? [18]

A. ABSTRACT

Raters of corporations play an important role in mediating markets, assessing domains ranging from creditworthiness to corporate governance to best places to work. Though these raters frequently develop sophisticated methodologies, they often diverge in their ratings of the same firm, creating uncertainty for managers and other stakeholders. We build on prior theoretical work to propose that common theorization of what constructs are salient and commensurability of indicators (that is, agreement in how to measure these constructs) drive convergence among raters. We assess raters of corporate social responsibility and find that these mechanisms are largely absent. We therefore predict low convergent validity among six well-established socially responsible investing (SRI) raters. Even after controlling for differences in theorization, we find low convergent validity among these raters, suggesting low commensurability and, hence, substantial errors in the measurement of corporate social responsibility. This work contributes to the theoretical and empirical literature on ratings and the growing literature on CSR.

[18] This essay is co-authored with Aaron Chatterji, professor at Duke University, Rodolphe Durand, professor at HEC Paris, and David Levine, professor at the University of California Berkeley. It is currently under review in the Academy of Management Journal

B. INTRODUCTION

In 2010, professional fund managers in the U.S. invested more than $3 trillion under the banner of socially responsible investing (SRI).[19] The enormous amount of capital allocated to SRI has drawn considerable attention from scholars, activists, managers, and policymakers who are interested in the drivers of corporate social responsibility (CSR). Some CSR advocates praise SRI, believing that it can direct capital toward the most responsible firms while penalizing firms with poor social performance. Skeptics argue that the organizations that rate the social performance of enterprises, referred to as "raters" or "SRI raters" in our study, cannot discern which firms are socially responsible.[20] For example, Hawken (2004) points out that the various methodologies employed by socially responsible raters allow for almost any public firm to be a member of at least one SRI index. Entine (2003) presents several examples of raters giving high marks to firms that were later embroiled in famous scandals.

Academics have produced dozens of articles on CSR and SRI over the past two decades (see Orlitzky, Schmidt, & Rynes (2003) for a review). Notably, influential research has examined the effects of SRI on, for example, returns for investors and the cost of capital for managers (Galema, Plantinga, & Scholtens, 2008; Waddock, 2003). Other research examines the drivers of CSR, such as profit-maximizing responses to heterogeneous consumer preferences (Mackey, Mackey,

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[19] Social Investment Forum Foundation, Report on Socially Responsible Investing Trends in the United States, 2010.

According to this source, as of 2010, socially responsible investments are nearly 12.2% of the total funds managed by professional investors. This percentage has grown markedly since 2005, where $2 trillion, or 10% of total funds, were invested in accordance with socially responsible guidelines.

[20] Throughout the paper, we will use the term "raters" or "SRI raters" to refer to organizations that assess corporate social responsibility.

& Barney, 2007), imitation among firms, or a departure from profit-maximizing behaviour to satisfy managers' private goals (Greenwood & Van Buren III, 2010; Marquis et al., 2007). Finally, scholars have also debated the scope and definition of the concept "corporate social responsibility" itself (Devinney, 2009; Gray, 2010) .

A key question is whether raters converge to valid assessments of firms' social activities and performance.[21] Despite the interest in CSR, little research examines whether raters measure CSR accurately (for an exception, see (Sharfman, 1996)). If these metrics are invalid or are inconsistently applied across raters, the hypothesized benefits of socially responsible investing cannot occur. In the worst-case scenario, if firms expend resources to achieve high scores on invalid metrics, then even well-intended attention to social metrics reduces social welfare. Thus, it is crucial to understand the validity of social ratings and the dynamics driving convergence across raters.

Beyond the practical significance of SRI raters, there is a theoretical gap regarding what forces drive raters to converge or diverge. An emerging literature in management and organizations has argued that in many sectors various types of raters mediate markets by categorizing and ranking organizations (Fleischer, 2009a; Rao et al., 2003; Sauder & Espeland, 2009; Shrum & Kilburn, 1996). In contexts where raters and ratings have changed the behaviour of organizations, at least two mechanisms operate (Espeland & Sauder, 2007; Hsu, Roberts, & Swaminathan, 2012; Rao et al., 2003). First, "theorization" makes clear precisely what raters assess and why it matters. Next,

[21] When discussing the behaviour of raters, we use the term "convergence." When referring to the rating they provide, we use the term "convergent validity."

"commensurability" of indicators makes comparison across evaluated organizations possible.

This prior work examined convergence of behaviour among rated entities, not among the raters themselves. The processes described in extant research hinge on raters providing ratings and rated entities responding by changing their activities. In the context of CSR, prior work has examined how rated firms strategize with respect to the normative standards (e.g. environmental, social, and governance assessments) created by raters. In some cases, rated firms have sought to draw attention to their activities while in other instances they have tried to avoid scrutiny by raters (Bansal & Roth, 2000a; Crilly, Zollo, & Hansen, 2012; Delmas & Toffel, 2008; Philippe & Durand, 2011). Our paper identifies an important antecedent to this chain of events. What drives convergence among raters in the first place? In numerous domains ranging from finance to consumer products, raters offer competing assessments. Even within the same domain, raters may differ on what constructs they evaluate and how they measure them. However, we understand little about the process by which raters themselves converge around common ratings, and theory development is required to shed light on this important issue.

We propose that two mechanisms drive convergence among raters: (1) common theorization (i.e. Do raters agree what constructs to measure?) and (2) commensurability across entities (i.e. Do raters agree how to measure each construct?). To test these ideas, we explore convergent validity of SRI ratings. We first document a lack of common theorization and commensurability among SRI raters and predict low convergent validity of ratings. Next, we find that the ratings of six major social raters—KLD, Asset4, Calvert, FTSE4Good, DJSI, and Innovest—have fairly low correlations with each other. Interestingly, the low correlations remain after adjusting for explicit differences in theorization, such as whether firms measure different aspects of social performance across environmental, social, and governance categories. This result implies that SRI ratings have

low commensurability, in that they measure the same construct in different ways. As we discuss, low commensurability implies that most or all the indices are measured with substantial error. We also find that firms with high SRI ratings are slightly *more* likely to be embroiled in a major scandal in subsequent years, reinforcing the conclusion that there is significant measurement error in popular ratings of corporate social responsibility.

Our work addresses both theoretical and empirical gaps in the literatures on raters and CSR. First, we theorize about the mechanisms that drive convergence among multiple raters and, hence, reduce ambiguity in markets. This insight sets our paper apart from previous studies of market mediation, which have not considered several raters in the same domain and do not address the factors driving convergence among raters themselves. Moreover, understanding how raters converge is a key antecedent to the process by which raters subsequently drive convergence among rated entities. In particular, in settings where scholars observe rated firms not complying with the normative standards set by raters, it is possible that this result is not simply driven by strategic considerations of the rated firms but is also related to a lack of common theorization and commensurability among the raters themselves.

Our results also constitute a methodological contribution to the empirical literature on corporate social responsibility, which increasingly utilizes the type of ratings used in our study. By finding low convergent validity of SRI ratings, we call into question the over one hundred empirical studies on corporate social responsibility that have used this data (Chatterji et al., 2009; Margolis & Walsh, 2003; Orlitzky et al., 2003). Overall, the results show limited validity for most SRI ratings, which is a serious concern not just for academics, but also for investors, activists, and policymakers.

C. THEORY AND HYPOTHESES

1. Convergence of SRI Ratings

The prior literature on raters has primarily focused on mechanisms that drive convergence of behaviours among the rated entities (Espeland & Sauder, 2007; Fleischer, 2009b; Rao et al., 2003; Zuckerman, 1999). These studies of market mediation by raters have shown that convergence in rated entities' behaviour relies on two principles. First, raters must produce ratings that imply an association between certain actions by the organizations being rated and the performance outcomes that raters measure. This "theorization," according to Rao et al. (2003), is what allows organizations to expect (1) better rankings from changes in behaviour and (2) the accompanying benefits such as more customers. When there is a clear theorization, organizations can adjust their behaviours—or choose not to. For example, *U.S. News* entered the university ratings market by offering an unambiguous theory of its role—to provide information to students and employers about the relative quality of educational institutions. In response, approximately one third of the 33 law schools studied changed their deans to follow the new theorized model of performance (Sauder, 2008). Relatedly, Wine Spectator and Robert Parker use clearly distinct schemas from one another to evaluate wines, which enables producers to anticipate more accurately the quality assessment they will receive from each rater (Hsu et al., 2012).

As they define specific constructs based on their theory, raters must also measure and interpret each specific construct. We define high "commensurability" of a theoretically motivated construct if different raters measure those constructs in a similar fashion. For instance, in financial ratings, measurements and interpretation of the construct "debt/equity ratio" is similar across various rating agencies. Taken together, these concepts of theorization and commensurability have traditionally been used to understand convergence among rated entities.

Prior work has argued that these forces induce firms to imitate one another and converge to a set of rules and activities that becomes widely shared (Davis & Greve, 1997; Lounsbury, 2001; Zietsma & Lawrence, 2010).

However, while the role of raters driving convergence among rated entities is certainly important, it is equally important to understand the forces that drive convergence and divergence among raters. We extend the concepts developed in prior work to form hypotheses about the forces driving convergence among SRI raters in terms of the ratings they produce.

In our context, "theorization" refers to the beliefs raters have about which dimensions of CSR investors should care about; for example, environmental, social, and corporate governance. In cases of multiple raters, "common theorization" refers to the degree of overlap in the dimensions of CSR measured by the raters. "Commensurability" refers to the extent that raters are using the same (or at least similar) measures and methods to assess the same construct (e.g. Do all raters use the number of workplace injuries and deaths to assess a firm's commitment to employee safety?). Simply put, common theorization among SRI raters overlaps in *what* they choose to measure and commensurability overlaps in *how* they measure various dimensions of corporate social responsibility. In any given domain, raters are more likely to converge around valid measures when the raters share a theory of what good performance means ("theorization") and what indicators are valid proxies for that good performance ("commensurability").

2. Will SRI Ratings Have High Convergent Validity?

We might expect SRI raters to provide similar ratings due to multiple raters measuring the same construct (that is, having a similar theory of what is high "social responsibility") with high-quality measurement methods and data. However, as discussed above, theorization and

commensurability are the two mechanisms that lead organizations to converge around a set of prescribed activities and policies. In the absence of these two mechanisms, the six raters we focus on in this study (KLD, Calvert, FTSE4Good, DJSI, Innovest, and Asset4) would not be expected to converge.

2.1. Common Theorization

When evaluating the extent of common theorization across these raters, there are at least four aspects of measurement to consider. First, what high-level categories (e.g., environmental, social, governance) do the raters measure (and how do they weight those high-level categories)? Second, do the raters screen out particular industries such as tobacco and firearms? Third, do raters norm their ratings by industry such that a firm is compared to the other firms in its own industry? Finally, do the raters claim that their ratings have any predictive value, in terms of future financial or social performance?

In terms of high-level categories, there is broad agreement on the components of social responsibility. Rhetorically, the marketing materials of the raters all seem fairly similar in describing their goals. For example, one of FTSE4Good's stated goals is "to provide investors with the opportunity to gain exposure to companies that meet globally recognized corporate responsibility standards."[22] KLD asserts that its "research is designed for investors and money managers who integrate environmental, social and governance factors into their investment

[22]FTSE4Good Index Series http://www.ftse.com/Indices/FTSE4Good_Index_Series/Downloads/Brochure_english.pdf (Last accessed March 1st, 2012).

process."[23] Calvert describes its ratings as "a broad-based, rigorously constructed benchmark for measuring the performance of large, US based companies following sustainable and responsible policies…"[24], and Asset4 claims to "provide objective, relevant and systematic environmental, social and governance information" that "professional investors use to define a wide range of responsible investment strategies."[25] In addition, all of the indexes cover similar high-level topics, including environmental and social performance.

However, there are some key differences across the raters. Some raters consider additional high-level categories. For example, KLD and Asset4 rate firms according to their products' safety, while other raters do not. Asset4 and DJSI explicitly consider economic dimensions, while other raters do not. Interestingly, no rater provides substantive explanations for the weightings they give the several high-level categories in creating a composite score of social responsibility.

Furthermore, three of the six raters (KLD, Calvert, and FTSE4Good) use explicit screens to exclude firms with substantial investments in broad categories like tobacco and firearms, though they each define "substantial" differently. Even among this group, FTSE4Good and KLD screen out firms involved in nuclear power, while Calvert does not. Finally, four of the six raters norm their ratings by industries (KLD and Asset4 are the exceptions).

When considering theorization about the important link between social and financial

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[23] KLD's Research Products http://www.kld.com/research/index.html (Last accessed August 13th, 2007).

[24] Calvert-About the Ratings http://www.calvert.com/sri-index.html (Last accessed March 1st, 2012).

[25] Asset4 ESG content overview http://thomsonreuters.com/products_services/financial/content_news/content_overview/content_az/content_esg/ (Last accessed February 8th, 2012).

performance, the public claims of SRI raters have some overlap. Innovest touts its expertise on drivers of "competitiveness, profitability, and share price performance."[26] Asset4 argues that its ratings "increase revenues" and "reduce risks" by "enhancing investment research capabilities and empowering new, innovative financial products."[27] Most of the other raters make assertions that imply a relationship between social and financial performance.

In sum, while SRI raters exhibit some overlap with regards to the most general definition of CSR and the hypothesized connection to financial performance, they lack a common theorization in terms of which industries should be screened out and what the relevant comparison group should be for a given firm. Therefore, we predict low convergent validity of SRI ratings.

> *Hypothesis 1: SRI ratings will have low convergent validity due to a lack of common theorization.*

2.2. Commensurability

Importantly, low convergent validity due to lack of common theorization is still consistent with high validity of raters, each of whom is trying to measure a different definition of "good CSR." For example, it is not a critique of either rater if the list of "100 best cheap eats" and "100 best fine dining" do not overlap, as each has a different theory of what goal their readers have in mind when using the rating.

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[26] For more examples, see KLD's "About Us" section at http://www.kld.com/about/index.html (Last accessed June 28th, 2007); "Methodology" section at http://www.kld.com/research/methodology.html (Last accessed June 28th, 2007); Innovest homepage at http://www.innovestgroup.com/ (Last accessed August 13th, 2007).

[27] Asset4 ESG content overview http://thomsonreuters.com/products_services/financial/content_news/content_overview/content_az/content_esg/ (Last accessed February 8th, 2012).

Similarly, users of social ratings may differ in what dimensions of CSR they value (Crilly et al., 2012; Delmas & Toffel, 2008; Philippe & Durand, 2011). Some investors may wish to avoid profiting from activities they feel are harmful, leading them to desire screens based on whether a firm sells certain products. Other investors may wish to encourage high effort by managers, leading them to focus on ratings that are defined relative to an industry, not an absolute scale. In that case, low correlations across social ratings could still be consistent with valid measurement by each rater, because raters would be simply appealing to different groups.

A problem with validity remains, though, if ratings of the *same* construct disagree; that is, if there is low commensurability. Thus, if we adjust for different theorizations (*what* constructs raters measure), the convergent validity of ratings will be determined by differences in commensurability (*how* raters measure the same constructs). Commensurability is a serious challenge for SRI raters. For example, it is unclear exactly how to measure superior human resource management and then compare it against higher-than-average toxic releases. Similarly, raters must quantify the social impact of additional minority representation on the board of directors versus having business interests in a nation that is ruled by totalitarian regime.

Raters make a significant effort to persuade potential investors that their methods and ratings are based on careful analysis of high-quality data (Chatterji et al., 2009). The implication is that they will measure the indicated constructs with high validity. For example, all of the social raters claim they draw on multiple sources and use multiple research methods, both of which are established scientific approaches: They all review official government data (e.g., on toxic emissions and regulatory actions), explore company documents and press reports, and conduct interviews. With the exception of Asset4, our research confirms that all the raters also do surveys, though they employ different methodologies.

All of these raters' have marketing materials that stress how carefully they analyze companies' social, governance, and environmental records. They often compare themselves to traditional financial research firms. For example, KLD describes its services as "analogous to those provided by financial research service firms." Perhaps not coincidently, *Dow Jones* and the *Financial Times* (Creators of DJSI and FTSE4Good) are also well-known providers of traditional financial information.

Nevertheless, raters use different methods and variables to measure the same construct. For example, raters such as KLD give credit for environmentally friendly products while others, like FTSE4Good, closely examine metrics that measure environmental processes (e.g., procedures to identify leaks and fix them) such as the ISO 14001 management standards. Finally, raters may apply different weights to the same dimensions of social responsibility. In general, these differences in commensurability are difficult for the investor to observe.

In sum, there are two possibilities regarding convergent validity of SRI ratings after adjusting for theorization. On the one hand, if commensurability is high, adjusting for different theorizations should substantially increase convergent validity. For example, if all raters rate environmental performance the same way, convergent validity should be high.

Alternatively, it is possible that the raters (and other stakeholders) may themselves be uncertain about how to accurately measure each dimension of social responsibility. Hence, we might expect that even after adjusting for differences in theorization, convergent validity will remain low. In the presence of such uncertainty, raters have incentives to differentiate their product and to send a signal of superior ability (Rao, Greve, & Davis, 2001; Zitzewitz, 2001). In doing so, raters vie for market share and seek to build distinctive identities in the marketplace. Thus, SRI raters may rate

firms much higher or lower than their competitors, and even after adjusting for differences in theorization, convergent validity of ratings will remain low. Given these two possibilities, we propose opposing hypotheses. If commensurability is high, we propose:

> *Hypothesis 2a: Convergent validity of SRI ratings will increase substantially after adjusting for explicit differences in theorization.*

If commensurability is low, we propose:

> *Hypothesis 2b: Convergent validity of SRI ratings will remain low even after adjusting for explicit differences in theorization.*

Importantly, if convergent validity is low for a pair of raters rating the same constructs (that is, even after adjusting for explicit differences in theorization), then at least one of the raters has low validity as well. Thus, our test of commensurability is also informative about measurement error.

D. DATA

To test these hypotheses, we examined the portfolio of U.S. companies from six leading social raters. At the highest level, convergence between raters can be judged by, for example, measuring the likelihood that a company included in KLD's Domini 400 Social index is also included in the Dow Jones Sustainability Index. However, several adjustments have to be made. As detailed below, we need to account for the different universes from which the portfolio companies are selected (e.g., Russell 1000 vs. S&P 500). At a deeper level, we also have limited access to the precise scores that underpin the decisions raters make about which firms to include in their indexes. Finally, since the ratings scales are often different, we need to make several adjustments to allow for direct comparisons.

We utilize data from the following social raters: KLD, Calvert, FTSE4Good, DJSI, Innovest, and

Asset4. Taken together, these raters and ratings are among the most popular and well established in the field.[28] This data covers the 2002–2010 period for KLD and Asset4 and date from either 2004, 2005, or 2006 for Calvert, FTSE4Good, DJSI, and Innovest. KLD, Calvert, and Dow Jones are based in the U.S., while FTSE4Good, Innovest, and Asset4 have origins in the European Union,[29] providing us with a global view of the industry. As mentioned above, the raters have broadly similar rating processes. They collect raw quantitative and qualitative data on specific information (production of tobacco based products, CO^2 emissions, election of trade-union representatives, etc.). The raters then implement proprietary methodologies to issue scores on high-level categories such as environmental impact, human rights compliance, and governance. Finally, raters typically provide a list of companies they consider most responsible, most often in an equity index for potential investors.

To assemble the data, we started with each rater's list of socially responsible companies and the broader universe of company stocks from which the list was selected (e.g., Russell 1000).[30] Our first task was to denote the firms that had been included on each rater's list of top social investments. Thus, we assigned a "1" to firms included in the KLD Domini 400 Social Index, the Calvert Social Index, the FTSE4Good Index, the DJSI World Index, Innovest's 18 U.S.-based

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[28] SustainAbility report, Rate the Raters Phase Two, Taking Inventory of the Ratings Universe, 2010.

This report lists all of these raters, except for Calvert, among their top 16 raters in terms of credibility. Note that Innovest was purchased by KLD at the time of this report. We chose to include Calvert since it is one of the oldest and most well-known raters in this space.

[29] Innovest and FTSE4Good are based in the UK, while Asset4 is in Switzerland.

[30] Those universes are most similar either to the S&P 500, the Russell 1000, or the Russell 3000. The overlapping universe of all the raters includes 413 firms most similar to the S&P 500.

firms in its "Top 100 Leaders in Sustainability," and Asset4 firms which received an A+ grade.[31] We assigned a "0" to firms in the eligible universe but not on these lists.

In addition to membership, we collected more detailed data for all firms rated by KLD and Asset4, and for some firms rated by Calvert, DJSI, and Innovest. For KLD, we had the 98 detailed subscores, which rated each company on more specific aspects of their social performance. The KLD subscores consist of 1/0 indicators for a strength or a concern on topics such as waste recycling, involvement in military products, and emissions of ozone-depleting gases. Those strengths and concerns are grouped in 8 high-level categories (Environment, Community, etc.).[32] By computing the sum of strengths minus the sum of concerns per category, we approximated KLD high-level category scores. For Asset4 we accessed scores for the four high-level categories (Economic, Governance, Environment, and Social) and for 18 sub-scores.[33]

With other raters, we had less data. For Calvert, we had five high-level scores, but only for the 100 largest firms they rate. Calvert provides a 1 to 5 score for its five high-level categories[34]. For DJSI, we had scores for its three high-level categories and for 78 firms which represented the, within-industry, top 10% of firms plus one "runner-up" per industry. Finally, for Innovest we had access to the grade (AAA down to CCC) of each firm in the Innovest universe and for three high-

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[31] Asset4 do not issue an index but grades each firm from A+ to D-.

[32] Community, Diversity, Employment, Corporate Governance, Employee Relations, Environment, Human Rights, Products.

[33] Economic (Economic Performance, Shareholders' Loyalty, Clients Loyalty), Governance (Board Functions, Board Structure, Compensation Policy, Vision and Strategy, Shareholder Rights), Environment (Emission Reduction, Product Innovation, Resource Reduction), Social (Product Responsibility, Community, Human Rights, Diversity and Opportunity, Employment Quality, Health & Safety, Training and Development)

[34] Environment, Workplace, Business Practices, Human Rights, and Community Relations

level categories (Social, Environment, and Governance). We transformed those grades into a 1 to 7 score for our analysis. We present a detailed view of our data and summary statistics in Table 1.

Table 1: Summary statistics

Membership in social indexes 2003–2005	IN	OUT	Universe (N)
KLD DS400	399	2603	3002
Calvert	607	490	1097
DJSI	88	2921	3009
FTSE4Good	101	613	714
Innovest	18	585	603
Asset4 A+	91	583	674
Overlap between Asset4 and other raters' universes	**IN**	**OUT**	**Universe (N)**
KLD DS400	631	2371	3002
Calvert	617	480	1097
DJSI	631	2378	3009
FTSE4Good	567	147	714
Innovest	441	162	603
Asset4 A+	674	0	674

E. METHODS AND RESULTS

We discuss (1) how we measured and tested convergent validity (Do ratings agree?) and (2) how we adjusted for explicit differences in theorization. Later, we perform an additional robustness check by testing (3) raters' predictive validity (How well do ratings predict future scandals?). We present the main results in the body of the paper and robustness checks in the Appendix.

1. Convergent Validity – Hypothesis 1.

Measuring convergent validity across six raters is a challenging exercise. We obtained membership data for 3134 firms from eight indexes universes (413 when only considering the universe common to all raters). All raters assessed firms from different universes (i.e., S&P 500, Russell 1000, etc.) and employed different scoring scales, which limited the extent of measures we could use to assess their convergent validity. There are numerous measures of similarity among discrete and continuous ratings. The most common inter-rater agreement measures are the

joint probability of agreement, the kappa statistics, and the Pearson and Spearman correlations.

In our case, examining the share of overlapping membership between pairs of indexes can be misleading as each index does not include the same number of firms. For example, if one index includes 500 firms from a universe of 1000 and a second index includes only 10 of that universe, it would be surprising if almost all of the second index's members were *not* in the top half of the first index. Thus, we emphasize measures that are invariant to the number of members in each index.

Furthermore, as mentioned above, our membership data is drawn from universes that are not fully overlapping. As an example, KLD DS400 is selected from the Russell 3000 index, while Asset4 A+ is chosen from the union of the S&P500 and the Russell 1000 indexes. Finally, statistical significance can be a misleading indicator of economic importance of a relationship when the null hypothesis is zero relation between two ratings of social responsibility. Convergent validity requires a stronger relationship than just an association different from zero, and thus we need measures that test not only the statistical significance of the relationship, but also its magnitude.

We therefore measure the convergent validity of ratings by examining the pairwise tetrachoric correlations between the eight indexes. To understand the meaning of tetrachoric correlations, we assume a standard measurement model:

$$R_{ij} = b\ T_i + e_{ij}$$

where:

- R_{ij} is the unobserved continuous score measured by an SRI rater j of firm i's true level of responsibility;
- T_i is the unobserved (latent) true level of social responsibility of firm i;

- b is a regression coefficient; and
- e_{ij} captures rater j's measurement error and idiosyncratic definitions of "social responsibility."

We can assume that T_i, the true level of social responsibility, is normally distributed and that e_{ij}, the measurement error, is normally distributed, independent across raters and firms, and has identical variance for different raters (which we normalize to unity). Without loss of generality we can normalize the mean true responsibility level $T_i = 0$.

For most of our raters (excluding KLD and Asset4), we only observe the discrete measure M_{ij}—whether SRI rater j has firm i as a member of its index. This discrete membership equals one when the unobserved continuous rating R_{ij} is above SRI rating agency j's cutoff ($Cutoff_j$), zero otherwise:

$$M_{ij} = 1 \text{ if } R_{ij} > Cutoff_j, \text{ and 0 otherwise.}$$

Variation in $Cutoff_j$ is driven by each rater's desired membership size or by a rater's view of an acceptable minimum value. Tetrachoric correlation is a maximum likelihood technique that estimates the correlation of two raters' unobserved continuous ratings R_{ij} (that is, the squared coefficient, b). This measure is a correlation adjusted for the dichotomous nature of the data and the cutoff level of each rater. As an illustrative example, consider two psychiatrists who analyze the same population. Even if their assessment of the patients' degree of depression is identical, they perceive different cutoffs of when drugs are effective, so they do not prescribe drug therapy to the same number of people. This "membership" depends on their cutoff point, below which they believe the patient does not require drug therapy. In such a case the Pearson or Spearman correlation between treated and not treated patients will be low, while the tetrachoric correlation

will score high. Thus, pairwise tetrachoric correlations provide us with a more precise assessment of the quantitative magnitude of the relationship between two raters. It is invariant to the number of companies selected in each index, and to the existence of non-overlapping universes.

Table 2: Pairwise tetrachoric correlations / Convergent validity of SRI raters on overlapping universes

	KLD DS400	Calvert	DJSI	FTSE4Good	Innovest	Average correlation of this index
KLD DS400						0.30
Calvert	0.44* N = 1072					0.12
DJSI	0.50* N = 3002	0.06 N = 1072				0.46
FTSE4Good	0.44* N = 664	0.15 N = 674	0.53* N = 665			0.40
Innovest	-0.00 N = 555	0.07 N = 508	0.54* N = 558	0.32* N = 461		0.32
Asset4 A+	0.12 N = 631	-0.12 N = 617	0.65* N = 631	0.52* N = 567	0.67* N = 441	0.37

N = Universe of firms rated by both raters.
* *p*-value <.05

Pairwise tetrachoric correlations in 2004–2006 between the eight raters are presented in Table 2. All mean correlations between a given index and the other 5 raters' indexes are lower than 0.46, which indicates low convergent validity among raters. Overall, the tetrachoric correlations between pairs of indexes are fairly low. They range from -0.12 between Calvert and Asset4 A+, to 0.67 between Innovest and Asset4 A+. Only 6 of the 15 correlations are higher than 0.5. Negative correlations between several indexes (e.g., KLD DS400 and Innovest; Calvert and Asset 4 A+) indicate strong disagreement among certain raters. In such cases, members of the first social responsibility index have a greater chance of being non-members than members in the second social responsibility index.

These results are robust when we examine the 413 firms that are common to every rater's

universe (Coefficients of mean correlations of indexes range from 0.10 to 0.38; see Table 22 of Appendix), and when other KLD indexes such as KLD BMS or KLD LCS are taken into account. (Their tetrachoric correlation coefficients with other non-KLD indexes range from 0.69 to -0.27; see Table 21 and Table 23 of Appendix)

Table 3 reports tetrachoric correlations over time between KLD DS400 and Asset4 A+ from 2003 to 2006, the years where we have the most detailed SRI data.

Table 3: Pairwise tetrachoric correlations 2003–2006 / Convergent validity of Asset4 A+ with KLD DS400

	Asset4 A+ / KLD DS400
2003	0.08 N = 385
2004	0.26* N = 523
2005	0.08 N = 598
2006	0.14 N = 605

N = Universe of firms rated by both raters.
* *p*-value <.05

The correlation in ratings varies over time, but there is no evidence that convergent validity is improving over time. This lack of increasing correlations was also found with data from KLD BMS (see Table 24 of Appendix). Taken together, the low tetrachoric correlation between the six SRI ratings, and the lack of increase in tetrachoric correlation overtime between KLD DS400 and Asset4 A+, provide strong support to Hypothesis 1: There is low convergent validity among SRI ratings.

2. Adjusting for Differences in Theorization – Hypotheses 2a and 2b

Next, we adjust for explicit differences in theorization among raters. As discussed above, three

dimensions of theorization we can identify are: (1) What high-level categories (e.g., environmental, social, governance) do the raters measure? (2) Do the raters screen out particular industries, such as tobacco and firearms? (3) Do raters norm their ratings by industry such that a firm is compared to the average firm in its own industry? (We address the predictive power of ratings as it relates to social performance in a separate analysis below.) We summarize the different explicit theorizations in Table 4.

Table 4: Indexes' methodology

Indexes	Use of screens	Industry norming of the continuous score
Asset4 style	No	No
Innovest & DJSI style	No	Yes
KLD style	Firms with military concerns, tobacco concerns, alcohol concerns, and nuclear power concerns are screened out of the indexes	No
Calvert style	Firms with military concerns, tobacco concerns, and alcohol concerns are screened out of the index	Yes
FTSE4Good style	Firms with military concerns, tobacco concerns, and nuclear power concerns are screened out of the index	Yes

We account for these differences in theorization to test Hypotheses 2a and 2b.

Our adjustment builds on Asset4's continuous "social responsibility" score for each company it rates. If Asset4 and another rater have similar theorization and high commensurability, then members in the other rater's socially responsible index will have much higher Asset4 scores than non-members.

At the same time, it is possible that some highly rated Asset4 firms are not in the other raters' index if the other firm uses a screen (e.g., tobacco) not used by Asset4 (which uses no screens). Thus, we can add the screens used by other raters and see if *after that adjustment* Asset4 scores

are more highly correlated with membership in other indices.

Similarly, if the other rater standardizes scores by industry, we can do the same for Asset4 scores. If lack of industry norming by some indices was responsible for the low convergent validity documented above, Asset4 scores after industry norming should be substantially more correlated with membership in other indices that norm by industry.

To do so we first standardized Asset4 continuous scores ($R_{iAsset4}$) so that they have a zero mean and a standard deviation of one. We then computed the difference in Asset4 continuous scores between members and non-members of each of the six indexes. Those "gaps" are computed for each index *i* as follow:

$$Gap_i = (\Sigma_{c \text{ in index } i} S_c - \Sigma_{c \text{ not in index } i} S_c)$$

Where:

- *c* indexes companies in the universe shared by index *i* and Asset4
- S_c is the standardization of R_c, the Asset4 score for company *c*.

Table 5: Indexes' gaps (Asset4 standardized scores of each index's members minus the Asset4 standardized scores of its non-members) / Convergent validity adjusting for explicit differences in theorization (Industry screening and norming)

Gaps	Screens	Industry norming	KLD DS400	Calvert	DJSI	FTSE4Good	Innovest	Asset4
Asset4 Style	No	No	0.18*	-0.21 **	1.17***	0.91***	1.21***	1.82***
Innovest & DJSI Style:	No	Yes			1.16***		1.22***	1.66***
KLD Style:	Yes	No	0.25***					1.46***
Calvert Style:	Yes	Yes		-0.11				1.43***
FTSE Style:	Yes	Yes				1.08***		1.39***
Indexes' gaps relative to Asset4's gaps for each methodological style								
Relative Gaps	Screens	Industry norming	KLD DS400	Calvert	DJSI	FTSE4Good	Innovest	Asset4
Asset4 Style	No	No	0.10	-0.12	0.64	0.50	0.66	1.00
Innovest & DJSI Style:	No	Yes			0.70		0.73	1.00
KLD Style:	Yes	No	0.17					1.00
Calvert Style:	Yes	Yes		-0.08				1.00
FTSE Style:	Yes	Yes				0.78		1.00

*** p<0.001
** p<0.01
* p<0.05
+ p<0.10

The top row of Table 5 shows the eight computed gaps. They measure whether membership in one of the eight "socially responsible" indexes is a good predictor of the Asset4 continuous score. If raters were to have the same theorization and commensurability (the same R_i as Asset4), those gaps should be equal. However, while the gap between Asset4 Index members and non-members equals 1.82 standard deviations, the gap between members and non-members of the FTSE4Good index is only of 0.91 standard deviations. Members of the Calvert index even have Asset4 continuous scores significantly *below* the non-members (with a gap of -0.21 standard deviations), providing evidence of *no* convergent validity between Calvert and Asset4.

Next, we adjust these eight "gaps" for differences in industry norming and screening. For Innovest, DJSI, Calvert, and FTSE4Good styles we mimicked industry normalization by standardizing Asset4 continuous scores per industry, using the first four digits of firms' Thomson Reuters Business Classification code. For KLD, Calvert, and FTSE styles we mimicked screening methodologies by assigning a zero score to firms (before standardization of Asset4 scores) that did not comply with the specific screening criteria.

In the upper rows of Table 5 we present the gap in Asset4 scores between members and non-members of each index when differences in theorization are not controlled, and in the lower rows we present results when these differences are accounted for. The gaps should be compared to the maximum possible gap, that between Asset4 members and non-members. The closer an index gap is to that of Asset4, the more convergence between the indexes. To make this comparison easier, we computed for each index *i* its "relative gap":

$$\text{Relative Gap}_i = (\Sigma_{c \text{ in index } i} S_c - \Sigma_{c \text{ not in index } i} S_c) / (\Sigma_{c \text{ in Asset4 index}} S_c - \Sigma_{c \text{ not in Asset4 index}} S_c).$$

If the relative gap equals 100%, the other rater's index members and non-members have as large a gap in Asset4 scores as Asset4 index members and non-members. Table 5 shows that the relative gaps of the five indexes increase when differences in theorization are controlled for (between the upper and the lower rows), from 64% to 70% for DJSI, from 66% to 73% for Innovest, and from -0.12% to -0.08% for Calvert. This result supports Hypothesis 2a, that different theorizations are partly responsible for the low convergent validity between raters.

However, relative gaps remain low even after adjusting for different theorizations. Even though it rises to 78% for FTSE4Good, the relative gap remains at 17% for KLD and is still negative at -0.08% for Calvert. These results provide evidence in support of Hypothesis 2b, that convergent

validity remains low even after adjusting for explicit differences in theorization. The upshot is that low convergent validity between SRI raters is not only driven by different theorizations, but also by low commensurability among most pairs of raters. As a robustness check, we used the same approach with the continuous KLD scores to assess the convergent validity of other indexes with the KLD DS400 index. We continue to find low convergence among raters, even when adjusting for explicit differences in theorization (see Table 25 of Appendix).

A separate divergence in theorization involves the non-overlapping aspects of social responsibility raters choose to measure. For example, all raters consider firms' environmental responsibility, but only Innovest, Asset4, and KLD evaluate firms' corporate governance. We use Spearman pairwise correlations to assess convergent validity of top-level scores, looking only at the top-level items pairs of raters have in common. As opposed to Pearson correlations, which assume scaled and ordered variables, Spearman pairwise correlations relax the scale assumption.

Table 6: Pairwise spearman correlations between KLD, Calvert, DJSI, Innovest, and Asset4's top-level scores

.	KLD	Calvert	DJSI	Innovest	Average correlation
Environmental score					
KLD					0.21
Calvert	0.63* N = 98				0.31
DJSI	0.18 N = 81	0.03 N = 31			0.23
Innovest	0.13* N = 554	0.35* N = 92	0.33* N = 76		0.30
Asset 4	-0.11* N = 631	0.23* N = 92	0.39* N = 66	0.38* N = 441	0.22
Governance score					
KLD					
Calvert					
DJSI					
Innovest	0.04 N = 555				0.19
Asset 4	0.06 N = 631			0.34* N =441	0.20
Social score					
KLD					
Calvert					
DJSI					0.21
Innovest			0.25* N = 76		0.30
Asset 4			0.17 N = 66	0.34* N = 441	0.26
Economic score					
KLD					
Calvert					
DJSI					-0.06
Innovest					
Asset 4			-0.06 N = 66		-0.06

N = Universe of companies rated by both raters
* *p*-value <.05

The Spearman correlations between pairs of raters' top-level scores are fairly low (Table 6). The

median Spearman correlation is 0.23. While KLD and Calvert environment ratings have reasonably high convergent validity, with a 0.63 correlation, DJSI's environmental score has low correlations with KLD and Calvert (below 0.19). Asset4's environmental score even has a negative and statistically significant correlation with KLD (-0.11). Spearman correlations between other high-level categories (Governance, Social, and Economic) are even lower. Although Asset4 and Innovest have close to a 0.34 correlation between their Governance and Social high-level scores, KLD Governance scores do not significantly correlate with Asset4 and Innovest Governance scores (0.04 and 0.06, respectively). This is also the case for DJSI and Asset4 Economic scores (-0.06). This additional evidence supports Hypothesis 2b, that differences in scores are not only due to different theorizations, but also to low commensurability.

These findings were supported by several robustness tests reported in the Table 26 of Appendix. We tested the correlation over time between Asset4 and KLD data on low-level sub-scores (e.g., the firms' involvement in the Tobacco and Gambling industries, actions to protect biodiversity, or good relations with trade unions). Correlations ranged from 0.85 (Involvement in Nuclear) to -0.18 (Protection of indigenous people), providing further evidence for low commensurability, and thus low convergent validity between SRI raters.

3. Predictive Validity

We conduct one additional set of tests to shed light on the validity of SRI ratings by exploring predictive validity. Simply put, do high (low) SRI ratings imply a lower (higher) likelihood of being subsequently embroiled in a major scandal? As discussed earlier in the paper, organizations pay attention to and adjust their activities in response to ratings in part because managers expect

that improvement on specified criteria will improve their rating. SRI ratings have similar forward-looking features to other ratings used in prior work. In this analysis, however, we assess predictive validity from the perspective of a consumer of ratings who is asked to believe that high ratings imply that a firm is acting and will continue to act responsibly.

Our test of predictive validity explores whether members of SRI indexes are systematically less likely to be involved in scandals relative to non-members. We extracted from Asset4 twenty-two "controversy" dummy variables,[35] which code whether a firm was embroiled in a social responsibility scandal over the year. We then summed those dummies to obtain a 1 to 22 count variable that we labeled *Controversy*, and which proxies for the number of scandals a firm encountered over a year. We estimated negative binomial models with *Controversy* as a dependent variable. Our independent variables are dummies coded for membership to SRI indexes, controls for firms' visibility (*Total Assets*), and dummies for industry specific factors (*Industry Dummies*). Results presented in Table 7 consider scandals that happened two years after firms' membership in SRI indexes, and in Table 8 three years after firms' membership. In each table, Models 1 to 6 present the results for the six indexes.

[35] Compensation Policy, Shareholder Rights, Insider Dealings, Accounting, Consumer Complaints, Anti-competition, Biodiversity, Spills and Pollution, Product Impact, Environmental Resource Impact, Social Exclusion, Responsible Marketing, Customer, Critical Countries – Indigenous People, Public Health, Bribery, Corruption and Fraud, Freedom of Association, Child Labour, Human Rights, Diversity Wages or Working Conditions, Health & Safety.

Table 7: Relationship between index membership and involvement in major scandals two years later

Controversies	(1)	(2)	(3)	(4)	(5)	(6)
KLD DS400	0.44**					
	(0.01)					
Calvert		-0.27				
		(0.18)				
DJSI			0.84***			
			(0.00)			
FTSE4Good				1.12***		
				(0.00)		
Innovest					0.50+	
					(0.08)	
Asset 4 A+						1.55***
						(0.00)
Total Assets	0.00**	0.00**	0.00***	0.00***	0.00**	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Industry Dum.	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.13	-0.89	-0.06	-0.03	-0.67	-1.41**
	(0.17)	(0.23)	(0.94)	(0.93)	(0.38)	(0.01)
Observations	611	590	607	533	404	607
ll	-541.1	-533.2	-575.3	-588.3	-405.2	-517.9
df_m	65	66	66	65	61	66

Robust p-values in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 8: Relationship between index membership and involvement in major scandals three years later

Controversies	(1)	(2)	(3)	(4)	(5)	(6)
KLD DS400	0.67***					
	(0.00)					
Calvert		-0.15				
		(0.44)				
DJSI			0.80***			
			(0.00)			
FTSE4Good				0.90***		
				(0.00)		
Innovest					0.52	
					(0.11)	
Asset 4 A+						1.44***
						(0.00)
Total Assets	0.00**	0.00**	0.00**	0.00***	0.00**	0.00***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Industry Dum.	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.78*	-0.23	-1.05	-0.14	0.05	-0.34
	(0.04)	(0.53)	(0.18)	(0.80)	(0.89)	(0.33)
Observations	768	695	611	536	411	587
Ll	-730.8	-701.5	-538.5	-723.6	-484.7	-624.7
df_m	66	65	65	63	60	65

Robust p-values in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

The results are striking: None of the raters are able to predict social or environmental scandals (Membership in an index is never significantly and negatively related to scandals over the next two or three years). Even more interestingly, members of KLD DS400, DJSI, FTSE4Good, and Asset4 A+ are persistently more likely to encounter scandals over the next two or three years than non-members of those indexes (Coefficients range from 0.44 to 1.44). Our measure of *Controversy* is just one way to proxy for major scandals, so based on this initial analysis there is evidence for weak predictive validity among leading SRI raters. Future research may wish to consider other measures of corporate scandals and weight these incidents based on severity.

F. DISCUSSION

The prior literature on raters explicates two mechanisms that drive convergence: common theorization and commensurability. We find limited evidence for common theorization, which can reduce convergent validity but may be consistent with high validity. That is (as long as users of each index understand the sources of divergence), the divergent ratings can each be valid measures of their idiosyncratic definitions of "responsibility."

Of greater concern, we find strong evidence of low commensurability of SRI ratings. When commensurability is low, then all or most raters have high measurement error when trying to measure similar theoretical constructs. Measurement error may be due in part to rating agencies' differential ability to see through companies' "greenwashing", (that is, advertising misleading or minor achievements in their environmental and social performance (Lyon & Maxwell, 2005)).

There are several reasons why SRI ratings lack these two mechanisms, which were found to be much more effective in studies of university, film, and restaurant rankings. First, most studies have looked at convergence of rated entities, not the raters themselves. Our work considers an

important antecedent to the ratings games—common theorization and commensurability among SRI raters. However, there are several important lessons from prior work in this area. First, most scholars have explored cases where there are distinguishable camps that have competing notions of what should be rated and why. The clear positioning of these various camps make it easier for organizations to make choices. For example, Thornton and Ocasio (1999) highlight how higher education publishing houses moved to a corporate model and away from the culture of close links between editors and authors. Sauder and Espeland (2009) document how a similar market logic around achieving higher rankings replaced the traditional vision of education in U.S. law schools.

We do not see differentiable camps or distinct positions among SRI raters. Without these contrasts, investors and customers lack simple frameworks to make decisions, and raters themselves do not truly represent opposing views of how to measure CSR, which precludes a process towards the continued improvement of the ratings.(Bourdieu, 1984; Fleischer, 2009a). All raters in our study vaguely share the same encompassing philosophy of "doing good leads to doing well." But no clear philosophies distinguish raters or force them to theorize better, improve on measurement, and become predictive. In some instances, when raters have substantial disagreements over what to measure, their criticisms of each other can also sharpen how each measures its constructs. However, this does not seem to be occurring in the SRI ratings industry. It is difficult for users of the ratings (for example, financial investors) to understand the differences in measurement philosophy of the different raters (distinctive theorizations). It is almost impossible for users to document low commensurability or to understand its sources. That is, users have no way to see what is driving divergences among raters or to understand which (if any) of the raters is providing a more valid measure of social responsibility.

The primary contribution of this paper concerns the literature on corporate social responsibility,

which increasingly utilizes the type of ratings used in our study. By finding little convergent or predictive validity among SRI ratings, we call into question the more than one hundred empirical studies on corporate social responsibility that have used this data (Chatterji et al., 2009; Margolis & Walsh, 2003; Orlitzky et al., 2003). Can we infer that empirical results reported using one rating scheme would remain valid if another rater was used? Probably not. Based on our study, we therefore urge scholars to test their empirical predictions using several ratings.

Our work also sheds light on competition among raters and to some extent, the strategies of rated firms. In situations where multiple raters target firms across many dimensions and differ markedly in terms of theorization and commensurability, rated firms could develop distinct strategies: ignoring the raters or being visible to just one or some of them (Bourdieu, 1984; Lamin & Zaheer, 2012). Prior work has argued that CSR pressures across multiple dimensions in part explains the differential responses of firms, as managers seek to strategize the best way to deal with raters (Crilly et al., 2012; Delmas & Toffel, 2008; Philippe & Durand, 2011). However, it may be the lack of convergence among raters in the first place that actually accounts for the variation in responses across firms, an intriguing topic for future work.

Our work also brings prior theories about theorization and commensurability to a new set of actors (the raters) in a new kind of industry (SRI). Previous work places more emphasis on the entry of a new rater into well-defined fields such as French cuisine (Rao et al., 2003), law schools (Sauder & Espeland, 2009), and wine (Hsu et al., 2012) and explores the impact on rated entities. We try to gain insights by looking at the drivers of convergence among the raters themselves and exploring the consequences of a lack of convergence. Prior work has considered the idea that raters can distinguish themselves from one another on particular dimensions to establish a clear identity in the market. For example, among Italian wine critics, Gambero Rosso claims to rely on

blind tasting but Veronelli does tastings at the winery (Negro, Hannan, & Rao, 2011). But this process of raters intentionally creating a distinctive identity does not appear to apply to our setting, since after accounting for distinct theorization, convergent validity among raters remains low. In contrast to more established fields (e.g. cuisine critics, wine tasters, financial analysts), the SRI ratings space is still being defined and the basic definition of CSR remains controversial. We find that the basic forces that guided conformity to a particular set of rules in the cases discussed in the prior literature simply do not exist in our industry setting. There is not enough overlap among the raters in terms of *what* to measure or *how* to measure it to drive convergence. This condition implies that SRI ratings will have a limited impact on driving rated entities toward any particular consensus, and hence will be unable to accomplish an important goal of most rating systems.

Finally, our results show limited validity for most SRI ratings, which is a serious concern not just for academics, but also for investors, activists, and policymakers. The market mediation as currently operated by SRI raters is unlikely to be socially optimal, an important concern for future research in this domain. Recent consolidation in the SRI industry and efforts to develop common measurement systems may lead to improvements, and we await future research to assess whether the next generation ratings are increasing in validity.

Our paper also has limitations that can be addressed by future research. While we have used six of the leading raters, future scholars might wish to compare a wider set of raters, with special emphasis on newer entrants who may have more sophisticated methodologies. Similarly, while we had detailed longitudinal data for KLD and Asset4, our data on the other raters was more limited. More detailed data on corporate scandals could also improve the predictive validity analysis and help to explain whether raters are just as likely to miss subsequent major scandals

compared to more minor corporate infractions. Future work could consider more systematic measures of poor corporate responsibility, perhaps by using penalties levied by regulators or lawsuits. More broadly, as the academic literature on CSR continues to evolve, more exploration of the ratings and the raters themselves with large datasets from around the world should yield important insights.

Chapter 3: Essay 2

Reputation Oblige – The impact of Sustainability Performance, Performance Inconsistency and Prior Reputation on Sustainability Disclosure[36]

A. ABSTRACT

This article studies the antecedents of firms' extent of sustainability disclosure. It more specifically identifies whether firms adapt their sustainability disclosure to the information they can disclose (firms' sustainability performance and its inconsistency), or to the information that stakeholders expect to observe (which depends on firm's prior reputation). We argue that firms first assess their sustainability performance and its inconsistency to determine how extensive their disclosure should be. In addition, as stakeholders rely on firms' reputation to set their expectations on the received signal, firms also respond to these expectations and adjust their sustainability disclosure as a function of their prior reputation. We find that while more sustainable and inconsistent firms tend to disclose more extensively their degree of sustainability, more reputed ones are more likely to limit their disclosure. However, depending on their actual degree of sustainability performance, there are situations where inconsistent firms limit their disclosure, and reputed ones send clear signals. Using a unique dataset (1742 observations over 7 years), we find support for our hypotheses and discuss the implications.

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B. INTRODUCTION

For years participants of the United States Department of Energy programme on voluntary reporting of greenhouse gases continuously self-reported reductions in their emissions, while it was proven afterwards their emissions had risen (Kim & Lyon, 2011). In the same way participants in the Sustainable Slopes programme for ski areas have been shown to be more detrimental to the environment than non-members (Rivera & de Leon, 2004). In Europe, to symbolize its implication in preserving natural resources, McDonald's recently moved from its canonical red toward a more sustainability oriented green logo. However, there is still "a lot of scepticism when a company like McDonald's starts to talk about salads" (Barnett, 2007). While some would like to trust firms regarding their commitment towards being more sustainable, evidence tends instead to argue that they deliberately limit available information about their degree of sustainability to appease or trick stakeholders' expectations.

Firms can actually disclose more or less sustainability information (Emissions measures, sustainability standards, sustainability reports…). We define the amount of information a firm transmits to stakeholders about its sustainability performance as the extent of its sustainability disclosure. Firms can adopt an extensive disclosure, or to the contrary limit their sustainability disclosure. The value of sustainability disclosure comes from the fact that firms' sustainability performance is a latent construct that cannot be directly observed (King & Toffel, 2007; King et al., 2005; Ruihua Joy & Bansal, 2003). "Customers cannot determine by inspection whether or not the cotton in a pair of trousers was grown in an organic manner or a pound of coffee beans was grown under a natural forest canopy" (King & Toffel, 2007). As a consequence they rely on available but imperfect information to decide whether to support or not a focal firm (Jones, 1995), and the ability of firms to manage their disclosure became in itself critical (Foss, 2007). A

firm may extensively reveal its social and environmental impact, but also "coat" its signals, limit its sustainability disclosure, and leave its stakeholders in doubt about its actual degree of sustainability – e.g. embellishing HR policy, hyper-communicating on only micro-local actions...

A focal firm evolves in an environment made of distinct entities that affect or are affected by its operations (Suppliers, Customers, Shareholders, Community…), namely its stakeholders (Freeman & Reed, 1983). Sustainability is a norm that stakeholders value (Philippe & Durand, 2011). Therefore an extensive disclosure triggers both benefits and costs (Cormier & Magnan, 1999). It may trigger benefits by revealing high sustainability results to stakeholders, but may create costs when sustainability results are not as expected. Therefore firms with high sustainability results may have an incentive to disclose extensively, while firms with poor sustainability results may be more inclined to hide their detrimental impact with a limited disclosure. Firms may adjust the extent of their disclosure depending on the nature of the information that they are able to disclose, namely the degree of sustainability performance they actually achieved.

However stakeholders are not latent receivers of information. Several scholars argued that firms' decision to adopt sustainability standards is often driven by coercive pressure from local stakeholders (Christmann & Taylor, 2001; King & Toffel, 2007) or governments (Short & Toffel, 2008). Stakeholders have expectations of the nature of the characteristic a firm has to disclose, and they do not expect all firms to achieve the same degree of sustainability. They more specifically expect reputed firms to achieve higher sustainability performance than their competitors. Some firms, even if they achieved high sustainability results, may still be at odds with their stakeholders' expectations. As a consequence firms may also adjust the extent of their disclosure depending on the nature of the information that stakeholders expect to observe,

depending on the degree of sustainability performance that stakeholders expect.

A pertinent question to ask is therefore: Do firms adjust their sustainability disclosure as a function of what they can disclose, or as a function of what their stakeholders expect to see?

Firms face a trade-off between revealing the degree of sustainability they achieved, and the risk of being at odds with stakeholders' expectations. Several scholars tried to show how firms are more or less inclined to disclose their commitment to sustainability as a function of their achieved sustainability performance (Cho et al., 2012; Patten, 2002). We address this literature by showing that a firm also adjusts its disclosure as a function its stakeholders' expectations, that they derive from the firm's prior reputation.

More specifically we consider that firms adjust their sustainability disclosure as a function of their achieved degree of sustainability, and therefore as a function of both their sustainability performance and its inconsistency. Sustainability performance is not a singular but a multidimensional construct. Firms' are never good or bad, but almost always good and bad at the same time (Strike et al., 2006). An oil company can invest in climate change technologies but also release highly toxic gases. It can ensure its employees' health and safety but at the same time trigger the largest oil spill in history. A firm's sustainability performance may be more or less heterogeneous over the full range of its stakeholders. This heterogeneity that we define as the sustainability performance inconsistency of firms leads them to disclose both positive and negative information on their sustainability performance. Disclosing both positive and negative cues modifies the stakeholders' perception of a firm (Mishina et al., 2012), and this complicates the task of disclosing extensively. An extensive disclosure of both good and detrimental behaviours may be a way to impress stakeholders (Bansal & Clelland, 2004), but it may also

attract stakeholders' scrutiny of either the good or the bad behaviour.

We also consider that a firm adjusts its sustainability disclosure as a function of its stakeholders' expectations. Research suggests that when stakeholders cannot easily observe a firm's characteristic, they then rely on information that is presumably highly correlated with the hidden characteristic, and in particular firm's prior reputation (Akerlof, 1970; Fombrun & Shanley, 1990; Spence, 1973; Weigelt & Camerer, 1988). Reputation is defined as how a firm compares to its competitors in terms of capabilities (what a firm is able to do) and character (what a firm would like to do) (Mishina et al., 2012). Firms with a high reputation face stakeholders with high expectations on its degree of sustainability, which consequently influences its disclosure strategy (Michelon, 2011). On the one hand, with great reputation comes great responsibilities: When a firm's prior reputation is high, normative pressure for transparency exists and may force the firm to extensively disclose its sustainable behaviours (Michelon, 2011; Philippe & Durand, 2011). On the other hand, with great reputation comes greater risk: The expectations of stakeholders are higher and they are more inclined to punish firms that do not match those expectations. Those firms may, in response, try to fool their stakeholders with a limited disclosure (Eccles, Newquist, & Schatz, 2007).

In this paper we assume that firms adjust the extent of their disclosure as a function of what they can disclose, i.e. their sustainability performance and its inconsistency, and what stakeholders expect to observe, which depends on firms' prior reputation. We thus not only aim at understanding if more sustainable firms are more likely to disclose, but further, if firms disclose differently as their sustainability performance becomes inconsistent, and as their reputation increases.

Whereas most scholars who investigated the relationship between sustainability performance and disclosure only considered firms' environmental performance and firms with operations in the United States (Al-Tuwaijri et al., 2004; Cho et al., 2006; Clarkson et al., 2008; Patten, 2002), we use a unique dataset (Asset4 from Thomson Reuters) which allows us to cover all dimensions of sustainability performance (Environment but also Social and Governance), and to test our hypotheses worldwide (429 firms from 27 countries over 7 years from 2004 to 2010). Findings show that both sustainability performance and sustainability performance inconsistency impact positively the extent of firms' sustainability disclosure, but that prior reputation has, on the contrary, a negative impact. Importantly, the positive effect of sustainability performance inconsistency may weaken for sustainable firms, and the negative impact of prior reputation disappear for highly sustainable and reputable firms. We discuss the implications of our results in the last section of the paper.

C. BACKGROUND

The United Nations Global Compact's signatories commit to the respect of ten social and environmental principles, and to self-disclose every year their progress on such dimensions. Such sustainable performance certification initially aimed at identifying good performers and erecting them as models. Ten years after its launch Nike, known for its involvement in child labour and BP, who caused, what is believed to be, the largest oil spill in history, are two of the oldest signatories. Petrochina targeted by several NGOs for its involvement in Sudan genocide reports every year its deep commitment to human rights. By contrast, the car manufacturer Fiat, who were among the first automakers to release an electric vehicle, never joined. Suntech, a solar panels manufacturer and Monoprix, a French food retailer known for developing its own organic products' line have not reported for the last 3 years, preferring instead more binding certifications

such as the European Ecolabel or the SA8000. Since 2008, when the Global Compact decided to strengthen its certification by delisting non-reporting firms, more than 2000 companies have been kicked out from the lists. However, at the same time, almost the same number of firms joined; as if once more stringent, the certification was attractive to a different category of firm. This example provides anecdotal evidence that there exist other drivers than sustainability performance that influence sustainability disclosure. A much deeper investigation of the determinants of sustainability disclosure is thus needed.

Stakeholders have been defined in management literature as "any identifiable group who can affect the achievement of an organization's objectives, or who are affected by the achievement of an organization's objectives" (Freeman & Reed, 1983). We assume therefore that firms in the pursuit of their objectives seek certain stakeholders' support, i.e. not only their participation, but also their endorsement (Jones, 1995). Firms' sustainability actions embrace social and environmental concerns and demonstrate active engagement vis-à-vis a firm's stakeholders. In return, firms benefit from stakeholders' support (Jones, 1995; Turban & Greening, 1997).

However, stakeholders cannot easily observe firms' sustainability performance (King & Toffel, 2007; King et al., 2005; Ruihua Joy & Bansal, 2003). Sustainability actions may target populations that are geographically distant; and it is hard to imagine that stakeholders can have a continuous focus on all firms they interact with. If stakeholders form expectations on sustainability performance, they may also update those expectations when firms disclose information about their sustainability performance. Sustainability disclosure thus appears as a key strategic decision in the sense that it may complete stakeholders' expectations and trigger further cooperative and supportive behaviours. Literature posits therefore that sustainability disclosure is a strategic behaviour in anticipation of stakeholders' pressure (Boiral, 2007; Delmas & Terlaak,

2001; Delmas & Toffel, 2008; King et al., 2005; Roberts, 1992; Ruihua Joy & Bansal, 2003).

1. Sustainability Disclosure

Firms can strategically adjust the amount of sustainability information they disclose. They may provide more or less figures; comply with more or less sustainability standards. Firms may communicate about some philanthropic activities but omit polluting emissions (Bansal & Clelland, 2004). Sustainability information can be buried in annual reports or clearly published as stand-alone reports (Philippe & Durand, 2011). For instance, a firm describing both its involvement in employees' safety and in improving waste management provides a higher amount of information than if it had only focused on its waste operations. A firm that complies with the ISO14001 standard and publishes a sustainability report provides more extensive information than if it had only published the report.

Sustainability disclosure consists of the amount of available indicators that characterize a firm's sustainability performance. Stakeholders that observe sustainability disclosure cannot estimate the trustworthiness of those indicators independently of each other, but can estimate an average level of sustainability performance out of those diverse signals. A higher number of indicators are associated with a more extensive disclosure, whereas a lower amount of signals indicates a more limited sustainability disclosure. In the case of limited disclosure stakeholders such as customers or investors estimate firms' sustainability performance with less accuracy and comparability than when the disclosure is extensive. When sustainability disclosure is limited the sustainability signal is said to be incomplete (Crawford & Sobel, 1982).

Sustainability disclosure influences stakeholders' willingness to support a focal firm. Witnessing an extensive disclosure, stakeholders infer a firm's conformity regarding the level and nature of

involvement they demand. However, when the signal they receive is incomplete, they can only assign a probability to the idea that the focal firm conforms in actuality to their expectations. Disclosure will only be meaningful to stakeholders if it reflects some certain underlying events (Jaggi & Freedman, 1992), and a firm with limited disclosure controls the information flow available to stakeholders to maintain doubts and emphasize uncertainty on its true sustainability performance (Laufer, 2003; Lyon & Maxwell, 2005).37

Consequently sustainability disclosure may both trigger and threaten stakeholders' endorsement. An extensive disclosure reveals the true level and content of a firm's actual sustainability practices and indicates whether the firm could meet stakeholders' expectations in terms of environmental protection, social welfare, etc. (Philippe & Durand, 2011). A firm that meets stakeholders' objectives of sustainability will be better off revealing its achievements with an extensive disclosure. However a firm believed to be environmental friendly will suffer from disclosing complete figures on a poor environmental performance. Such firms will be better off with a limited disclosure. On the one hand an extensive disclosure can be a way to comfort stakeholders and trigger their support. On the other hand an incomplete signal can be a protection against non-conforming practices or against poor results obtained from well-intended efforts.

Hence in which cases do firms disclose extensively? What are the drivers of sustainability disclosure? We contend that two components influence firms' signaling strategies: the degree of

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[37] Note that the publication of incomplete signals differs from the provision of falsified information (Lyon & Maxwell, 2005). Falsified signals refer to a divergence between the information conveyed and the true unobservable value, while incomplete signals refer to the information range in which is located this value. Due to high scrutiny and high potential sanctions from stakeholders in the case of sustainability policies, misleading signals are unlikely to be preferred to incomplete signals, which bears less risk and yield at least equal pay-offs.

their underlying sustainability performance, and the expectations of receivers about this performance (Hertzendorf, 1993). Applied to the case of sustainability performance and sustainability disclosure, we focus on three major determinants of sustainability disclosure: Two that are related to what firms achieved and can communicate about, i.e. the level and inconsistency of their actual sustainability performance, and a last one related to stakeholders' expectations as approached via their assessment of a firm's reputation.

D. HYPOTHESES

1. Sustainability Performance

Sustainability actions are firms' behaviours that are intended to benefit any stakeholders (Marquis et al., 2007). Whereas other corporate investments are focused on improving the wealth of shareholders, sustainability actions involve efforts to improve social welfare as a whole such as preserving natural resources, eradicating poverty, enhancing education… (Barnett, 2007). Literature defines sustainability performance as the outcome of sustainability actions, the benefits stakeholders receive from sustainability actions (Brammer & Pavelin, 2006; Carroll, 1979; Waddock & Graves, 1997; Wood, 1991).

Stakeholders have expectations about a focal firm's impact on their welfare. They request this firm to reach a certain level of sustainability performance. Where the firm complies, they will endorse it, where it does not, they might punish it (Jones, 1995). Sustainability disclosure is the process through which this focal firm discloses its sustainability performance. In doing so it aims to trigger stakeholders' support. Therefore an obvious driver of sustainability disclosure is what a firm has to communicate about, namely its sustainability performance.

In the case of a highly sustainable firm, which answers positively its stakeholders' request for

sustainability, there exists a clear motivation for revealing its good behaviours with an extensive disclosure. Stakeholders cannot initially observe if this focal firm matches their request for sustainability. It is only by implementing an extensive disclosure that this sustainable firm can reassure its stakeholders that it meets their expectations. When it discloses extensively the firm triggers stakeholders' support and thus collects the returns of its sustainability investments. As an example stakeholders can hardly be aware if a firm has invested in low carbon footprint facilities. However if the firm advertises those investments by communicating about its new CO^2 emissions, stakeholders are more likely to provide their support.

However, all firms do not reach the stakeholders' requested degree of sustainability and the disclosure of social or environmental liabilities may put such firms at risk (Bansal & Clelland, 2004). An unsustainable firm has an incentive to create favourable doubts about its true sustainability performance. It has interest in increasing the probability that stakeholders believe it to be a high performer. An unsustainable firm has the opportunity to do so by limiting its sustainability disclosure. If a firm is involved in child labour, it will be better off by hiding this information, thus avoiding stakeholders' punishment, rather than by extensively disclosing its detrimental operations. As a corollary when information about poor sustainability results is extensively disclosed (by rating agencies for instance), firms tend to increase their sustainability performance to avoid stakeholders' punishment (Chatterji & Toffel, 2010)

Therefore the higher the firms' sustainability performance, the more incentive they have to increase the extent of their sustainability disclosure. Hence,

> *Hypothesis 1: Sustainability Performance has a positive impact on a firm's Sustainability Disclosure*

2. Sustainability Performance Inconsistency

Sustainability performance is a multidimensional construct that encompasses a wide range of topics: Environmental protection, human resources, philanthropy, sustainable procurement to cite a few (Brammer, Brooks, & Pavelin, 2006; Carroll, 1979; Cox, Brammer, & Millington, 2008; Waddock & Graves, 1997). Such multidimensionality comes from multifaceted sustainability actions that include purely charitable practices (philanthropy), strictly business oriented ones (energy costs reductions), actions uncorrelated with companies' core activities (Tree plantation programmes, Financing of NGOs…), and others that drastically modify firms' strategic orientation (Bottom of the Pyramid strategies, Social Businesses). These potentially divergent sustainability actions impact the welfare of different categories of stakeholders (Suppliers, Customers, Shareholders, Community…). Therefore, at the firm aggregated level, firms almost never have a uniform impact on all of their distinct stakeholders (Strike et al., 2006). They can both protect their employees' interests in developed countries, and be reluctant to protect human rights in their developing world operations. Firms can both induce environmental liabilities while deeply committing to the welfare of their suppliers. Sustainability performance inconsistency refers to the heterogeneity of firms' outcomes related to their sustainability initiatives. In other words, sustainability performance inconsistency translates the variance of a firm's sustainability performance at a certain point in time.

A firm that discloses extensively not only provides information about the average level of sustainability it achieved (its sustainability performance), but also about the heterogeneity of this sustainability (its sustainability performance inconsistency). When a firm adopts an extensive disclosure, it is more likely to communicate a spectrum of beneficial and detrimental impacts. The higher its sustainability performance inconsistency, the wider is this spectrum. Consequently

when a firm adopts an extensive disclosure, stakeholders not only observe its sustainability performance, but also this performance's inconsistency. When stakeholders make a decision to support a focal firm, they take both into account. Consequently, both sustainability performance and its inconsistency are determinants of a firm's extent of sustainability disclosure.

The main reason to believe that for a given level of sustainability performance, firms with more inconsistent sustainability performance are more likely to adopt an extensive disclosure is related to a reduction in the likelihood of stakeholders' withdrawal. A limited disclosure does not provide stakeholders with accurate information, but with a large range of probable values. It leaves receivers with the need to form their own opinion about a firm's unobservable characteristic. In creating uncertainty a firm with limited disclosure transfers to its stakeholders the risk of supporting an unsustainable firm, and thus limits their probability of cooperation. For a given level of sustainability performance, firms with inconsistent sustainability performance are more likely to perform well on at least certain dimensions of sustainability than firms with homogeneous sustainability performance. By adopting an extensive disclosure, an inconsistent firm shows that it does actually care about those few dimensions (Bansal & Clelland, 2004). It intends to deflect negative criticisms and doubts that could have emerged if it had sent incomplete information. An inconsistent firm with an extensive disclosure reveals both benefits and liabilities to its stakeholders. The disclosure of negative behaviours in the light of positive ones is for the firm a way to apologize for its detrimental impact (Elsbach & Sutton, 1992). Positive cues on firms' capabilities have a greater influence on stakeholders' perception than negative cues (Mishina et al., 2012). Stakeholders tend to accept more easily negative news when they are coupled with positive ones. Disclosing negative events in the light of positive behaviours could therefore be an impression management tactic, a way to enclose a potential contamination

of such news to a negative assessment of the organization as a whole (Suchman, 1995). Firms with varying degrees of success in their sustainability initiatives fear being accused of partial or selective disclosures, which could be detrimental to their stakeholders' support. Those firms therefore tend to communicate more extensively what they have done well, and less well. Hence for a given level of sustainability performance we expect:

Hypothesis 2: Sustainability Performance Inconsistency has a positive impact on firm's Sustainability Disclosure

Firms perform at different levels of sustainability performance and with varying degrees of inconsistency. Both variables influence their decision to communicate more or less extensively, to transmit more or less information to their stakeholders. We argue further that when firms make their disclosure decision, they do not consider their performance and its inconsistency separately, but one with respect to the other. More specifically, inconsistent firms will be less likely to disclose extensively if they also perform at high degrees of sustainability performance. In other words, firms' sustainability performance moderates the relationship between firms' sustainability performance inconsistency and the extent of their disclosure.

Inconsistent firms operate with both positive and negative sustainability impacts and have, in general, an interest in revealing their degree of sustainability (see hypothesis 2). This seems all the more realistic for firms with a low sustainability performance. When their sustainability performance is inconsistent, low sustainability performers still perform well on at least certain sustainability dimensions such as environment or governance. An oil company might have an overall detrimental impact on society and the environment, but still act positively in regards to its employees' safety. While stakeholders may expect such a firm to be only detrimental to their welfare, the firm may clearly be tempted to disclose its few good behaviours, appease

stakeholders' critics, and thus regain legitimacy (Bansal & Clelland, 2004).

On the contrary, inconsistent firms with high sustainability performance are on average beneficial to their stakeholders, but still detrimental on at least certain dimensions (Fair governance, employees' health and safety, environmental protection…). A fair trade coffee manufacturer might have an overall beneficial impact on its suppliers and the environment, but still encounter governance issues. Stakeholders expect a high sustainability performer to be impeccable and have scrutiny for its potential misbehaviours. Therefore when a sustainable firm performs inconsistently, communicating extensively about it creates a risk of revealing its few misbehaviours, and thus of losing stakeholders' support. When a legitimate firm encounters an unfortunate accident it is better off denying it (Marcus & Goodman, 1991). Sustainable but inconsistent firms are thus better off limiting the extent of their disclosure.

Consequently, depending on its sustainability performance, an inconsistent firm will be more or less inclined to disclose extensively. Impression management efforts that consist in dampening negative signals are not as efficient as those consisting of amplifying positive cues (Mishina et al., 2012). Stakeholders may scrutinize and value the few positive behaviours of poor sustainability performers, but on the contrary may scrutinize and punish the few detrimental behaviours of highly sustainable firms. While a firm with inconsistent sustainability performance has an overall interest in disclosing extensively (see hypothesis 2), when its sustainability performance increases, the risk of stakeholders' scrutiny on its few misbehaviours increases, and it therefore has an incentive in communicating less extensively. Hence,

> *Hypothesis 3: As sustainability Performance increases, the positive impact of Sustainability Performance Inconsistency on Sustainability Disclosure diminishes*

3. Prior Reputation

If sustainability performance and its inconsistency are hidden characteristics that a firm may reveal with an extensive disclosure, they are not the only drivers of a firm's extent of disclosure. We assess that firms when making their disclosure decision not only consider the nature of the characteristic they reveal, but also stakeholders' expectations on this characteristic. Firms adjust the extent of their sustainability signal as a function of receivers' expectations.

Sustainability performance is by nature a firm's characteristic that is not easily observable (King & Toffel, 2007; King et al., 2005; Ruihua Joy & Bansal, 2003). In such situation stakeholders form expectations, on the basis of prior information they can gather about firms' sustainability commitment. Before observing any sustainability disclosure stakeholders have already formed an initial belief on whether or not an organization is socially responsible (Brammer et al., 2009). Scholars determined that in situations where information is imperfect and outcomes difficult to observe, prior signals and specifically firms' prior reputation work as filters to set expectations (Akerlof, 1970; Fombrun & Shanley, 1990; Spence, 1973; Weigelt & Camerer, 1988). We assume that when firms adjust their sustainability disclosure, they not only consider what they have to disclose (their sustainability performance and its inconsistency), but also how it matches with stakeholders' expectations. We thus expect firms' prior reputation to influence firms' extent of sustainability disclosure.

Reputation is defined by how a firm compares to its competitors regarding the quality of its products, management, strategy and prospects (Fombrun & Shanley, 1990). It is constructed by the set of general information stakeholders gather over time on a firm's strategic choices (Fombrun & Shanley, 1990; Rindova et al., 2005). Outside observers continuously scrutinize a firm's actions, and evaluate the quality of its products, managements, strategies and prospects

under the form of a general assessment: its reputation (Basdeo et al., 2006; Heil & Robertson, 1991). Therefore a firm derives its reputation from its capacity to create value for its stakeholders, with quality products, constant profits, and by increasing its prominence in stakeholders' mind (Rao, 1994; Rindova et al., 2005). A strong reputation is a key resource that provides a firm with strategic advantages at both the asset and market levels (Podolny, 1993; Roberts & Dowling, 2002).

Stakeholders cannot observe a focal firm's sustainability performance but can still, observing the firm's market actions, form an assessment of its general reputation (Basdeo et al., 2006). They derive from their reputational assessment expectations on this firm's commitment to sustainability. The higher a firm's prior reputation, the higher stakeholders expect its sustainability performance to be (Barnett, 2007; Delmas & Toffel, 2004; Heil & Robertson, 1991; Philippe & Durand, 2011). Prior reputation works as a lens within which stakeholders observe sustainability disclosure, a lens that firms consider when adjusting the extent of their disclosure.

Stakeholders' prior beliefs shape the assessment of a targeted firm and therefore with great reputation comes greater risks (Mishina et al., 2012). Stakeholders infer from the high reputation of a firm that it also performs well in terms of sustainability. Stakeholders' expectations on sustainability performance are higher for a reputed firm. The risk of being punished for not conforming to stakeholders' expectations is thus also higher for reputed firms (Eccles et al., 2007). All other things being equal, the higher a firms' prior reputation, the more chance it has to be at odds with stakeholders' sustainability expectations. If stakeholders were to discover that a firm with high reputational attributes did not conform to their sustainability performance expectations, they may penalize it and withdraw their support (Philippe & Durand, 2011). The risk of exposure due to a high reputation can thus lead to a less extensive disclosure (Cormier &

Magnan, 1999). When a firm limits its disclosure, it makes its actual sustainability harder to evaluate. Incomplete signals prevent stakeholders from clearly evaluating a firm's actual sustainability performance. A high reputation player that is facing high expectations has therefore an interest in limiting its disclosure. When doing so, it leaves stakeholders uncertain about its true sustainability performance, and protects itself from the risk of being disapproved. Incomplete signaling acts as a "safety net" regarding the risk led by a high reputation. A limited disclosure is a way to insure firms against high stakeholders' expectations (Fombrun & Gardberg, 2000). When a company such as Nike gained a high reputation from breakthrough innovations and high media ranking, it became extremely risky to communicate about its relations with suppliers in developing countries. Even if averagely good, they may not match the high standards its stakeholders would expect. Consequently, highly reputed firms are likely to be the ones disclosing less extensively.

By contrast, low reputation players are facing few expectations from stakeholders. Stakeholders infer from low reputational attributes that the focal firm is not performing well in terms of sustainability. Such a firm with a weak reputation is therefore interested in reassuring its stakeholders that it implements at least a few good practices. It can do so by adopting an extensive disclosure. In addition, a firm with low prior reputation faces stakeholders that will scrutinize intensely. They inspect in more detail any behaviour and do not trust any fuzzy information. Stakeholders that receive incomplete signals from a low reputation player only infer that it conforms to its status and will not make any efforts in supporting it. When a disapproved company such as Macdonald's is willing to communicate about its efforts toward healthier products, stakeholders may disbelieve its communication if it is not complete and transparent. Consequently, if firms with low reputational attributes are willing to gain a few votes, they have

incentives in providing the clues of their good will with an extensive disclosure.

A limited disclosure acts for reputed firms as an insurance against reputational losses. In the case of disapproved firms it is a jamming signal. It increases the initial doubts stakeholders may have. As a consequence reputed firms are more likely to adopt a limited disclosure whereas low reputation players are more likely to disclose extensively their degree of sustainability performance. Firms with few reputational attributes may thus be the first to be certified, whereas reputed firms might refuse such a precise disclosure that may put them at risk (King & Lenox, 2000; King et al., 2005). Hence,

Hypothesis 4: Prior Reputation has a negative impact on a firm's Sustainability Disclosure

We argue further that the influence of prior reputation on firms' extent of sustainability disclosure is not independent from the firms' actual degree of sustainability performance. Firms do not consider either the level of sustainability performance they can disclose, or stakeholders' expectations on the disclosed sustainability performance. They consider one relative to the other: the level of sustainability performance they achieved compared to the level of sustainability performance stakeholders expect to observe. The risk of stakeholders' disapproval not only depends on their prior beliefs, but further on the reputation-reality gap, i.e. the discrepancy between stakeholders' beliefs and firms' actual behaviour (Eccles et al., 2007). Disclosure plays as a confirmatory or disconfirming signal regarding stakeholders' prior expectations. Stakeholders observe through disclosure if a firm's sustainability performance matches their expectations, and subsequent stakeholders' actions depend on the confirmatory power of this disclosure (Mishina et al., 2012). Stakeholders infer from a focal firm's prior reputation that it should achieve at least a certain degree of sustainability. But this focal firm may either

outperform or underperform the level of sustainability performance that stakeholders expect to observe. The fact that sustainability disclosure either confirm or disappoint stakeholders' expectations may have a deep impact on a firms' operations (Brammer & Millington, 2008). Therefore when a focal firm adjusts the extent of its disclosure, it considers stakeholders' expectations (i.e. its prior reputation) relatively to what it actually achieved (i.e. its sustainability performance).

When a focal firm achieved a low sustainability performance, it has more chances to underperform the level of sustainability performance its stakeholders inferred from its prior reputation. For those firms an extensive disclosure may trigger stakeholders' displeasure and is a perilous path. An extensive disclosure would be a disconfirming cue. It would confirm to stakeholders that this firm did not achieve their expectations, and would trigger their withdrawal. Therefore when the reputation of a firm with low sustainability performance increases, it is more inclined to limit its sustainability disclosure.

On the contrary, when a focal firm achieved a high degree of sustainability performance, it has more chances to outperform the degree of sustainability that its stakeholders inferred from its prior reputation. It thus bears fewer risks in disclosing extensively. For firms with high sustainability performance, an extensive disclosure appears as an opportunity to reassure stakeholders in their prior evaluation, and thus gain their support. Hence while reputed firms have an overall interest in limiting their sustainability disclosure (see hypothesis 4), when they also perform with a high sustainability, they have less chance to deceive stakeholders, and therefore may disclose more extensively. While a reputed firm such as Nike cannot afford disclosing extensively its limited efforts to benefits its suppliers in developing countries, other reputed firms such as The Beauty Shop is less inclined to hide its sustainability practices that are actually

impeccable. High degrees of sustainability performance allow firms to protect themselves against the risks of prior reputation. When the sustainability performance of a firm increases, the negative impact of its prior reputation on its sustainability disclosure may thus weaken. Hence,

Hypothesis 5: As Sustainability Performance increases, the negative impact of Prior Reputation on Sustainability Disclosure diminishes

Finally, it is crucial to note that if stakeholders derive from high reputational attributes that a focal firm should perform at high degrees of sustainability, they may also infer that such a firm should also be more transparent than its competitors. Prior reputation creates social expectations and normative pressure not only for firms' conformity to the sustainability imperative, but further to the transparency procedure (Philippe & Durand, 2011). With great reputation comes great responsibility and stakeholders expect from reputed players first a certain degree of sustainability performance, but also a certain degree of disclosure transparency (Michelon, 2011). A transparent disclosure consists in the provision of extensive and precise sustainability information. Therefore an extensive sustainability disclosure participates in the conformity mechanism to the norm of transparency. Reputed players have the opportunity to signal their conformity to the norm of transparency with an extensive disclosure.

The existence of normative pressure for transparency may challenge our argument that firms' are more likely to limit the extent of their sustainability disclosure as their reputation increases. Reputed firms may tend to disclose more extensively when stakeholders such as NGOs, activists, or governments put pressure on them to do so (Reid & Toffel, 2009). We however make the assumption that normative pressure and gains from conformity to the norm of transparency have less impact on reputed firms' decisions to disclose than the risk of revealing poor sustainability results. Therefore we identify that only firms with high sustainability performance answer

normative pressure for transparency, and this weakens their willingness to limit their sustainability disclosure as their reputation increases.

When the reputation of firms with low sustainability performance increases, adopting an extensive disclosure to conform to stakeholders' pressure for clear communication remains a risk. An extensive disclosure, if it shows conformity to the norm of transparency, also reveals the firms' actual degree of sustainability. If reputed but unsustainable firms were to disclose their detrimental impact on society, they would be perceived as in deviance from their status and would increase the risk of stakeholders' displeasure (Bansal & Clelland, 2004). Therefore if less sustainable firms may gain a little legitimacy by conforming to the norm of transparency with an extensive disclosure, they could lose even more by revealing their poor sustainability results. When their reputation increases, less sustainable firms are always better off limiting their sustainability disclosure, insuring themselves from high stakeholders' expectations, rather than extending their disclosure, and answering stakeholders' second order request for transparency. In the trade-off between being punished for not conforming either to the sustainability performance demand, or to the transparency request, they bear less risk with the second option.

However, highly sustainable players whose reputation increases can better respond to stakeholders' request for both sustainability performance and disclosure transparency. Highly sustainable firms already conform to stakeholders' requests for sustainability, the risk of losing stakeholders' support thus looms less if those firms were to disclose extensively. When their reputation increases, firms with high sustainability performance can more easily afford an extensive disclosure than less sustainable players. Consequently, whereas less sustainable firms always limit their disclosure as their reputation increases, more sustainable firms whose reputations increase are more likely to curb their disclosure. We may even expect that for high

degrees of reputation, sustainable firms may disclose more extensively as their reputation increases. For sustainable firms "Reputation Oblige": When their reputation increases, the conforming pressure for transparency equals the incentive to limit reputational risk with a limited disclosure. In the trade-off between protecting themselves against stakeholders' high expectation for sustainability, and conforming to their high expectations for transparency, sustainable firms choose a middle way, and limit less and less their disclosure as their prior reputation increases. As a consequence, for players with high sustainability performance, a U-shaped curvilinear relationship may even appear between their prior reputation and their sustainability disclosure. Hence,

> *Hypothesis 6: For firms with high Sustainability Performance, As Prior Reputation increases, the negative impact of Prior Reputation on Sustainability Disclosure diminishes*

E. DATA AND METHODS

Data in this study was extracted from different sources. We first selected sustainability performance and disclosure measures of all firms from the Asset4 database. Asset4 is a Swiss based subsidiary of Thomson Reuters which provides extra-financial ratings for the largest firms in the world. Started in 2002 with 959 rated firms, the database encompassed in 2010 a set of 3258 firms that fully covered firms from major financial indexes worldwide[38]. Asset4 analysts gather 1359 sets of raw data on firms' sustainability performance and disclosure (Qualitative and Quantitative data) through all publicly available sources (Annual reports, CSR reports,

[38] FTSE 250 (UK), S&P 500, NASDAQ 100, Russell 1000 (US), S&P Composite (Canada), SMI (Switzerland), DAX (Germany), CAC 40 (France), S&P ASX 200 (Australia) DJ STOXX (Europe), MSCI World (World)

Newspapers, NGO websites…). This raw data is then transformed through a proprietary algorithm in several sustainability ratings and sub-ratings. Asset4 is at this date the world's largest database for extra-financial information.

While most of the management literature measured sustainability related constructs using databases from KLD (Barnett & Salomon, 2006; Surroca et al., 2010; Waddock & Graves, 1997), Vigéo (Cavaco & Crifo, 2009), Calvert, FTSE4Good, DJSI, or Innovest (Chatterji & Levine, 2008); we decided to rely on a unique dataset that has almost never been used in management research (Cheng, Ioannou, & Serafeim, 2011). This choice relies on the fact that Asset4 compared to its competitors provides more granularity, validity and adequacy with our theoretical setting.

It provides more granularity as it rates companies over scaled scores (0 to 100%), while other extra-financial ratings agencies such as KLD only provide dichotomic indicators (0 or 1). Such granularity provides higher robustness for ensuing econometrical results. Asset4 is also less likely to be biased. It relies on publicly available information only (and not self-administrated questionnaires as for other competitors). It thus copes with the risk of misleading answers from rated firms. Furthermore Asset4 ratings are only issued through the application of algorithms on raw data, and not through subjective evaluation of analysts. It thus limits any cognitive bias that may arise in other extra-financial ratings databases. Finally Asset4 better fits our framework as it clearly differentiates firms' sustainability performance (outcome of sustainability practices) and sustainability disclosure (extent of the sustainability disclosure). While most stakeholders cannot easily observe firms' sustainability performance, Asset4 analysts collect and analyze hundreds of datasets and spend hours investigating primary and secondary information to evaluate precisely firms' actual degree of sustainability. Asset4 analysts are thus able to evaluate the difference

between what firms actually did (their sustainability performance) and what they disclosed (their sustainability disclosure), which in that sense perfectly matches our theoretical setting. Certain criticisms exist on data from extra-financial ratings agencies, specifically on their capacity to provide valid and objective measures (Chatterji et al., 2009; Griffin & Mahon, 1997). However such types of datasets have been and are still widely used in the sustainability literature (Hull & Rothenberg, 2008; Surroca et al., 2010).

We completed our initial sample with reputational measures from Fortune magazine's annual survey of "World's Most Admired Companies" over the 2003-2009[39] period. Fortune creates its sample by first selecting the 1000 largest US firms ranked by revenue; the 500 largest foreign firms with revenue higher than $10 billion, and the top foreign companies operating in the US. It then sorts the companies by industry and selects the 15 foreign firms and 10 US firms with highest revenue per industry. On average Fortune rates 349 firms a year issued from 27 different countries.

Finally, we collected firms' financial and industry classification information from Bureau van Dijk's ORBIS database.

Our final dataset is an unbalanced sample of 429 firms belonging to all industrial sectors[40] and 27 different countries (including most developed countries[41] and major emerging ones[42]). Those

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[39] Rating of companies for the year 2010 is published in early 2011, Rating of companies for the year 2009 is published in early 2010, and so on…

[40] Energy, Basic Materials, Industrials, Cyclical Consumer Goods & Services, Non-Cyclical Consumer Goods & Services, Financials, Healthcare, Technology, Telecommunications Services, Utilities

[41] Australia, Belgium, Bermuda, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Italy, Japan,

firms are ones belonging to the major indexes from the largest stock exchanges worldwide, and for which there was availability of both sustainability and reputational data. Due to lagged variables, our final dataset contains 1742 observations on the 2004 – 2010 period (2003-2009 for data issued from Fortune Magazine) and is unbalanced due to some firms' unavailability of either reputational or sustainability data over the whole 7 years. Our final sample includes on average 249 observations per year and each of the 429 firms appear 4,1 years in the dataset.

1. Dependent variable

Asset4 provides for each firm in its database 15 sustainability disclosure sub-ratings on 15 different topics (Emission Reduction, Employment Quality, Human Rights…). Those fifteen disclosure sub-ratings are grouped in three general categories: Environment, Social, and Governance.[43] Disclosure sub-ratings specifically measure the amount of information firms publicly disclose about their sustainability performance on each of the 15 topics (Is information on CO^2 Emissions publicly available? Is information on employees' injuries at work publicly available?...). More precisely, Asset4 analysts construct sustainability disclosure sub-ratings by

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Korea; Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, United Kingdom, United States of America

[42] Brazil, China, India, Mexico, Russian Federation, South Africa

[43] The *Environment* category includes 3 of the 15 sub-ratings: *Emission Reduction, Product Innovation, Resource Reduction*.

The *Social* category includes 7 of the 15 sub-ratings: *Product Responsibility, Community, Human Rights, Diversity and Opportunity, Employment Quality, Health & Safety, Training and Development*.

The *Governance* includes 5 of the 15 sub-ratings: *Board Functions, Board Structure, Compensation Policy, Vision and Strategy, Shareholder Rights*.

comparing the maximum number of indicators a firm could have disclosed (for instance the amount of CO^2 emissions, the number of injuries at work…), compared to what it actually discloses. Consequently Asset 4 sustainability disclosure sub-ratings increase when the amount of information that a firm discloses on its sustainability performance increases.

To obtain our measure of *Sustainability Disclosure* we first standardized[44] each of the 15 sub-rating so that all of those 15 variables had a mean of 0 and a variance of 1. We then for each firm computed the average of these 15 standardized variables with equal weights per general category (Environment, Social and Governance). We first standardized the 15 sub-ratings so that they all provide a same share of heterogeneity to our final *Sustainability Disclosure* measure (As an example some sub-ratings could have had a much higher variance than some others and would have over-influenced the averaged measure of *Sustainability Disclosure*). We secondly averaged the 15 standardized sub-ratings with equal weights for each of the three general categories so that categories with a higher number of sub-ratings did not over-influence the final measure (As an example the Environment category contained 3 sub-rating while the Social category contained 7 sub-ratings). We therefore obtained from the 15 disclosure sub-ratings one *Sustainability Disclosure* measure per firm. This measure of a firm's *Sustainability Disclosure* is the weighted average of its 15 Asset4 disclosure sub-ratings' standardized values. An increase in our measure

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[44] Standardization of a variable is a transformation resulting in a new variable with a mean null and standard deviation of 1. For a random variable X with realizations x, the standardization mathematical formula is as follow: $Standardized(x) = \frac{x - E(X)}{\sigma(X)}$

of *Sustainability Disclosure* indicates that a firm increased the amount of information that it discloses on its sustainability performance, and this with the same magnitude whether this firm increased the extent of its disclosure in terms of Governance, Environment, or Social performance.

2. Independent variables

In the same way as Asset4 provides sub-ratings related to sustainability disclosure, Asset also computes 15 sub-ratings related to sustainability performance. Those sustainability performance sub-ratings cover the same 15 topics as sustainability disclosure sub-ratings and are also grouped in three general categories: Environment, Social, and Governance. However, Asset4 sustainability performance sub-ratings do not measure the extent of firms' disclosure but the impact of firms' sustainability policies on stakeholders' welfare (Amount of wastes recycled, Number of products targeting low income consumers…). In the same way as we computed *Sustainability Disclosure,* we calculated a firm's *Sustainability Performance* as the weighted average of its 15 Asset4 performance sub-ratings initially standardized, standardized values being equally-weighted per general category (Environment, Social and Governance). The value of our *Sustainability Performance* measure therefore increases when a firm increases its beneficial impact on its stakeholders' welfare, and this with the same magnitude whether this firm increased its sustainability performance in terms of Governance, Environment, or Social issues. A high *Sustainability Performance* indicates that a firm has a strong beneficial impact on its stakeholders' welfare (Low pollutant emissions, few health and safety issues at work, fair governance…).

In comparison to our *Sustainability Performance* measure, to create our *Sustainability*

Performance Inconsistency measure we did not consider the average of Asset4 sustainability performance sub-ratings but their dispersion over the fifteen sub-categories. In order to do that for each firm and each year we computed the standard deviation of its Asset4 sustainability performance sub-ratings standardized values and thus obtained a single measure of inconsistency. *Sustainability Performance Inconsistency* therefore equals 0 when a firm performs in the same way across all of the fifteen performance sub-ratings, and the value of *Sustainability Performance Inconsistency* increases as the firm's performance becomes heterogeneous across those sub-ratings. A high *Sustainability Performance Inconsistency* indicates that a firm has a strongly heterogeneous impact on its stakeholders' welfare (As an example with low pollutant emissions but a high number of injuries at work).

In order to test Hypothesis 3, the moderating effect of *Sustainability Performance* on the relationship between *Sustainability Performance Inconsistency* and *Sustainability Disclosure*, we computed the interaction term between *Sustainability Performance* and *Sustainability Performance Inconsistency*. To prevent any multicolinearity issues both *Sustainability Performance* and *Sustainability Performance Inconsistency* were initially mean-centred before being interacted.

In line with past literature we sourced firms' yearly reputation from Fortune magazine's reputation scores issued from the "World's Most Admired Companies" yearly survey (Basdeo et al., 2006; Fombrun & Shanley, 1990; Roberts & Dowling, 2002). This survey asks 10,000 executives, directors, and financial analysts to rate a set of firms on eight dimensions that reflect antecedents of reputation: asset use, financial soundness, community and environmental friendliness, ability to develop key people, degree of innovativeness, investment value, management quality, and product quality. Each dimension is rated on an 11-point scale (0 = poor,

10 = excellent). Fortune magazine averages firms' ratings on those eight dimensions to obtain one overall yearly reputation score. As our construct of interest was *Prior Reputation* we lagged by one year all Fortune's reputation scores to obtain for each firm its reputation for the previous year.

In order to test hypothesis 5 and 6, the moderating effect of *Sustainability Performance* on the linear and curvilinear relationship between *Prior Reputation* and *Sustainability Disclosure*, we squared our *Prior Reputation* measure and interacted *Sustainability Performance* with both the linear and quadratic values of *Prior Reputation* (Barnett & Salomon, 2006; Jackofsky, Ferris, & Breckenridge, 1986; Janssen, 2001; Lechner, Frankenberger, & Floyd, 2010). Here again to prevent any multicolinearity issues all variables included in those interaction terms were initially mean-centered (Plambeck & Weber, 2010).

3. Control variables

As major determinants of firms' disclosure behaviours, we controlled for firms' size, financial performance, risk exposure, time effect and other time constant characteristics of firms (Adams, 2002; Michelon, 2011; Patten, 2002; Roberts, 1992). Firms' *Size* was measured by their logged total assets, their *Financial Performance* by their return on assets, and their *Risk Exposure* by the inverse of their solvency ratio. The solvency ratio is the ratio between a firm's shareholder funds and its total assets. It measures a firms' ability to meet their financial obligations; therefore its inverse proxies firms' risk exposure.

We also controlled for the effect of yearly macro-economic events on firms' disclosure strategies. Our dataset being unbalanced, most firms were not available on the full 2004-2010 period and thus the use of year dummies could have created biases. We instead mean-centered per year all

our dependent variables, such that they were deflated from any time effect.

Finally, to cope with a potential omitted variable bias due to unobserved time constant characteristics of firms, such as their industrial sector or country of origin, we estimated our models with panel specific fixed effects. Fixed effects estimations make country or industry sector dummies ineffective. However, as a matter of robustness checking, we still estimated one random effects model. In this case only we captured industrial sector and country effects with a set of dummy variables: 9 industry dummies based on the two first digits of firms' Thomson Reuters Business Classification codes (TRBC), and 27 country dummies based on firms' country of incorporation.

4. Analyses

The Fortune dataset between 2003 and 2009 (2443 observations) is much smaller than the Asset4 dataset between 2004 and 2010 (18270 observations), and our final sample of 1742 observations is constructed as the intersection between both datasets. There existed therefore some reasonable doubts of sample selection. Specifically the Asset4 sample increased year after year by including smaller and more geographically dispersed firms. The selection of firms made by Fortune magazine among ones included in the Asset4 dataset did not seem purely random, but might have depended on firms' turnover, profitability, industry or geographical region of origin. We thus followed Heckman's methodology (1979) to correct for sample selection by regressing[45] on a selection dummy[46] the potential factors of selection: firms' turnover, firms' profits before taxes[47],

[45] Panel data Logit model with random effect

[46] The selection dummy codes 1 if the firm is included in our final sample, 0 if it appears at least once in either the

firms' industrial sectors and geographical regions of origin[48]. We then computed an inverse Mills ratio from the prediction of this initial model that we denominated *Heckman Correction* and included as a control variable in our final models.

Secondly, there existed initially some endogeneity and multicolinearity issues inherent to our variables. It seemed likely that *Sustainability Performance* and *Sustainability Disclosure* were jointly determined. Firms simultaneously select their sustainability performance and disclosure strategies (Al-Tuwaijri et al., 2004), which results in a very high correlation between the two measures (c=0.92). Such a situation creates an endogeneity bias and may lead to misleading results where the estimated impact of *Sustainability Performance* on *Sustainability Disclosure* only reflects the impact of *Sustainability Disclosure* on itself. Scholars determined that in such a situation the use of an instrumental variable and a two stage estimation technique was the most appropriate procedure (Greene, 2003; Hausman, 1975; Sirmon & Hitt, 2009; Weigelt & Sarkar, 2012). To implement this procedure we first computed for each firm and each year firms' *First Difference of Sustainability Performance*[49]: the degree of a firm's *Sustainability Performance* in

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Asset4 or Fortune databases between 2003 and 2010 but is not included in our final model.

[47] Firms' turnover and profits before taxes were included in the regression at both their value and lagged value to account for both Asset4 and Fortune issued selection biases

[48] Firms' industrial sector and geographical region of origin were measured by 9 industry dummies based on the two first digits of firms' Thomson Reuters Business Classification code (TRBC) and 4 geographical region dummies based on firms' region of incorporation (America, Asia, Europe & Middle East, Australia / New Zealand)

[49] First differentiation is a mathematical transformation of temporal data. For a random variable X with realizations in year t: x_t, the first difference formula is as follow: $D(x_t) = x_t - x_{t-1}$

year *t* minus its degree of *Sustainability Performance* in year *t-1*. We considered this *First Difference* of *Sustainability Performance* as a valid instrument of *Sustainability Performance* (Arellano & Bond, 1991; Arellano & Bover, 1995; Bond, 2002). This choice was motivated by the fact that a firm's *First Difference of Sustainability Performance* is likely to be correlated with its achieved degree of *Sustainability Performance (*When a firm increases its sustainability performance between *t-1* and *t*, it is likely to achieve a high degree of sustainability performance in *t*), and the fact a firm's *First Difference of Sustainability Performance* is not likely to be correlated with its *Sustainability Disclosure* (The *First Difference* includes information from time *t-1,* and thus bears less risk of simultaneity). We then estimated in a first stage model the impact of the *First Difference of Sustainability Performance* on *Sustainability Performance* (with control variables). The predictions of this first stage model are a measure of *Sustainability Performance* detrended from its *Sustainability Disclosure* component. We therefore estimated in a second stage model the impact of *Sustainability Performance* on *Sustainability Disclosure* where *Sustainability Performance* was measured with the predictions from the first stage model. In this second stage model *Sustainability Performance* is said to be "instrumented by its first difference", a measure of *Sustainability Performance* that controls for firms' simultaneous selection of both their *Sustainability Performance* and *Disclosure*. This methodology controls for the simultaneity and thus endogeneity issues that may have arisen in our models, and thus provides robustness to our results.

Finally we standardized all our variables to be able to compare the relative effect of independent variables between themselves. Table 9 reports correlations between initial variables and the selected instrument.

Table 9: Listwise Pearson correlations of initial variables and instrument*

	Min.	*Max.*	*1..*	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*	*8.*	*9.*	*10.*	*11.*	*12.*	*13.*
1. Sustainability Disclosure	-3.28	1.83	1.00												
2. Sustainability Performance	-3.10	2.34	**0.92**	1.00											
3. First Difference of Sustainability Performance	-4.06	5.96	**0.12**	**0.22**	1.00										
4. Sustainability Performance Inconsistency	-3.06	2.92	0.21	0.13	**-0.04**	1.00									
5. S.P. x S.P. Inconsistency	-5.47	7.50	-0.43	-0.51	**-0.16**	-0.04	1.00								
6. Prior Reputation	-3.58	2.66	0.17	0.19	**0.00**	-0.08	-0.15	1.00							
7. Prior Reputation²	-0.70	8.34	0.01	-0.01	**0.01**	0.02	-0.01	-0.14	1.00						
8. Sustainability Performance. x Prior Rep	-3.37	7.38	-0.13	-0.11	**0.00**	-0.17	0.00	-0.02	0.27	1.00					
9. S.P. x Prior Rep²	-14.27	4.69	0.52	0.55	**0.13**	0.06	-0.30	0.31	-0.17	-0.32	1.00				
10. Size	-6.69	2.86	0.43	0.40	**0.00**	0.32	-0.15	0.26	0.06	-0.06	0.28	1.00			
11. Financial Performance	-7.83	5.39	0.14	0.14	**0.01**	-0.08	-0.13	0.31	-0.01	0.06	0.13	0.14	1.00		
12. Risk Exposure	-4.25	3.30	-0.04	0.01	**0.00**	-0.02	-0.06	0.22	-0.03	0.06	0.04	-0.05	0.43	1.00	
13. Heckman Correction	-7.55	1.20	0.47	0.45	**0.00**	0.14	-0.21	0.34	0.06	-0.07	0.30	0.71	0.11	0.00	1.00

* All variables being standardized, their mean equals 0 and their standard deviation equals 1
All correlations are significant at a 5% level, N = 1742

While the high correlation between *Sustainability Disclosure* and *Sustainability Performance* raises doubts of endogeneity (c=0.92), the *First Difference of Sustainability Performance* is less correlated with *Sustainability Disclosure* (c=0.12), and more correlated with *Sustainability Performance* (c=0.22) than with other regressors (c from -0.16 to 0.13), which posits it as a

relevant instrument.

The final models we estimated are two-stage fixed effects panel models with standardized variables, Heckman correction, and the *Sustainability Performance* instrumented by its *First Difference*. They were estimated through a Two-Stage Generalized Method of Moments (2SGMM) estimation procedure (Hansen & Singleton, 1982), with robust for heteroskedasticity estimations of standard errors. The Generalized Method of Moments is more robust than the basic Two-Stage Least Squares (2SLS) method as it does not make any assumptions on data distribution and is efficient for arbitrary heteroskedasticity (Bond, 2002), which makes our estimations both robust and efficient for any heteroskedasticity issues.

F. RESULTS

Table 10 presents ten models we estimated to test how the *Sustainability Performance* (Hypothesis 1), *Sustainability Performance Inconsistency* (Hypotheses 2 & 3) and *Prior Reputation* (Hypotheses 4, 5 & 6) of firms impact their *Sustainability Disclosure*.

Table 10: The impact of sustainability performance, sustainability performance inconsistency and prior reputation on sustainability disclosure

Sustainability Disclosure	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Fixed Effects Panel Models with instrumented Variables									Random Effects
Sust. Performance (Instrumented)		**0.53*** (0.00)**		**0.57*** (0.00)**	**0.54*** (0.00)**	**0.54*** (0.00)**	**0.54*** (0.00)**	**0.54*** (0.00)**	**0.50*** (0.00)**	**0.46*** (0.00)**
Sust. Perf. Inconsistency			**0.10*** (0.00)**	**0.12*** (0.00)**	**0.13*** (0.00)**	**0.13*** (0.00)**	**0.13*** (0.00)**	**0.13*** (0.00)**	**0.13*** (0.00)**	**0.13*** (0.00)**
Sust. Perf. x SP Inconst.					**-0.05*** (0.00)**	**-0.05*** (0.00)**	**-0.05*** (0.00)**	**-0.05*** (0.00)**	**-0.06*** (0.00)**	**-0.08*** (0.00)**
Prior Reputation						**-0.05*** (0.00)**	**-0.05*** (0.00)**	**-0.06*** (0.00)**	**-0.06*** (0.00)**	**-0.05*** (0.00)**
Prior Reputation²							0.00 (0.81)	0.00 (0.81)	-0.01 (0.62)	-0.00 (0.94)
Prior Rep x Sust. Perf.								0.01 (0.64)	0.01 (0.43)	0.01 (0.53)
Prior Rep² x Sust. Perf.									**0.07** (0.00)**	**0.10*** (0.00)**
Size	0.16 (0.11)	0.11+ (0.06)	0.15+ (0.10)	0.10* (0.04)	0.09+ (0.06)	0.09+ (0.06)	0.09+ (0.06)	0.09+ (0.06)	0.09+ (0.08)	0.05* (0.04)
Financial Performance	-0.07* (0.03)	-0.03+ (0.06)	-0.06* (0.05)	-0.02 (0.16)	-0.02 (0.12)	-0.02 (0.11)	-0.02 (0.11)	-0.02 (0.11)	-0.03+ (0.06)	-0.01 (0.34)
Risk Exposure	-0.11* (0.02)	-0.05+ (0.10)	-0.11* (0.02)	-0.03 (0.17)	-0.03 (0.16)	-0.04+ (0.10)	-0.04+ (0.10)	-0.04+ (0.09)	-0.05+ (0.07)	-0.03 (0.12)
Heckman Correction	0.35*** (0.00)	0.14* (0.02)	0.34*** (0.00)	0.11* (0.03)	0.12* (0.02)	0.12* (0.02)	0.12* (0.02)	0.12* (0.02)	0.13* (0.02)	0.13*** (0.00)
Industry & Country Dum.										Yes
Constant										0.62* (0.02)
Observations	1,742	1,742	1,742	1,742	1,742	1,742	1,742	1,742	1,742	1,907
Number of Firms	429	429	429	429	429	429	429	429	429	594
R^2	0.21	0.66	0.23	0.70	0.70	0.70	0.70	0.70	0.69	0.85
Kleibergen-Paap rk LM statistic X^2		147.4*** (0.00)		142.5*** (0.00)	132.8*** (0.00)	134.7*** (0.00)	136.1*** (0.00)	135.8*** (0.00)	111.8*** (0.00)	
F Statistic (FE models)/ Wald X^2 (RE models)	10.3*** (0.00)	70.2*** (0.00)	13.2*** (0.00)	89.2*** (0.00)	104.2*** (0.00)	101.8*** (0.00)	90.4*** (0.00)	81.1*** (0.00)	87.7*** (0.00)	3099.2*** (0.00)
Selected information from first stage models of instrumental method										
First Difference of Sust. Performance		**0.21*** (0.00)**		**0.21*** (0.00)**	**0.18*** (0.00)**	**0.18*** (0.00)**	**0.18*** (0.00)**	**0.18*** (0.00)**	**0.16*** (0.00)**	**0.14*** (0.00)**
F Statistic (FE models)/ Wald X^2 (RE models)		68.1*** (0.00)		56.7*** (0.00)	62.9*** (0.00)	61.0*** (0.00)	54.9*** (0.00)	48.9*** (0.00)	53.8*** (0.00)	1725.8*** (0.00)

p-val in parentheses;
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Model 1 contains control variables. From model 2 we then included one by one all other constructs. All our models were significant with F-statistics ranging from 10.3 to 104.2 (p<0.1%), and showed a reasonably high proportion of the dependent variable explained with a R^2 between 0.21 and 0.85.

Model 1 supports the relevance of our control variables. Although Firms' *Size* is only significant at an 11% level, Table 10 shows that bigger and thus more visible firms are more likely to disclose extensively their *Sustainability Performance*, which is consistent with prior literature (Buzby, 1975; Cho et al., 2006; Patten, 2002). On the contrary, firms with higher *Profitability* are less likely to disclose extensively. More profitable firms bear the risk of being accused of favouring profits instead of social responsibility and thus prefer to limit their *Sustainability Disclosure*. In the same way firms with high *Risk Exposure* tend to insure themselves against the risk of disappointing stakeholders with a limited *Sustainability Disclosure* (Clarkson et al., 2008; Cormier & Magnan, 1999).

Model 2 includes *Sustainability Performance*, Model 3 *Sustainability Performance Inconsistency*. These models give support to hypotheses 1 and 2 since they estimate coefficients that are positive and significant at 0.1% levels for both *Sustainability Performance* and *Sustainability Performance Inconsistency* (β respectively 0.50 and 0.13). The higher firms' *Sustainability Performance* and *Sustainability Performance Inconsistency*, the more likely they are to adopt an extensive *Sustainability Disclosure*.

Models 4 and 5 test hypothesis 3. Model 4 considers the direct impacts of both *Sustainability Performance* and *Sustainability Performance Inconsistency* on *Sustainability Disclosure*. Model 5 includes the interaction term between those two independent variables. We find that the

coefficients of both the direct and the interaction effects are significant at a 0.1% level. In order to interpret the interaction between *Sustainability Performance* and *Performance Inconsistency* and estimate whether our findings corroborate hypothesis 3, we followed for instance Janssen (2001) or Lechner, Frankenberger, and Floyd (2010) : Using model 5, we plotted over the full range of values for *Sustainability Performance Inconsistency* (From 2 standard deviations below to 2 standard deviations above its mean) the predicted *Sustainability Disclosure* for two groups of firms: ones with high *Sustainability Performance* located in the top 25%[50], and ones with low *Sustainability Performance*, that performed in the bottom 25%[51].

To have a better overview on the interacted effect of both variables we estimated the marginal effect of *Sustainability Performance Inconsistency* on *Sustainability Disclosure* for the whole range of *Sustainability Performance* observable values[52]. We finally also simulated the surface that represents firms' predicted *Sustainability Disclosure* depending on both their *Sustainability Performance* and *Sustainability Performance Inconsistency*, and this for those two variables full range of values (from below to above two standard deviations from their mean). Those graphical representations are presented in Figure 8, Figure 9, and Figure 10.

[50] The top 25% firms are located at a 0.7 standard deviation above the mean of all firms.

[51] The bottom 25% firms are located at a 0.7 standard deviation below the mean of all firms.

[52] Figure 10, Figure 11 and Figure 13 and their graphic inspection have been done using Grinter. Grinter is a command on Stata Statistical Software for graphing marginal effects of interacted variables. Reference: Boehmke, F. 2006. Grinter: A Stata Utility for Graphing the Marginal Effect of an Interacted Variable in Regression Models

Figure 8: Predicted sustainability disclosure based on the sustainability performance inconsistency of firms with high and low sustainability performance

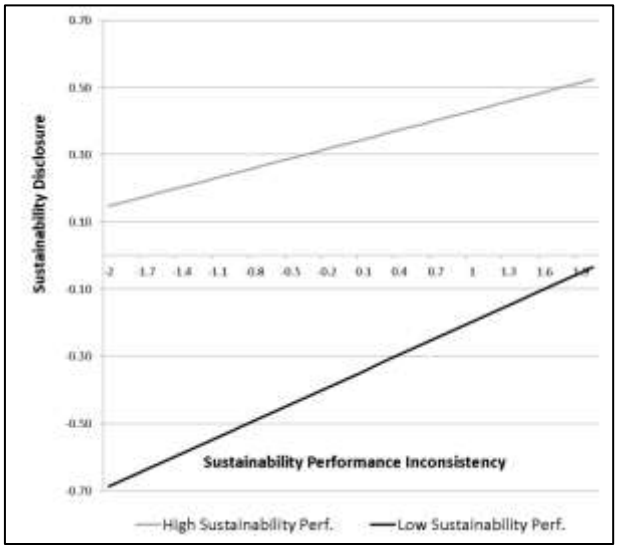


Figure 9: Predicted sustainability disclosure based on firms' sustainability performance inconsistency and sustainability performance

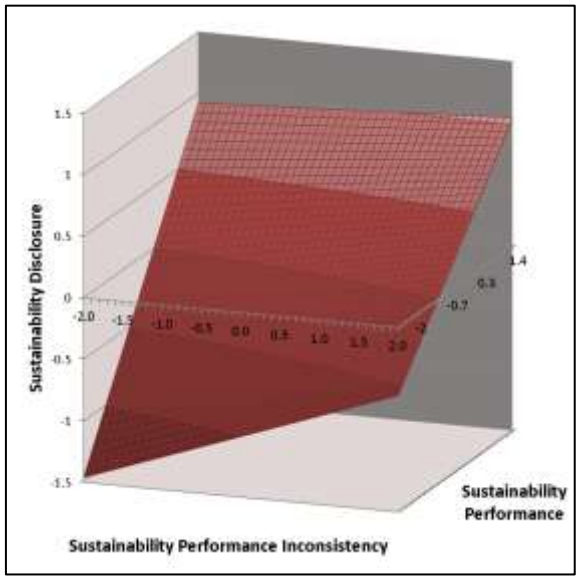
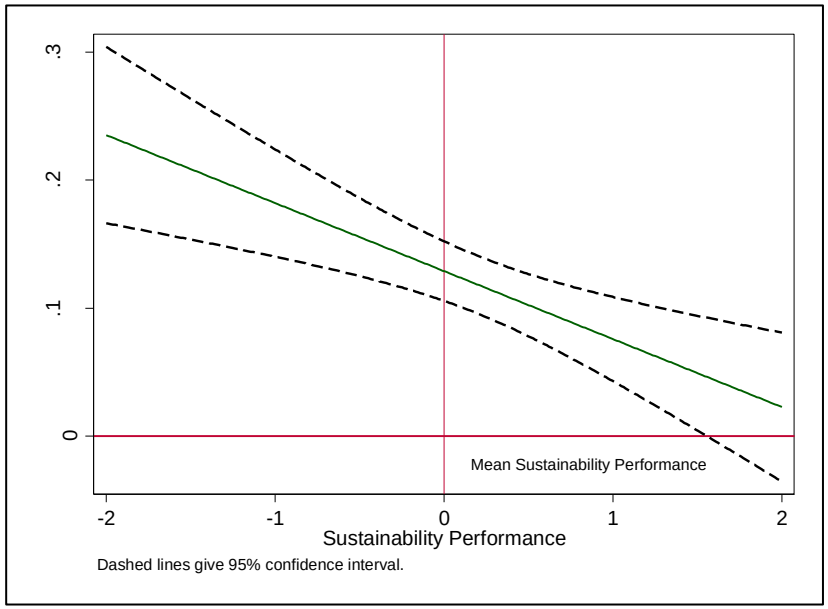


Figure 10: The amplitude of the moderating effect of sustainability performance on the linear relationship between sustainability performance inconsistency and sustainability disclosure



From Figure 8, we see that firms with high *Sustainability Performance* (positioned on the light grey line) disclose more extensively than the average, and respectively that firms with low *Sustainability Performance* (dark grey line) limit their disclosure more than the average[53], confirming hypothesis 1. In addition, firms with both high and low *Sustainability Performance* increase their *Sustainability Disclosure* when their *Performance Inconsistency* increases, confirming hypothesis 2. However, firms with high *Sustainability Performance* increase their *Sustainability Disclosure less* when their *Performance Inconsistency* increases than firms with lower *Sustainability Performance* (The slope of the light grey line is less steep than the slope of the dark grey line). When firms' *Sustainability Performance Inconsistency* increases, sustainable firms are less likely to disclose extensively than unsustainable firms. The positive effect of *Sustainability Performance Inconsistency* is weakened by firms' *Sustainability performance*, which supports hypothesis 3. Figure 9 also supports hypothesis 3: When *Sustainability Performance* increases, the positive effect of *Sustainability Performance Inconsistency* on *Sustainability Disclosure* decreases to become almost insignificant at very high values of *Sustainability Performance* (When *Sustainability Performance* is close to the extreme value of 2, the 95% confidence interval crosses the null axis).

It is finally interesting to note from the surface in Figure 10 that when firms' *Sustainability Performance* increases, consistent firms are more likely to disclose extensively than inconsistent firms. When they invest in sustainability, consistent firms take the opportunity to disclose their clear and homogeneous efforts, while inconsistent firms have an interest in hiding their few

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[53] *Sustainability Disclosure* being a standardized variable, the average *Sustainability Disclosure* equals 0

remaining detrimental behaviours

Model 6 includes *Prior Reputation*. It estimates that an increase in *Prior Reputation* will have a negative effect (β= -0.06) on firms' *Sustainability Disclosure* with a 0.1% level of error, hence supporting hypothesis 4. In situations where *Prior Reputation* and thus stakeholders' expectations increase, firms have a tendency to limit their *Sustainability Disclosure* to reduce the risk of stakeholders' withdrawal.

Model 7 includes the quadratic term of *Prior Reputation*. Model 8 and model 9 gradually include the interactions of *Sustainability Performance* with the linear and quadratic terms of *Prior Reputation*. We find that the interaction term of *Sustainability Performance* with *Prior Reputation* is not significant but that the interaction effect of *Sustainability Performance* with the squared *Prior Reputation* is significant at a 0.1% level. In order to investigate hypothesis 5 and 6 and in the same way as for the interaction between *Sustainability Performance* and *Performance Inconsistency,* we plotted using model 9 over the full range of values for *Prior Reputation* (From 2 standard deviations below to 2 standard deviations above its mean) the predicted *Sustainability Disclosure* of two groups of firms: ones with high and ones with low *Sustainability Performance*. We also simulated the marginal linear and curvilinear effects of *Prior Reputation* on *Sustainability Disclosure* depending on the values of *Sustainability Performance*. We finally simulated the surface which represents firms' predicted *Sustainability Disclosure* depending on both their *Sustainability Performance* and *Prior Reputation*. Those graphical representations are presented in Figure 11, Figure 12, Figure 13, and Figure 14.

Figure 11: The amplitude of the moderating effect of sustainability performance on the linear relationship between prior reputation and sustainability disclosure

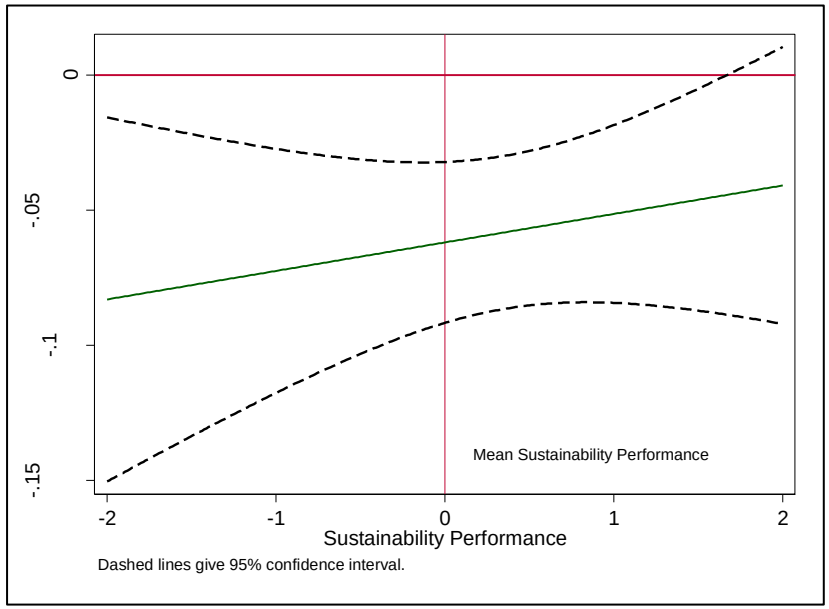


Figure 12: Predicted sustainability disclosure based on the prior reputation of firms with high and low sustainability performance

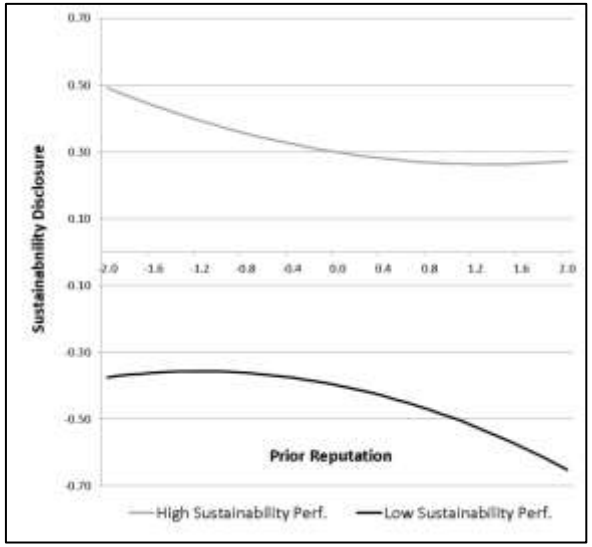


Figure 13: The amplitude of the moderating effect of sustainability performance on the curvilinear relationship between prior reputation and sustainability Disclosure

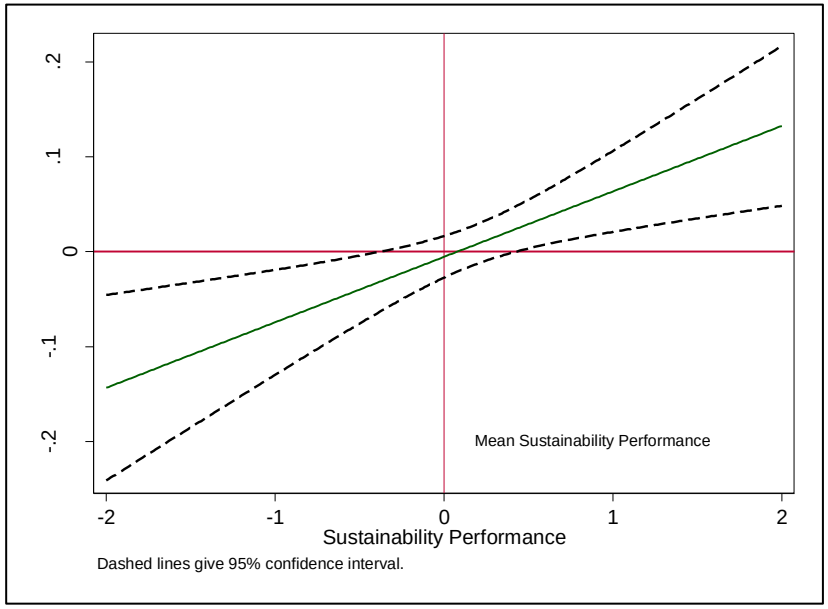


Figure 14: Predicted sustainability disclosure based on firms' prior reputation and sustainability performance

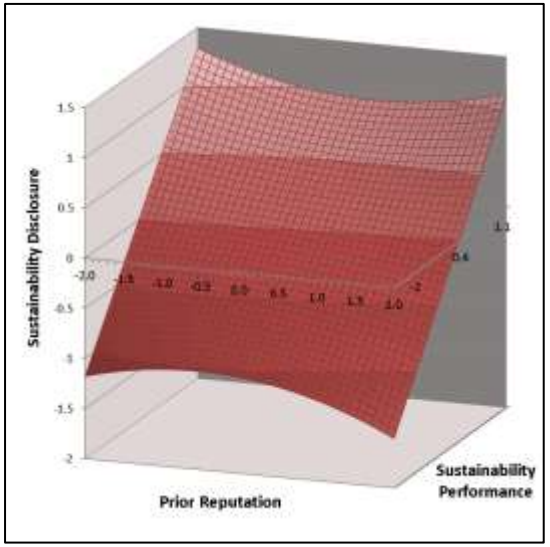


Figure 11 interestingly highlights that whereas the estimated interaction term between *Prior Reputation* and *Sustainability Performance* is not significant, an inspection of the marginal effect of *Prior Reputation* on *Sustainability Disclosure* for different values of *Sustainability Performance* provides different results. With the exception of a few extreme values of *Sustainability Performance,* the negative impact of *Prior Reputation* on *Sustainability Disclosure* weakens as *Sustainability Performance* increases and this at a 95% level of confidence. Firms with high *Sustainability Performance* are less likely than unsustainable firms to limit their disclosure when their *Prior Reputation* increases, which partially supports hypothesis 5.

Figure 12 shows that firms with low *Sustainability Performance* (positioned on the dark grey line) always send more incomplete signals than firms with high *Sustainability Performance* (light grey line), confirming hypothesis 1. In addition, firms with low *Sustainability Performance* limit their *Sustainability Disclosure* more than linearly when their *Prior Reputation* increases (The slope of the dark grey line steepens as *Prior Reputation* increases). However, firms with high *Sustainability Performance* limit less and less their *Disclosure* as their *Prior Reputation* increases (The slope of the light grey line is less and less steep as *Prior Reputation* increases). Figure 13 shows that for those firms with high degrees of *Sustainability Performance*, a U-type curvilinear relationship between *Prior Reputation* and *Sustainability Disclosure* may even appear, hence supporting hypothesis 6. Overall, firms tend to limit their *Disclosure* when their *Prior Reputation* increases (see hypothesis 4). However, when their *Sustainability Performance* is high, firms' chances to meet stakeholders' expectations increase and they can afford limiting less their disclosure (see hypothesis 5). When their *Prior Reputation* is also high, they face pressure from stakeholders to conform to the norm of transparency such that an increase in their *Prior Reputation* will not trigger a limitation of their *Sustainability Disclosure* (see hypothesis 6).

It is interesting to note from Figure 14 that less sustainable firms will disclose more extensively when their *Prior Reputation* is low than when their *Prior Reputation* is high. Unsustainable firms with low *Prior Reputation* bear less risks of stakeholders' punishment than reputed firms. On the contrary for sustainable firms, both high and low *Prior Reputation* players disclose extensively. Sustainable firms with low *Prior Reputation* because they bear few risks in disclosing extensively, sustainable firms with high *Prior Reputation* because they are under pressure to conform to the norm of transparency.

It is also interesting to note from Figure 14 that the positive effect of *Sustainability Performance* on *Disclosure* is higher for high and low *Prior Reputation* players than for average *Prior Reputation* firms. When their *Sustainability Performance* increases high *Prior Reputation* players have an incentive to disclose their efforts toward sustainability, while low *Prior Reputation* players are willing to prove they do not deserve their low reputation.

Finally, model 9 as all other models, contains standardized variables whose estimated coefficients can thus be compared in magnitude. We can therefore infer that the positive impact of *Sustainability Performance* (β=0.50) on *Disclosure* is higher than the one of *Sustainability Performance Inconsistency* (β=0.13). Furthermore, the negative impact of *Prior Reputation* (β=-0.06) on *Sustainability Disclosure* is lower in magnitude than the positive impacts of both *Sustainability Performance* and *Sustainability Performance Inconsistency*. When adjusting the extent of their *Disclosure*, firms consider more the nature and inconsistency of what they have to disclose (their *Sustainability Performance* and *Sustainability Performance Inconsistency)*, than how it matches with what stakeholders expect to observe (which depends on their *Prior Reputation*).

It is important to note that Model 9 includes all our independent variables and shows no severe changes of coefficients' sign, value or significance compared to previous models. The consistence of coefficients over the eight models provides support to the robustness of our results.

G. ROBUSTNESS TESTS

To ensure further the validity of our results, we also did several robustness checks. We specifically checked for any multicolinearity issues, the relevance of fixed effects, the validity of our instruments, and the presence of normative pressure for transparency.

Some of our independent variables, even instrumented and standardized, remained somehow correlated (correlation at a maximum of 0.31 between *Prior Reputation* and the interaction effect between *Sustainability Performance* and the squared value of *Prior Reputation*). We thus calculated our independent variables' Variance Inflation Factor. The VIF ranges from 1.13 to 2.43 with a tolerance level ranging from 88% to 41%, which allows us to rule out any possibility of a multicolinearity issue in our estimated models.

The relevance of fixed effects versus random effects models was confirmed with a Hausman test (Hausman, 1978). However, while fixed effects models due to limited assumptions are more robust than random effects models, they do not capture unobserved time variant factors of heterogeneity and in that sense could be misleading. We therefore checked the robustness of our results in model 10 with a random effects model and dummies for time invariant firms' characteristics (Country and Industry). Estimated coefficients were similar in range, sign and significance to ones obtained with fixed effects.

Table 10 also provides selected information from the first stage estimation of our instrumental variable methodology. It shows the estimated coefficient of the *First Difference* instrument, the F-statistic for fixed effect models, and the Wald X^2 for the random effect one. The impact of the *First Difference of Sustainability Performance* on *Sustainability Performance* is always positive and significant at a 0.1% level, confirming this *First Difference* as a meaningful instrument. We also checked for the relevance of this instrument: The F-statistic in first stage models is ranging from 53.8 to 68.1, always above the Stock and Yogo (2005) critical value of 16.38. This allows us to reject the *First Difference of Sustainability Performance* as a weak instrument of *Sustainability Performance*. We finally tested for exogeneity of the *First Difference* instrument: The Kleibergen-Paap statistic is between 111.8 and 147.4 ($p<0.1\%$) and rules out any doubts of under-identification.

We finally tested the assumption that a high *Prior Reputation* creates a normative pressure for conformity to the norm of transparency. Normative pressure is dependent on firms' industrial context (Cho & Patten, 2007). Polluting industries are more likely to be pressured by governments or NGOs for adopting transparent disclosures. We therefore estimated three models containing variables related to *Sustainability Performance* and *Prior Reputation* for firms belonging to three different industries[54]. We more specifically selected three industries having a social and environmental impact either high (Industrial goods), average (Retailers), or low (Software & IT services), and therefore under different normative pressures for transparency. Results presented in Table 27, Figure 22, Figure 23 and Figure 24 of appendix shows that for

[54] Based on the first two digits of firms' Thomson Reuters Business Classification Code

highly polluting industries (Industrial goods), the negative impact of *Prior Reputation* on *Sustainability Disclosure* is not significant while the curvilinear effect for sustainable firms is significant. In this industry normative pressure for transparency is high and therefore firms cannot afford limiting their disclosure as their reputation increases. However, in industries with limited social and environmental impact (Retailers, Software & IT services), the impact of *Prior Reputation* on *Sustainability Disclosure* is negative and significant, while the curvilinear effect for sustainable firms is not significant. In those industries normative pressure is limited and thus firms limit their disclosure as their reputation increases. Those additional models confirm our argument that normative pressure for transparency exists. They provide robustness to hypothesis 6.

H. DISCUSSION AND CONCLUSION

This article investigates the determinants of sustainability disclosure and specifically examine why some firms disclose incomplete information about their sustainability. Stakeholders cannot easily observe firms' sustainability performance. They assess firms' involvement relying on their sustainability disclosure (King & Toffel, 2007; King et al., 2005; Ruihua Joy & Bansal, 2003). Firms in return manipulate the extent of their sustainability disclosure to trigger support from their stakeholders (Ullmann, 1985). We assume that firms adapt the extent of their disclosure to the nature of the characteristic they are able to disclose. Sustainability performance is therefore a baseline on which firms make their decision to disclose extensively. They also consider the inconsistency of their sustainability performance which may attract stakeholders' scrutiny on either good or detrimental behaviours. However firms also adapt the extent of their disclosure to what stakeholders expect to observe. A focal firm therefore also considers its prior reputation, from which stakeholders have formed expectations on its achieved degree of sustainability,

before adjusting its sustainability disclosure. While literature still debates on whether sustainability is positively (Al-Tuwaijri et al., 2004; Clarkson et al., 2008) or negatively (Cho et al., 2006; Cho et al., 2012; Patten, 2002) related to sustainability disclosure, we assess that no consensus can be reached without taking into account stakeholders' prior beliefs (firms' prior reputation). Sustainability disclosure is a signal of a firm's hidden characteristic (its sustainability). This signal can be more or less complete (disclosure may be more or less extensive). Firms adapt the completeness of the signal they send to the nature of their underlying characteristics (their sustainability performance and its inconsistency), but also to the expectations of receivers of the signal (stakeholders' expectations that they derived from firms' prior reputation)

We consequently find that sustainability performance is associated with more extensive disclosure, an indication that more sustainable firms disclose their investments toward stakeholders' welfare to trigger their endorsement. We also find that firms that obtained inconsistent results from their sustainability actions also tend to communicate more extensively, in order to value the favourable outcomes (and be apologetic about the poor ones). In being more transparent they anchor stakeholders' perceptions of their unobservable intrinsic characteristics closer to true values (an incomplete signal leaving too much room for imprecise and hence detrimental guesses, leading to a withdrawal of support from stakeholders). Those two positive mechanisms are not of the same magnitude. A high sustainability performance impacts almost twice more on a firm's propensity to send more extensive signals than an inconsistent sustainability performance. On the whole, the opportunity to disclose any positive results, even if counterbalanced by negative news, seems less influential than the opportunity to conform to stakeholders' request for sustainability.

We also find that higher prior reputation is associated with less extensive disclosure. Higher reputation means that stakeholders have higher expectations on firms' achieved degree of sustainability. Firms in response insure themselves by only sending limited information on their true sustainability performance. This coating strategy is however limited in magnitude. Comparing the relative impact of our causal factors it appears that what firms have to communicate about, i.e. their sustainability performance, influences almost ten times more their propensity to disclose extensively than how stakeholders interpret sustainability disclosure, which depends on firms' prior reputation.

Therefore, while some scholars concentrated on the impact of sustainability disclosure on reputation (Cho et al., 2012; Philippe & Durand, 2011), we take the opposite path and study the impact of prior reputation on sustainability disclosure. We also complement the literature that considered sustainability performance as a safety net to generate reputational gain (Fombrun & Gardberg, 2000). Due to the multiple paths of available sustainability actions, more than the degree of these actions we stress the importance of their consistency, and of the transparency procedure within which they are disclosed to stakeholders.

A critical result concerns the situation where the three effects interact. Stakeholders' scrutiny depends on firms' average sustainability performance. They value the few good behaviours of overall bad performers, but punish detrimental behaviours of those who were supposed to be sustainable. Consequently, we find that sustainability performance inconsistency might be an asset to disclose for less sustainable firms, but an issue to cover for sustainable ones. We also find that more sustainable firms curb their disclosure when their reputation increases. This finding sheds light on a situation that matters: Prior reputation creates pressure for conformity to the norm of sustainability performance, a pressure that can be avoided through limited disclosure.

However it also creates pressure for conformity to the norm of transparency. Therefore whereas less sustainable firms would be at risk by answering this request for transparency with an extensive disclosure, sustainable ones which bear less risks act differently. When the reputational pressure for transparency is too high, a sustainable firm cannot afford to be limiting its disclosure. "Reputation oblige", i.e. It is constrained not to disappoint its stakeholders and therefore stops limiting its disclosure as a way to maintain its reputation and avoid stakeholders revisiting the valuation of its unobservable intrinsic characteristic.

Our findings are corroborated by an empirical analysis of 429 firms over the 2004-2010 period. We tried to control any biases due to endogeneity, sample selection, and colinearity with instrumental variables, Heckman corrections and Generalized Method of Moments (GMM) estimation techniques. We however recognize that some limitations still exist in our study. Our sample remains limited to large and listed firms. It thus omits small and medium enterprises, or family owned firms for which the process of disclosure could vary. We analyzed the interaction between sustainability performance and both sustainability performance inconsistency and prior reputation in their relationship with the extent of firms' sustainability disclosure. However deeper investigations could also consider the interaction between firms' sustainability performance inconsistency and prior reputation, for which we did not find any support. Future scholars could also deconstruct further the concepts of sustainability performance and stakeholders' support. Environmental, governance and social issues are relevant to different categories of stakeholders which may have divergent objectives, and this could complicate firms' ability to disclose extensively. Finally, without loss of generalities we made the assumption that firm's reputation was uniform over distinct categories of sustainability performance (Environment, Governance, Social). Deeper research should investigate if mechanisms we describe could be refined when

those dimensions are considered separately.

Despite the limitations of our study, our findings contribute to the booming literature on sustainability strategies of firms. Whereas many past studies assume that firms either always send extensive information on their sustainability performance (Al-Tuwaijri et al., 2004; Clarkson et al., 2008), or systematically cheat on what they communicate (Kim & Lyon, 2011), we propose a simple framework that disentangles the dual constraints imposed by both performance inconsistency and prior reputation. First, sustainability performance inconsistency is an opportunity for impression management tactics, a way to highlight good behaviours in the light of detrimental ones. However, disclosing an inconsistent sustainability performance means revealing some detrimental impacts, and creates a risk of stakeholders' withdrawal. Therefore, there are situations whereby highly sustainable firms prefer to hide the inconsistency of their sustainability performance, thus avoiding stakeholders' disapproval. Secondly, prior reputation commits firms to disclose transparently their results, but at the same time it constrains firms not to frustrate stakeholders' expectations. Consequently there are situations whereby highly reputable firms may enter a spiral of noisy disclosures. For the firm, it is a dangerous path that can lead to extreme situations like that of BP for instance. For the economy itself, it is also a perilous track since we know that inappropriate behaviours at the top of a social scale trickle down to other layers and diffuse. The result could be that stakeholders would form erroneous expectations about firms' sustainability performance and that firms would respond to them with limited disclosure to avoid readjustments of stakeholders' baseline valuation. It follows a possible disjunction between actual performance, and rhetoric of environmental communication. We aim to explain the mechanisms leading to such a disjunction and not to excuse firms, reputable or less so, that send incomplete signals to garner support from demanding stakeholders.

Finally, we hope that this paper opens a debate about firms' extent of disclosure, beyond the mere fact of communicating their average degree of sustainability.

Chapter 4: Essay 3

Can you judge a book by its cover? Revelation and conformity mechanisms in the relationship between Sustainability Performance, Sustainability Disclosure, and Financial Performance[55]

A. ABSTRACT

This article studies the interrelated impact of sustainability performance and sustainability disclosure on firms' financial performance, in both the short and long run. It argues that sustainability disclosure participates in two distinct mechanisms: a conformity mechanism in the sense that an extensive sustainability disclosure shows conformity to the norm of transparency, and a revelation mechanism in the sense that an extensive sustainability disclosure reveals a firms' achieved degree of sustainability performance. Using a unique dataset (3,307 international firms over 6 years), we first assess the effectiveness of those two mechanisms, and show that the conformity mechanism is effective in the longer term, while the revelation mechanism in the shorter term. As a consequence, sustainability disclosure only positively impacts firms' long term financial performance, while the impact of sustainability performance on firms' financial performance is only moderated by the extent of their sustainability disclosure in the short term. We secondly investigate the strategic value of sustainability disclosure, and show that while firms with low sustainability performance achieve higher short term financial returns when they hide their poor sustainability with a limited disclosure, they only achieve long term financial returns by conforming to the norm of transparency.

[55] This article was presented in its early draft version at the Strategic Management Society 2012 annual conference

B. INTRODUCTION

The question of whether sustainability performance impacts financial performance is a long standing debate in management literature. Some scholars argued for a positive relationship (Surroca et al., 2010; Waddock & Graves, 1997), others for a negative one (Wright & Ferris, 1997). Several meta-analyses tried to find a consensus, but none of them were successful: There still exist as many studies showing a positive as there are showing a negative relationship (Orlitzky et al., 2003).

However, recent anecdotes provide evidence that those more than "twenty five years of incomparable research"[56] missed a crucial point: In 2001 Nike had been for years one of the most reputed shoe makers. However, in this same year its involvement in child labour was revealed, leading its stock price to suddenly drop. In the same way, British Petroleum had for years been praised for its investments in solar energies, being even considered by sustainability raters as one of the greenest oil companies. However, when its Deepwater Horizon oil rig collapsed in 2010, BP lost any public support, which dramatically threatened its financial performance. What Nike and BP have in common is that for years they have been able to mislead their stakeholders about the true nature of their sustainability performance. They have adjusted the information they were providing to stakeholders, the disclosure of their sustainability performance, to reach above average returns. Those returns suddenly dropped the day those two firms' misbehaviours were revealed. Therefore, a pertinent question to ask would be: Can firms' disclosure strategy

[56] Griffin, J. J., & Mahon, J. F. 1997. The corporate social performance and corporate financial performance debate. ***Business & Society***, 36(1): 5.

influence the relationship between their sustainability performance and their financial performance? And if so, for how long?

On the one hand the sustainability performance of a firm relates to its impact on its stakeholders' welfare, whether they are its employees, consumers, suppliers, or the community within which it operates (Waddock & Graves, 1997; Wood, 1991). Firms with high sustainability performance pollute less, limit their wastes, or provide better working conditions than their competitors. Stakeholders value sustainability and support most sustainable firms (Jones, 1995; Waddock & Graves, 1997). On the other hand sustainability disclosure is the procedure within which a firm transmits information about its sustainability performance to its stakeholders, for instance with the adoption of green certifications, the publication of a sustainability report. The value of sustainability disclosure lies in the fact that sustainability performance is a latent construct that cannot be directly observed by stakeholders (King & Toffel, 2007; King et al., 2005; Ruihua Joy & Bansal, 2003). Stakeholders thus have to rely on available but imperfect signals to decide whether to support a focal firm (Akerlof, 1970; Jones, 1995; Spence, 1973). Sustainability disclosure is such a signal.

Firms control sustainability disclosure. They may adopt more or less stringent certifications, disclose more or less indicators of their sustainability performance. Doing so, firms adjust the amount of sustainability information they disclose to stakeholders. A focal firm may adopt an extensive disclosure (i.e. disclose a large amount of information), or on the contrary, implement a limited disclosure (i.e. disclose a small amount of information). A firm with extensive disclosure is more likely to reveal the true nature of its sustainability performance, while a firm with limited disclosure lets stakeholders doubt about its actual degree of sustainability engagement.

This article argues that disclosure participates in two mechanisms with paradoxical impacts on financial performance.

First sustainability disclosure participates in a *revelation mechanism,* in the sense that an extensive disclosure is more likely to reveal to stakeholders a firm's actual degree of sustainability performance (Akerlof, 1970; Okuno-Fujiwara, Postlewaite, & Suzumura, 1990; Spence, 1973). In this perspective investments in sustainability performance only trigger stakeholders' support if revealed by an extensive disclosure. Disclosure moderates the link between sustainability performance and financial performance (Ullmann, 1985). Less sustainable firms like Nike or BP can avoid losses when hiding their poor sustainability results with a limited sustainability disclosure, and more sustainable firms can reap the benefits of their sustainability investments when revealing their beneficial impact on society and the environment.

However sustainability disclosure also participates in a *conformity mechanism*, in the sense that stakeholders not only support sustainable firms, but also ones that conform to the norm of transparency (Huang & Kung, 2010; Philippe & Durand, 2011). An extensive disclosure is a way to conform to the norm of transparency (Cho & Patten, 2007; Mahadeo, Oogarah-Hanuman, & Soobaroyen, 2011; Reid & Toffel, 2009). Consequently, stakeholders tend to support firms with extensive sustainability disclosure, and punish ones with limited disclosure. Sustainability disclosure impacts positively on firms' financial performance and firms with an extensive sustainability disclosure achieve higher financial performance than ones with a limited disclosure.

The *revelation mechanism* assesses that firms adapting their disclosure to their achieved degree of sustainability performance reach higher financial performance. Sustainable firms reach higher

returns with an extensive disclosure, unsustainable firms with a limited disclosure. However, the *conformity mechanism* assesses that firms limiting their disclosure lose legitimacy and see their financial performance penalized.

As a consequence of both mechanisms, disclosure is a double edge sword which may both benefit and penalize financial performance (Cormier & Magnan, 1999; Zhang & Wang, 2009). An extensive disclosure is valued by stakeholders as a sign of conformity to the norm of transparency, but creates a risk of revealing information about poor sustainability results. The corollary, a limited disclosure limits the risks of revealing poor sustainability results, but may trigger stakeholders' punishment for not conforming to the norm of transparency. Do less sustainable firms reach higher financial performance when hiding their poor results with a limited disclosure, or by contrast when conforming to the valued norm of transparency?

This article argues that the *revelation* and *conformity mechanisms* are not effective on the same time horizon. The *conformity mechanism* has a long term impact on financial performance while the *revelation mechanism* has a short term impact.

Using a unique database (Asset4), we first empirically assess the validity and time span of both the *revelation* and *conformity mechanisms* (hypotheses 1 to 3). We show that sustainability disclosure only positively impacts firms' financial performance in the long run (*conformity mechanism is effective in the long run*), and that sustainability disclosure positively moderates the impact of sustainability performance on financial performance in the shorter term only (*the revelation mechanism is effective in the shorter term*). We then analyze the strategic value of sustainability disclosure (hypotheses 4 & 5), and show that firms with poor sustainability results reach a higher short term financial performance when adopting a limited disclosure (*benefiting*

from the revelation mechanism), but reach a higher long term financial performance when adopting an extensive sustainability disclosure (*benefiting then from the conformity mechanism*)

In that sense this article contributes to the large literature that attempts to assess a positive or negative relationship between sustainability performance and financial performance (see Margolis & Walsh (2003) or Orlitzky et al (2003) for a review). It identifies two mechanisms that posit sustainability disclosure as a moderator of this relationship, and shows that depending on firms' extent of disclosure, and financial performance time frame, this relationship can either be positive, null or negative. This article also resonates with the work of scholars who identified that firms were under a normative pressure for both sustainability performance and transparency (Philippe & Durand, 2011). Firms face a trade-off between the gain they could achieve in conforming to the norm of transparency, and the risk of revealing their conformity to the norm of sustainability performance. We show that depending on the time frame, some firms may have an incentive to limit their conformity to the norm of transparency, to avoid being penalized for their non-conformity to the norm of sustainability.

C. THEORY

1. Sustainability Performance

A firm evolves in an environment made of organizations and individuals that have stakes in this firm's realization of its objectives, namely its stakeholders. Stakeholders are defined in a wide sense as "any identifiable group who can affect the achievement of an organization's objectives, or who are affected by the achievement of an organization's objectives" (Freeman & Reed, 1983). We thus assume that firms in the pursuit of their objectives seek certain stakeholders' support.

A firm's sustainability actions embrace social and environmental concerns and demonstrate

active engagement vis-à-vis stakeholders (Jones, 1995). By aligning a firm and its stakeholders' interests, sustainability performance triggers stakeholders' support. More specifically, sustainable firms benefit from stakeholders' support in the realization of their objective of financial performance (Waddock & Graves, 1997). For instance, if a firm provides its employees with advantageous working conditions, those employees may accept lower paid contracts, and will not hesitate to work extra-hours (Cespa & Cestone, 2007; Turban & Greening, 1997). If a firm engages in protecting the environment, it may mitigate the pressure from governments, and attract more consumers (Hillman & Keim, 2001). Sustainability performance benefits a firm's stakeholders, which in return benefits this firm by reducing its costs and increasing its revenues in both the short and longer term (Choi & Wang, 2009; Waddock & Graves, 1997).

However, sustainability performance is by nature not an easily observable characteristic of firms (King & Toffel, 2007; King et al., 2005; Ruihua Joy & Bansal, 2003). "Customers cannot determine by inspection whether or not the cotton in a pair of trousers was grown in an organic manner, or a pound of coffee beans was grown under a natural forest canopy." (King & Toffel, 2007). If stakeholders cannot observe a firm's sustainability performance, then they rely on signals that they assume to be correlated with this underlying performance (Akerlof, 1970; Spence, 1973). Sustainability disclosure, the amount of information a firm discloses about its sustainability performance, is one of those signals (King et al., 2005). Firms adopt green standards, advertise partnerships with NGOs, and publish information about their efforts in waste management. Those are signals of their underlying sustainability performance. Signals reduce information asymmetry between a firm and its stakeholders (Ragozzino & Reuer, 2011). By inspecting a firm's green certification, sustainability reports, communication supports, stakeholders are able to approximate a firm's degree of sustainability. Sustainability disclosure as

a signal may reveal a firm's actual sustainability performance, which may trigger its stakeholders' support, and thus benefit the firm's financial performance. Sustainability disclosure therefore appears as a key strategic decision whose properties need to be investigated.

2. Sustainability Disclosure

Sustainability disclosure is not of a dichotomous nature (Cho et al., 2012; Clarkson et al., 2008). Firms do not either disclose or not, they are not either silent or fully transparent. On the one hand in most countries the regulatory environment prevents firms from being completely silent. On the other hand, due to the cost of disclosure, firms' geographical scope of activities, or organizational complexity, full disclosure can almost never be reached (Criado-Jiménez, Fernández-Chulián, Larrinage-González, & Husillos-Carqués, 2008). We therefore consider that sustainability disclosure lies in a range and define sustainability disclosure as the amount of information that a firm transmits to stakeholders that characterizes its sustainability performance. Firms can strategically reveal an extensive number of indicators of their sustainability performance, or limit the disclosure of those indicators. They adjust their sustainability disclosure; adjust the amount of information available to stakeholders (Ullmann, 1985). Firms can communicate about some philanthropic activities, but omit polluting emissions, they can adopt one or several green standards. Information may be hidden in annual reports or published as stand-alone reports (Philippe & Durand, 2011). We consider that firms who only disclose a small amount of information, which for instance may limit available figures on their environmental or social performance, do not apply for green certifications and adopt a limited sustainability disclosure. The corollary is firms that provide a high amount of information, extensive indicators on their sustainability impact, and disclose all aspects of their social and environmental impact adopt an extensive sustainability disclosure.

Signals can be more or less convincing (Greve, 2011), and a firm, in adjusting its sustainability disclosure, adjusts the amount of information contained in its sustainability signal. The more information a firm provides to its stakeholders, the more it assures them of its actual degree of sustainability performance. Witnessing an extensive disclosure, stakeholders infer a focal firm's conformity regarding the level of sustainability involvement they demanded, and will be more inclined to provide their support. However, when a firm limits its sustainability disclosure, stakeholders can only assign a probability to the event that this focal firm conforms to their expectations (Akerlof, 1970; Milgrom & Roberts, 1986; Spence, 1973). When a firm adopts green standards, publishes a sustainability report, with extensive indicators on both its social and environmental impact, stakeholders are able to precisely evaluate its sustainability performance. However, if stakeholders can only observe a firm's charitable donations, or only its partnerships with NGOs, they are left in doubt about its actual overall sustainability impact.

Sustainability Disclosure is strategic to firms' financial performance in the sense that it reveals to or hides from stakeholders the firms' achieved degree of sustainability performance. However it is also strategic in the sense that transparency is valued by stakeholders and that sustainability disclosure in itself relates to the firms' conformity to the norm of transparency. Sustainability disclosure therefore appeals to two mechanisms which both impact financial performance: *the revelation* and *the conformity mechanism*

3. Revelation and conformity mechanisms

The *revelation mechanism* refers to the fact that sustainability disclosure reveals to or hides from stakeholders a firm's actual sustainability performance, and whether this firm meets their expectations in terms of environmental protection, social welfare, etc. (Akerlof, 1970; Philippe &

Durand, 2011; Spence, 1973). In this perspective firms that invest in sustainability projects only take advantage of those investments if revealed to stakeholders with an extensive disclosure. The corollary is firms with poor sustainability results are better off leaving stakeholders in doubt with a limited disclosure. In that case, a limited disclosure may be a protection against poor sustainability results.

The *revelation mechanism* underlines the well-known paradox of disclosure: Depending on the characteristic that is disclosed, disclosure can have opposite effects (Clarkson & Toh, 2010; Milgrom & Roberts, 1982). An extensive disclosure revealing a high sustainability performance triggers stakeholders' support, while an extensive disclosure revealing detrimental behaviours triggers their displeasure.

However, the strategic value of sustainability disclosure not only relies in the fact that it participates in revealing firms' degree of sustainability performance, but also in the fact that it participates in a *conformity mechanism*. The *conformity mechanism* refers to the fact that transparency is a norm that stakeholders value (Huang & Kung, 2010; Michelon, 2011; Philippe & Durand, 2011), and that sustainability disclosure participates in the process of conformity to this norm.

Transparency is defined as the provision of precise and extensive information. A transparent firm provides sustainability information of quality, in quantity (Ullmann, 1985). A firm providing quantified indicators (information of quality) on both its polluting emissions and its waste management operations (information in quantity), is more transparent than a firm providing qualitative indicators (low quality information) on its waste operations only (information limited in quantity). Transparency is a norm in the sense that it is a procedure considered as appropriate

by stakeholders and society (Philippe & Durand, 2011). A transparent firm conforms to the normative institutional pressure and underlines that its values are aligned with ones of stakeholders, who in return attribute this firm a higher legitimacy (Deephouse, 1996; Suchman, 1995), that may transform in higher financial performance (Wang & Qian, 2011). Sustainability disclosure refers to the extent of sustainability information, the quantity of information transmitted to stakeholders. In that sense sustainability disclosure participates in firms' conformity to the norm of transparency (Huang & Kung, 2010). Therefore the *conformity mechanism* assesses that firms with extensive sustainability disclosure are signalling their conformity to the desired norm of transparency, and may thus reach higher financial returns.

Sustainability disclosure impacts two mechanisms, but those mechanisms may have opposite effects on financial performance. An extensive disclosure enhances firms' financial performance by demonstrating conformity to the norm of transparency (*conformity mechanism*), but penalizes less sustainable firms by revealing their detrimental impact (*revelation mechanism*). The corollary, a limited disclosure protects a less sustainable firm's financial performance by leaving its stakeholders uncertain of about its poor sustainability results (*revelation mechanism*). This firm risks however being penalized for not conforming to the norm of transparency (*conformity mechanism*). As a consequence of both mechanisms, sustainability disclosure is a double edge sword which may both protect and threaten firms' financial performance.

It is therefore crucial to first understand the relative efficiency of both mechanisms, to secondly identify how firms, by adjusting their sustainability performance and disclosure, may reach higher financial performance. We consequently develop in the next section the hypotheses that both assess the existence of the *revelation* and *conformity mechanisms* over the short and long term, and their consequences in the relationship between sustainability performance,

sustainability disclosure, and financial performance

D. HYPOTHESES

1. Conformity mechanism and the impact of Sustainability Disclosure on Financial Performance

The *conformity mechanism* assesses that firms with extensive disclosure show their conformity to the norm of transparency, gain legitimacy toward stakeholders, and thus reach higher financial performance. Conformity consists in signaling to stakeholders that a firm possesses the attributes they desire (Ginzel, Kramer, & Sutton, 1992; Suchman, 1995), and social conformity contributes to this firms' success via increased legitimacy (DiMaggio & Powell, 1983). Transparency is one of the firms' attributes that stakeholders value (Huang & Kung, 2010; Philippe & Durand, 2011). Transparency is defined as the disclosure of both extensive and precise information about a firms' sustainability performance. Firms with extensive sustainability disclosure signal their conformity to the norm of transparency, gain sociopolitical legitimacy, and thus higher financial performance (Wang & Qian, 2011), while firms with limited disclosure adopt a non-conforming strategy, and are bound to be penalized. Therefore, when the *conformity mechanism* is effective, firms with extensive sustainability disclosure reach a higher financial performance than firms with limited sustainability disclosure.

We hypothesize that the *conformity mechanism* is more effective in the long run, than in the short term. In the context of sustainability we consider that an investment in sustainability and its results lag in a time frame going from 0 to 5 years (Choi & Wang, 2009). We consider an impact on short term financial performance as a direct impact, almost instantaneous, and an impact on long term financial performance as a more diffused impact, typically over the following 5 years.

We hypothesize that the *conformity mechanism* is more likely to be effective in the long run firstly because an extensive sustainability disclosure does not automatically mean a fully transparent disclosure. Firms can disclose extensive but imprecise indicators of their social and environmental impact (Ullmann, 1985). They can communicate about their pollutant emissions, their employees' working conditions, but without providing precise figures about the amount of those emissions, or the quality of life of those employees. Firms with extensive sustainability disclosure only partially conform to the norm of transparency. They conform to the needed quantity of the information, but not necessarily with the required quality of information. An extensive disclosure being only a signal of conformity to the norm of transparency, stakeholders are not likely to provide legitimacy in the short term to firms with extensive disclosure. However, in the long run, stakeholders are more likely to recognize an extensive disclosure as an effort towards transparency. In the long run firms with extensive disclosure are cognitively assimilated with firms that provide qualitative information (Beretta & Bozzolan, 2008). An extensive disclosure is an impression management tactic that is, in the long run assimilated with conformity to the norm of transparency, and therefore may only impact firms' financial performance in the longer term.

Secondly, if an extensive disclosure is recognized as conforming behaviour to the norm of transparency, there is a long path before this extensive disclosure transforms into legitimacy (Vaccaro, 2012), and then financial performance (Wang & Qian, 2011). Conformity to a norm does not directly lead to higher financial performance. It leads first to higher legitimacy and reputation (Kennedy, 2008; Philippe & Durand, 2011). Legitimacy building is a cognitive and thus long term process (Navis & Glynn, 2010). Stakeholders need time to assess the alignment

between their values and the ones of a firm. Thirdly, higher legitimacy leads to the persistence of the relationship between an organization and its external constituents (Suchman, 1995). It is this persistence that transforms into financial performance, and thus into long term financial performance. Consequently legitimacy and reputation taking time to build, and time to transform into financial performance (Carter, Dark, & Singh, 1998; Cohen & Dean, 2005; Krishnan, Ivanov, Masulis, & Singh, 2011), thus an extensive sustainability disclosure only leads to higher financial performance in the longer term.

Finally, it is important to note, and specifically in the field of sustainability, that firms are known to use symbols and impression management tactics in order to improve their legitimacy without effectively conforming to the norm. Firms are suspected to 'green-wash' (Delmas & Burbano, 2011; Lyon & Kim, 2007). Firms emphasize minor events, adopt non-binding standards, and try to minimize their detrimental impact on the environment. Consequently there exists in the field of sustainability a trust issue between firms and stakeholders. Since the suspicion of green-washing exists, legitimacy is always at stake and slow to obtain. Trust is only obtained in the longer term and therefore conformity to the norm of transparency only valued in the long run.

Some scholars provided evidence that an extensive disclosure as measured by firms' participation in the Carbon Disclosure Project did not have a short term impact on firms' financial performance (Eun-Hee & Lyon, 2011). In doing so they argued that the *conformity mechanism* had no effect in the short term. In line with them we argue that the *conformity mechanism* is however effective in the longer term. Due to the fact that an extensive disclosure is only a partial conformity to the norm of transparency, that legitimacy is slow to transform into financial performance, and that there exists a trust issue between firms and stakeholders, conformity to the norm of transparency only generates long term returns. Consequently firms with extensive

sustainability disclosure reach a higher long term financial performance than firms with limited sustainability disclosure. Hence,

> *Hypothesis 1: Sustainability disclosure has a positive impact on the firms' long term financial performance, but not on the firms' short term financial performance.*

2. Revelation mechanism and the impact of Sustainability Performance on Financial Performance

The *revelation mechanism* assesses that a firm with extensive sustainability disclosure reveals its sustainability performance to its stakeholders, who will adjust their support in return. By contrast a firm with limited disclosure leaves its stakeholders in doubt about its social and environmental impact, and stakeholders are left uncertain about their decision to support this focal firm (Akerlof, 1970; Spence, 1973). Stakeholders' support is a source of financial performance (Waddock & Graves, 1997). Therefore when the *revelation mechanism* is effective, the impact of sustainability performance on financial performance depends on the extent of the firm's sustainability disclosure.

This article argues that the *revelation mechanism* is only effective in the short term, but not in the longer term.

In the short term firms with extensive sustainability disclosure reveal their sustainability performance, and reassure stakeholders about their achieved degree of sustainability. Consumers looking at a firm's certifications are able to evaluate if their coffee was grown in a more sustainable way, or if the cotton of their trousers is guaranteed to be organic. An extensive sustainability disclosure acts as a signal of firms' unobservable sustainability performance. Consequently, stakeholders are able to make a decision about whether to support a focal firm, and

provide their support to firms with most sustainable projects. They support firms that provide extensive information on better working conditions, fair practices with their suppliers, or with policies to avoid child labour, but penalize firms that reveal a detrimental impact on their environment, or practices of forced labour. The relationship between firms' degree of sustainability performance and financial performance is strong for firms with greater visibility (Wang & Qian, 2011), and we therefore expect that sustainable investments of firms with extensive sustainability disclosure will have a positive impact on their financial performance.

However, when a firm adopts a limited sustainability disclosure, its sustainability investments have a high probability in the short term to go unnoticed by stakeholders. Firms with limited disclosure leave their stakeholders in doubt about their achieved degree of sustainability performance (Peloza, Loock, Cerruti, & Muyot, 2012). Disclosure is only meaningful to stakeholders if it reflects some credible underlying events (Jaggi & Freedman, 1992), and a limited sustainability disclosure does not allow stakeholders to assess the credibility of the sustainability performance that is presented. Consumers facing a coffee with no certifications will not be able to evaluate if this coffee is organic, and will not pay a premium for this product. If a firm invests in organic coffee, but does not extensively communicate about it, it will not get any return on this investment. The more noisy the signal, the less agents are likely to make a negative decision (Greve, 2011). In the short term, a firm with limited sustainability disclosure lets its stakeholders make the decision of whether it is sustainable on their own. At best stakeholders will not take any decision of whether supporting or penalizing this focal firm. At worst they will base their decision on signals other than sustainability disclosure, such as the firms' reputation or legitimacy. In both cases, investments in sustainability performance will remain unnoticed and therefore will not impact these firms' financial performance.

We therefore assess that the *revelation mechanism* is effective in the short term. Investments in sustainability performance that are coupled with a limited disclosure do not impact firms' financial performance. However, investments in sustainability performance that are matched with an extensive disclosure have a positive impact on financial performance. The more extensive a firm's sustainability disclosure is, the more positive the impact of its sustainability performance on its short term financial performance. Hence,

> *Hypothesis 2: Sustainability disclosure moderates positively the positive impact of sustainability performance on short term financial performance.*

If the *revelation mechanism* is functioning on the short run, this mechanism is however likely to be less effective in the long term. In the long run, firms with extensive disclosure still reveal information about their sustainability performance and reassure their stakeholders of their degree of engagement, whether it is high, or low. When a firm with extensive disclosure invests in sustainability projects, stakeholders clearly observe its sustainability performance, support this focal firm, which thus encounters higher financial performance. Greater extent of disclosure reduces information asymmetry between a firm and its stakeholders (Pinghsun & Yan, 2012). A reduced information asymmetry reassures stakeholders and allows them to engage in a long term relationship with a focal firm. For instance a firm investing in better working conditions will benefit in the long run from more motivated employees (Cespa & Cestone, 2007), or from long term contracts with the best suppliers. Consequently firms that invest in sustainability with an extensive disclosure also impact positively on their long term financial performance.

In the long run stakeholders still clearly assess the sustainability performance of firms with extensive sustainability disclosure. However, in contradiction with the short term case, in the long run sustainability investments of firms with limited disclosure are also likely to increase the

firms' financial performance for two reasons. First because if in the short term, a limited disclosure leaves stakeholders in doubt about a firm's sustainability performance, stakeholders are however more likely to form their own opinions about a firms' sustainability performance in the longer term. Limited information may create in the short term situations where stakeholders are not able to decide whether a firm is sustainable or not. However, in the long run, the repeated interactions between a firm and its stakeholders, and the cumulative disclosure of information, even if limited, allow stakeholders to form a certain opinion about a firm's degree of sustainability (Altonji & Pierret, 1997; Lange, 2007). Secondly, if in the short term stakeholders base their sustainability assessment on firms' voluntary sustainability disclosure, in the long run there is a higher probability of involuntary disclosure. Involuntary disclosure refers to information about a firm's sustainability that is disclosed without any control from the organization. This is the case for instance when environmental disasters are revealed by the media, such as in the case of BP, or when NGOs investigate and reveal a firm's poor working conditions, such as in the case of Nike. Due to the highest probability of extreme events, or of NGOs investigations in the long run, involuntary disclosure is more likely to happen. For these two reasons, in the long run firms with a limited disclosure are not able to leave their stakeholders uncertain about their sustainability investments.

As a consequence in the long run stakeholders still clearly evaluate the sustainability performance of firms with extensive disclosure, and either have been able to make an assessment, or have received involuntary signals about the sustainability performance of firms with limited sustainability disclosure. In the long run firms cannot hide their achieved degree of sustainability performance. The *revelation mechanism* is not effective as disclosure does not play a role in revealing or hiding a firms' degree of sustainability performance any longer. Whatever firms'

sustainability disclosure, sustainability investments will impact positively on the firms' financial performance. Hence,

> *Hypothesis 3: Sustainability disclosure does not moderate the positive impact of sustainability performance on long term financial performance*

3. Playing with the revelation and conformity mechanisms: the strategic value of Sustainability Disclosure

We identified that sustainability disclosure participated in both *conformity* and *revelation mechanisms*, which had distinct impacts on the firms' financial performance, in both the long and short term. The *conformity mechanism* is only effective in the long run: Sustainability disclosure impacts firms' financial performance in the long run only. The *revelation mechanism* is only effective in the short term: Sustainability performance impacts the short term financial performance of only the firms with an extensive sustainability disclosure and of all the firms in the longer term.

Therefore firms depending on their degree of sustainability performance and sustainability disclosure may take advantage of either one or both of these mechanisms. Mechanisms define sets of strategies that are most effective in generating higher financial performance (Green & Laffont, 1977). In some cases both the *revelation* and *mechanisms* are aligned. They define the same set of strategies as more likely to generate financial performance. For instance, firms with high sustainability performance and extensive disclosure gain short term financial performance by revealing their good results (*revelation mechanism*), and long term financial performance for conforming to the norm of transparency (*conformity mechanism*). However interesting cases arise when both mechanisms have opposite effects. For instance firms with poor sustainability results may benefit from an extensive disclosure (*conformity mechanism*), but may be punished for the

poor sustainability they disclose (*revelation mechanism*).

Due to both the *revelation* and *conformity mechanisms*, sustainability disclosure is a double edge sword that triggers both benefits and costs (Cormier & Magnan, 1999): Depending on firms' degree of sustainability performance, and the efficiency on the *revelation* and *conformity mechanisms* (short versus long term), disclosure may either benefit or penalize the level of financial performance a firm can achieve (Zhang & Wang, 2009).

We therefore analyze in this section the strategic value of sustainability disclosure. We consider four cases depending on the firms' achieved degree of sustainability performance (high versus low), and the firms' financial performance time horizon (short versus long term). We identify for each case the degree of sustainability disclosure that generates the highest level of financial performance. We implicitly make the assumption that firms already achieved a certain degree of sustainability performance (i.e. have invested in sustainability projects), and are able to strategically adjust their sustainability disclosure (being either limited or extensive). This assumption seems rational in the sense that investments in sustainability performance such as the building of green facilities, the implementation of work policies, mobilize a higher amount of resources, processes and capabilities than investments in sustainability disclosure (publication of reports, advertisings, certification of current operations).

3.1. Low sustainability performance / Short term financial performance

In the short term, the *revelation mechanism* is effective. Therefore a firm with low sustainability performance will be penalized by stakeholders if it reveals its poor sustainability results. A firm with highly polluting emissions that extensively communicates about them will be less likely to get stakeholders' support than if it had remained silent. In addition, a firm with poor

sustainability results but a limited disclosure might be able to mislead its stakeholders about its true social and environmental impact (Peloza et al., 2012). For instance BP limited the extent of its disclosure and succeeded in appearing as a sustainable firm, whereas it was not. Finally, the *conformity mechanism* being inactive in the short term, firms with limited sustainability disclosure are not penalized in the short term for their limited conformity to the norm of transparency. In the short term a firm with low sustainability performance that limits the extent of its disclosure avoids stakeholders' punishment for its poor sustainability performance, and may even gain some support by misleading its stakeholders about its actual sustainability performance. It therefore reaches a higher financial performance than if it had implemented an extensive sustainability disclosure.

> *Hypothesis 4a: Firms with low sustainability performance reach a higher short term financial performance with a limited sustainability disclosure than with an extensive sustainability disclosure*

3.2. High sustainability performance / Short term financial performance

In the short term, the *revelation mechanism* being effective, firms that achieved a high degree of sustainability performance can only benefit from stakeholders' support if they reveal their sustainability achievements with an extensive sustainability disclosure. If they were to implement a limited sustainability disclosure, they would not only bear the costs of those sustainability investments, but would not receive in return stakeholders' support. Sustainability investment would remain hidden to stakeholders. A firm that invested in green facilities, waste management processes, or better working conditions will not avoid NGOs pressure and will not attract more qualified employees, if it does not extensively communicate about those investments. The corollary is that scholars noted that when information about poor sustainability results is

disclosed (by rating agencies for instance), firms tend to increase their sustainability performance (Chatterji & Toffel, 2010). This phenomenon provides evidence that only firms with a high sustainability performance benefit from disclosure. Therefore in the short term, firms with high sustainability performance only get stakeholders' support with an extensive disclosure, and thus reach higher financial performance than with a limited sustainability disclosure. Hence,

> *Hypothesis 4b: Firms with high sustainability performance reach a higher short term financial performance with an extensive sustainability disclosure than with a limited sustainability disclosure*

3.3. Low sustainability performance / Long term financial performance

In the long run, the *revelation mechanism* is weaker. Even if a firm tries with a limited disclosure to limit the information available to stakeholders about its true sustainability performance, stakeholders, due to repeated interactions, are still able to evaluate its actual social and environmental impact. In addition, in the long term, poor sustainability results of less sustainable firms are more likely to be revealed by NGOs or the media. Consequently, for firms with low sustainability performance, the coating strategy that consists in hiding poor sustainability results under a limited sustainability disclosure is not effective. In addition the *conformity mechanism* is effective in the long run. Firms with an extensive sustainability disclosure are valued by stakeholders for their conformity to the norm of transparency, while firms with a limited sustainability disclosure are punished by stakeholders (Huang & Kung, 2010; Philippe & Durand, 2011). NGOs will be more likely to target firms that are suspected of hiding their actual impact on the environment. Therefore in the long run firms with low sustainability performance are not able to take advantage of a limited disclosure, but gain in financial performance by conforming to the norm of transparency. Hence,

Hypothesis 5a: Firms with low sustainability performance reach a higher long term financial performance with an extensive sustainability disclosure than with a limited sustainability disclosure

3.4. High sustainability performance / Long term financial performance

In the long term, a firm with high sustainability performance still reveals its good practice with an extensive sustainability disclosure. However this strategy only provides a limited advantage compared to firms that implemented a limited disclosure. The *revelation mechanism* being weaker in the long run, in both cases stakeholders are able to evaluate the firms' sustainability performance. However in the long term the *conformity mechanism* is effective. Therefore even if firms with high sustainability performance only gain slightly in financial performance by revealing their sustainability achievement, they also gain in legitimacy and thus long term financial performance by conforming to the norm of transparency. Hence,

Hypothesis 5b: Firms with high sustainability performance reach a higher long term financial performance with an extensive sustainability disclosure than with a limited sustainability disclosure

Therefore this article hypothesizes first that a *revelation* and a *conformity* mechanism exists, but are not active on the same time horizon. As a consequence hypotheses 1, 2 and 3 argue that sustainability performance and sustainability disclosure have different impacts on firms' short and long term financial performance. However hypotheses 1, 2, and 3 do not provide information about the level of financial performance that firms may achieve by combining different degrees of sustainability performance and disclosure. Hypotheses 1, 2, and 3 for instance do not allow for evaluating if firms with low sustainability performance reach a higher short term financial performance when adopting either a limited or an extensive disclosure. This article therefore draws additional hypotheses that determine which disclosure strategy permits firms to reach

higher levels of financial performance, depending on their achieved degree of sustainability, and the time horizon of their financial performance. The rationale of these hypotheses is summarized in Table 11.

Table 11: The impact of the *revelation* and *conformity* mechanisms on firms' achieved degree of financial performance

Time Span	*Sust. Perf.*	*Sust. Disc.*	*Revelation Mechanism*	*Conformity Mechanism*
Short Term Financial Performance	*Low Sustainability Performance*	*Extensive Disclosure*	**Penalty** for detrimental sustainability impact	**No gains** from conformity to the norm of transparency
		Limited Disclosure	**No Penalty** for detrimental sustainability impact	**No Penalty** for not conforming to the norm of transparency
		Hypothesis 4a Firms with low sustainability performance reach a higher short term financial performance with a limited sustainability disclosure than with an extensive sustainability disclosure		
	High Sustainability Performance	*Extensive Disclosure*	**Gains** from beneficial sustainability impact	**No gains** from conformity to the norm of transparency
		Limited Disclosure	**No gains** from beneficial sustainability impact	**No Penalty** for not conforming to the norm of transparency
		Hypothesis 4b Firms with high sustainability performance reach a higher short term financial performance with an extensive sustainability disclosure than with a limited sustainability disclosure		
Long Term Financial Performance	*Low Sustainability Performance*	*Extensive Disclosure*	**Penalty** for detrimental sustainability impact	**Gains** from conformity to the norm of transparency
		Limited Disclosure	**Penalty** for detrimental sustainability impact	**Penalty** for not conforming to the norm of transparency
		Hypothesis 5a Firms with low sustainability performance reach a higher long term financial performance with an extensive sustainability disclosure than with a limited sustainability disclosure		
	High Sustainability Performance	*Extensive Disclosure*	**Gains** from beneficial sustainability impact	**Gains** from conformity to the norm of transparency
		Limited Disclosure	**Gains** from beneficial sustainability impact	**Penalty** for not conforming to the norm of transparency
		Hypothesis 5b Firms with high sustainability performance reach a higher long term financial performance with an extensive sustainability disclosure than with a limited sustainability disclosure		

E. DATA

Data in this study was extracted from different sources. We first selected our 6 years sustainability performance and sustainability disclosure measures from the Asset4 database (from 2005 to 2010). Asset4 is a Swiss based sustainability ratings agency, subsidiary of Thomson Reuters. Asset4 provides sustainability performance and sustainability disclosure ratings for 2239

firms in 2005, and up to 3258 firms in 2010. This set covers major financial indexes worldwide[57], and thus includes large companies from both developed[58] and developing[59] countries. Asset4 analysts gather data every year for each firm through all publicly available sources (Annual reports, CSR reports, Newspapers, NGO websites…) 1359 indicators of the firms' sustainability performance and disclosure. The raw data is then transformed through a proprietary algorithm in several ratings and sub-ratings. Asset4 is at this date the world's largest database for extra-financial information.

Most literature measured sustainability related constructs using databases from KLD (Barnett & Salomon, 2006; Surroca et al., 2010; Waddock & Graves, 1997), Vigéo (Cavaco & Crifo, 2009), Calvert, FTSE4Good, DJSI, or Innovest (Chatterji & Levine, 2008). We however rely on a unique dataset that has almost never been used in management research (Cheng et al., 2011). This choice reflects the fact that Asset4 provided more granularity, validity and adequacy with our theoretical setting than other databases.

Asset4 is more granular than other rating agencies in the sense that it rates firms over scaled scores (0 to 100%), while other agencies such as KLD only provide dichotomic indicators (0 or

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[57] FTSE 250 (UK), S&P 500, NASDAQ 100, Russell 1000 (US), S&P Composite (Canada), SMI (Switzerland), DAX (Germany), CAC 40 (France), S&P ASX 200 (Australia) DJ STOXX (Europe), MSCI World (World)

[58] Australia, Austria, Bahamas, Belgium, Bermuda, British Virgin Islands, Canada, Cayman Islands, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hong Kong, Hungary, Ireland, Isle of Man, Israel, Italy, Japan, Jersey, Republic of Korea , Luxembourg, Marshall Islands, Netherlands, New Zealand, Norway, Panama, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom, United Sates of America

[59] Brazil, Chile, China, Colombia, Egypt, India, Indonesia, Kuwait, Malaysia, Mauritius, Mexico, Morocco, Papua New Guinea, Philippines, Qatar, Russian Federation, Saudi Arabia, Singapore, South Africa, Taiwan , Thailand, Turkey, Ukraine, United Arab Emirates

1). This granularity provides greater robustness to our econometrical results. Asset4 is also less likely to be biased. Asset4 analysts do not use self-administrated questionnaires as in other agencies. They thus cope with the risk of misleading answers from rated firms. In addition Asset4 ratings are computed through algorithms applied on collected indicators. They are thus limited in any cognitive bias that may arise from analysts' subjectivity. Finally Asset4 better fits our framework as it clearly differentiates firms' sustainability performance (outcome of sustainability practices) and sustainability disclosure (amount of information provided). While most stakeholders do not observe a firm's actual sustainability performance, Asset4 analysts collect and analyze hundreds of datasets and spend hours examining primary and secondary information. By comparison with other stakeholders who are limited in time and access to information, Asset4 analysts are able to evaluate the difference between what a firm actually did (its sustainability performance) and what it disclosed (its sustainability disclosure), which perfectly matches our theoretical setting.

We further completed our initial sample with financial performance and control measures from Bureau van Dijk's ORBIS database.

Our final dataset is the sample of 3,307 firms that belong to major indexes from the largest stock exchanges worldwide between 2005 and 2010. Those firms belong to all industrial sectors[60] and 63 different countries (including the most developed countries and major emerging ones). Our final dataset contains 13,662 observations between 2005 and 2010, with an average of 2,277

[60] Energy, Basic Materials, Industrials, Cyclical Consumer Goods & Services, Non-Cyclical Consumer Goods & Services, Financials, Healthcare, Technology, Telecommunications Services, Utilities

observations per year, each firm belonging to the dataset for an average of 4.1 years.

1. Dependent variable

In line with the literature on the link between sustainability performance and financial performance, we proxy firms' *Financial Performance* with the firms' return on total assets (Choi & Wang, 2009; Hull & Rothenberg, 2008; McWilliams & Siegel, 2000; Waddock & Graves, 1997). For hypotheses with firms' *Short Term Financial Performance* as a dependent variable we estimated our models considering firms' yearly ROA over the 2005-2010 period (panel data). For hypotheses with firms' *Long Term Financial Performance* as a dependent variable we considered the average ROA of firms over the 2006-2010 period, and independent variables as of their value in 2005 (one-dimension data).

2. Independent variables

Asset4 provides yearly, for each firm, fifteen sustainability performance ratings that cover fifteen sustainability topics (Emission Reduction, Resource Reduction, Employment Quality, Human Rights…). Those fifteen ratings are grouped in three general categories: Environment, Social, and Governance.[61] Those fifteen sustainability performance ratings range from 0% to 100% and measure the impact of a firm's sustainability policies on its stakeholders' welfare (e.g.: among indicators used to compute the fifteen ratings are the amount of waste recycled, the amount of

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[61] The *Environment* category includes 3 of the 15 sub-ratings: *Emission Reduction, Product Innovation, Resource Reduction*.

The *Social* category includes 7 of the 15 sub-ratings: *Product Responsibility, Community, Human Rights, Diversity and Opportunity, Employment Quality, Health & Safety, Training and Development*.

The *Governance* includes 5 of the 15 sub-ratings: *Board Functions, Board Structure, Compensation Policy, Vision and Strategy, Shareholder Rights*.

CO^2 emissions, the number of products targeting low income consumers…). The more a firm benefits its stakeholders, the higher are the sustainability ratings (e.g.: firms that recycle a large amount of waste reach a higher "resources reduction" rating, firms with lower emissions of CO^2 reach a higher "emission reductions" rating). To obtain our measure of *Sustainability Performance,* we computed the average of the 15 Asset4 sustainability performance ratings with equal weights per general category (Environment, Social and Governance). We therefore obtained from the 15 initial Asset4 sustainability performance ratings a single *Sustainability Performance* measure. We averaged the 15 ratings with equal weights for each of the three general categories so that categories with a higher number of ratings did not over-influence the final measure (As an example the Environment category contained 3 ratings while the Social category contained 7 ratings). Therefore, an increase in our measure of *Sustainability Performance* indicates that a firm increased its beneficial impact on stakeholders' welfare (Lower pollutant emissions, fewer health and safety issues at work, fairer governance…), and this with the same magnitude whether the firm increased its impact in terms of Governance, Environment, or Social performance.

In the same way Asset4 also provides fifteen sustainability disclosure ratings ranging from 0% to 100%. These sustainability disclosure ratings cover the same 15 topics as sustainability performance ratings, and are also grouped in three general categories: Environment, Social, and Governance. These fifteen sustainability disclosure ratings measure the amount of information a firm publicly discloses about its sustainability performance for each of the 15 topics (Is information on CO^2 Emissions publicly available? Is information on employees' injuries at work publicly available?...). More precisely, Asset4 analysts construct the sustainability disclosure measure by comparing the maximum number of indicators a firm could have disclosed (for

instance the amount of CO^2 emissions, the number of injuries at work…), compared to what it actually discloses. We computed our one measure of *Sustainability Disclosure* with the average of Asset4's fifteen sustainability disclosure ratings, equally weighted per general category (Environment, Social, and Governance). As a consequence, the value of our *Sustainability Disclosure* measure increases when firms disclose a greater amount of indicators about their sustainability performance.

Our hypotheses and methodology necessitated a split in our sample between firms with *Limited disclosure* and firms with *Extensive disclosure*, but also between firms with *High Sustainability Performance* and *Low Sustainability Performance.* We therefore computed a *Sustainability Disclosure Dummy* that coded 1 when firms performed at a level of *Sustainability Disclosure* superior to the median of all firms' *Sustainability Disclosure* in the same year, and 0 otherwise. The baseline median was computed every year, so that every year firms were split in equal size samples. We considered that firms coded with a 1 implement an *Extensive Sustainability Disclosure* this specific year, and that firms coded with a 0 implement a *Limited Sustainability Disclosure.* We also computed a *Sustainability Performance Dummy* that coded 1 when firms performed with a level of *Sustainability Performance* higher than the median of all firms' *Sustainability Performance* in the same year, and 0 otherwise. Firms coded with a 1 were considered as having a *High Sustainability Performance*, those with a 0 as having a *Low Sustainability Performance.* By splitting firms between those with high and low *Sustainability Performance* and *Disclosure* using the median of all firms, and not the median of firms from the same industry, we assumed that stakeholders were evaluating firms' absolute *Sustainability Performance* and *Disclosure,* and not their *Sustainability Performance* and *Disclosure* relative to their industry peers. We draw this assumption from a large section in literature that considered

absolute measures of Sustainability Performance (Barnett & Salomon, 2006; Brammer & Millington, 2008; Hull & Rothenberg, 2008; Surroca et al., 2010; Waddock & Graves, 1997), and the evidence that NGOs tend to attack selected polluting industries (Energy sector, Metals & Mining, industry…), and not the worst polluters in each industry (Reid & Toffel, 2009).

3. Control variables

Following past literature regarding the link between sustainability performance, sustainability disclosure, and financial performance (Al-Tuwaijri et al., 2004; Choi & Wang, 2009; Surroca et al., 2010), we control for major determinants of the firms' *Financial Performance* such as the firms' *Size*, *Risk Exposure*, *Industrial sector*, *Country* and *Time* effects. We respectively measured firms' *Size* with firms' total assets, firms' *Short Term Risk Exposure* with the inverse of their liquidity ratio[62]. The inverse liquidity ratio measures the risk that a firm may not be able to reimburse its debts in the short term. For models with *Short Term Financial Performance* as a dependent variable (panel data), we controlled for *Time* effect with year dummies and we estimated models with a fixed effect to control for *Industry* effect, *Country* effect, and within firms unobserved factors of heterogeneity. For models with *Long Term Financial Performance* as a dependent variable (one-dimension data), we controlled for *Industry* effect with a set of 9 dummies based on the firms' Thomson Reuters Business Classification code first two digits. We controlled for *Country* effect with a set of 32 dummies based on the country of incorporation of firms contained in our dataset in 2005. We finally also controlled for the firms' *Long Term Risk*

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[62] – ((Current assets – Stocks) / current liabilities)

Exposure with the inverse of their solvency ratio[63]. The inverse solvency ratio measures the risk that a firm may not be able to reimburse its debts in the long term. Descriptive statistics of our variables are presented in Table 12 and Table 13.

Table 12: Listwise Pearson correlations of variables in models with short or long term financial performance as a dependent variable

Short term financial performance as a dependent variable								
	Mean.	*Standard Deviation.*	*1..*	*2.*	*3.*	*4.*	*5.*	*6.*
1. Short Term Financial Performance	7.75	11.46	1.00					
2. Sustainability Performance	0.49	0.06	0.01	1.00				
3. Sustainability Disclosure (Dummy)	0.51	0.50	0.02*	0.77*** [64]	1.00			
4. Size	$1.35x10^7$	$3.14x10^7$	-0.03**	0.36***	0.24***	1.00		
5. Short Term Risk Exposure	-1.57	2.58	-0.02*	0.11***	0.12***	0.06***	1.00	
Number of Observations = 13,662								
**** p<0.001, ** p<0.01, * p<0.05, + p<0.10*								
Long term financial performance as a dependent variable								
	Mean.	*Standard Deviation.*	*1..*	*2.*	*3.*	*4.*	*5.*	*6.*
1. Long Term Financial Performance	7.34	8.08	1.00					
2. Sustainability Performance	0.48	0.04	0.10***	1.00				
3. Sustainability Disclosure (Dummy)	0.50	0.50	0.06*	0.67*** [64]	1.00			
4. Size	$1.29x10^7$	$3.01x10^7$	-0.03	0.40***	0.23***	1.00		
5. Short Term Risk Exposure	-1.47	2.22	-0.04	0.05+	0.09***	0.07*	1.00	
6. Long Term Risk Exposure	-43.03	20.20	-0.17***	0.14***	0.17***	0.15***	0.35***	1.00
Number of Observations = 1,526								
**** p<0.001, ** p<0.01, * p<0.05, + p<0.10*								

[63] – (Shareholders' funds / (Non-current liabilities + Current liabilities))

[64] The correlation between Sustainability Performance & the Sustainability Disclosure Dummy may be high but both variables are never included in the same model which prevents any multicolinearity issue.

Table 13: Descriptive statistics per year for sustainability performance and sustainability disclosure

Year.	*Sustainability Performance*			*Sustainability Disclosure*		
	Number of Observations	*Average*	*Difference in means (T-test between values in t and values in t-1)*	*Number of Observations*	*Average*	*Difference in means (T-test between values in t and values in t-1)*
2005	2239	0.479		2239	0.296	
2006	2252	0.480	0.001	2252	0.308	0.011***
2007	2429	0.482	0.001	2429	0.395	0.087***
2008	2920	0.485	0.003	2920	0.439	0.045***
2009	3350	0.486	0.002	3350	0.457	0.018***
2010	3258	0.490	0.004*	3258	0.475	0.018***

**** p<0.001, ** p<0.01, * p<0.05, + p<0.10*

Table 12 shows that firms endogenously select themselves and have a tendency to either adopt a *Limited Sustainability Disclosure* when their *Sustainability Performance* is low, and an *Extensive Sustainability Disclosure* when their *Sustainability Performance* is high (0.77 correlation between *Sustainability Performance* and the *Sustainability Disclosure Dummy*). We tried different classical techniques to cope with this endogeneity issue (Instrumental variables, GMM estimations…), but results were unstable between models which created the doubt of a remaining endogeneity bias. We therefore developed our own innovative methodology, the results of which are presented in the next sections.

It is interesting to note in Table 13 that the firms' *Sustainability Performance* can be considered as statistically stable over the years, while the firms' *Sustainability Disclosure* constantly increases every year. This preliminary result gives partial support to our assumption that there exists an institutional pressure for *Sustainability Disclosure*, as a way to conform to the norm of

transparency.

F. METHOD AND RESULTS

1. Hypotheses 1, 2 & 3

1.1. Analysis

To test hypothesis 1 we used the *Sustainability Disclosure Dummy* as a measure of *Sustainability Disclosure*, and estimated its impact on firms' *Short* and *Long Term Financial Performance*, resulting thus in two estimated models. To test hypotheses 2 and 3 we used this same *Sustainability Disclosure Dummy* to split our sample between firms with an Extensive *Sustainability Disclosure* (*Sustainability Disclosure Dummy* equals 1), and firms with a *Limited Sustainability Disclosure* (*Sustainability Disclosure Dummy* equals 0). For those two samples we first estimated the impact of the firms' *Sustainability Performance* on their *Short Term Financial Performance*, and secondly on their *Long Term Financial Performance*, resulting thus in four additional estimated models. The six estimated models are presented in Table 14 below.

Table 14: The impact of sustainability performance and sustainability disclosure on short and long term financial performance

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	*Short Term Financial Performance*	*Long Term Financial Performance*	*Short Term Financial Performance*		*Long Term Financial Performance*	
Screening Criteria	*None*	*None*	*Extensive Sustainability Disclosure*	*Limited Sustainability Disclosure*	*Extensive Sustainability Disclosure*	*Limited Sustainability Disclosure*
Sustainability Disclosure (Dummy)	**0.28**	**1.79*****				
	(0.38)	**(0.00)**				
	0.01	***0.11***				
Sustainability Performance			**10.78****	**-5.54**	**11.80*****	**10.26*****
			(0.01)	**(0.57)**	**(0.00)**	**(0.00)**
			0.05	***-0.01***	***0.06***	***0.03***
Size	-0.00	-0.00	-0.00*	0.00	-0.00	-0.00*
	(0.13)	(0.81)	(0.02)	(0.27)	(0.13)	(0.01)
	-0.04	*-0.01*	*-0.12*	*0.05*	*-0.04*	*-0.09*
Short Term Risk Exposure	-0.23**	0.06	-0.31+	-0.20+	-0.33**	0.36*
	(0.00)	(0.80)	(0.08)	(0.06)	(0.01)	(0.02)
	-0.05	*0.02*	*-0.06*	*-0.05*	*-0.09*	*0.10*
Long Term Risk Exposure		-0.11***			-0.06*	-0.08***
		(0.00)			(0.01)	(0.00)
		-0.27			*-0.14*	*-0.19*
Year Dummies	Yes		Yes	Yes		
Industry Dummies	F.E.	Yes	F.E.	F.E.	Yes	Yes
Country Dummies	F.E.	Yes	F.E.	F.E.	Yes	Yes
Constant	7.24***		2.10	8.61*		
	(0.00)		(0.37)	(0.05)		
Number of observations	13,662	1,526	6,941	6,721	760	766
Number of Firms	3,307	1,526	1,848	2,265	760	766
R-squared	0.08	0.50	0.10	0.07	0.62	0.46
F-statistics	74.98***	35.66***.	58.00***	24.10***	26.95***.	. 15.46***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Robust p-values in parentheses
Robust normalized beta coefficients in italic
**** p<0.001, ** p<0.01, * p<0.05, + p<0.10*

Model 1 and 2 consider firms' *Sustainability Disclosure Dummy* as an independent variable. Model 1 considers firms' *Short Term Financial Performance* as a dependent variable while Model 2 considers firms' *Long Term Financial Performance.* Therefore Model 2 differs from Model 1 in the sense that the data is not longitudinal (The *Sustainability Disclosure Dummy* is considered as of its value in 2005, the dependent variable is the firms' average *Financial Performance* between 2006 and 2010). Thus Model 2 only contains 1,526 observations compared

to the 13,662 in Model 1. Models 3 and 4 are the two models containing *Sustainability Performance* as an independent variable and *Short Term Financial Performance* as a dependent variable. They were estimated on two subsamples issued from the sample used in Model 1. Model 3 that considers firms with an *Extensive Sustainability Disclosure* therefore contains 6,941 observations while Model 4 that considers firms with a *Limited Sustainability Disclosure* contains 6,721 observations. Models 5 and 6 consider the firms' *Long Term Financial Performance* as a dependent variable, and are estimated on two subsamples issued from the sample used in Model 2. They differ from Models 3 and 4 in the sense that data is again not longitudinal. Model 5 and 6 therefore respectively contain 760 and 766 observations.

Models 1, 3 and 4 consider panel data, they were therefore estimated with a fixed effect, control variables, and using estimations robust to heteroskedasticity. Models 2, 5 and 6 consider one-dimension data and they were therefore estimated using control variables, country and industry dummies, and estimations robust to heteroskedasticity. In those models we also dropped the constant terms which were not significant. The fixed effect, control variables, industry and country dummies allow us to control for any sample selection bias that may arise from the split between firms with a *Limited* and firms with an *Extensive Sustainability Disclosure* in Models 3, 4, 5 and 6.

1.2. Results

Model 1 underlines that *Sustainability Disclosure* does not directly influence *Short Term Financial Performance* (Coefficient equals 0.28 but is not significant). However Model 2 shows that the extent of *Sustainability Disclosure* impacts positively and significantly *Long Term Financial Performance* (Coefficient equals 1.79 and is significant at a 0.1% level). Models 1 and

2 provide insight about the validity of hypothesis 1. The *conformity mechanism* seems only effective on the long run: Firms gain legitimacy and higher financial performance from an *Extensive Sustainability Disclosure* in the long term only.

Model 3 shows that that for firms with an *Extensive Sustainability Disclosure*, the impact of *Sustainability Performance* on *Short Term Financial Performance* is positive (10.78) and significant at a 1% level. However, Model 4 shows that for firms with a *Limited Sustainability Disclosure*, the impact of *Sustainability Performance* on *Short Term Financial Performance* is negative and not significant. Models 3 and 4 therefore provide a first insight about the validity of hypothesis 2. They highlight that the *revelation mechanism* may be effective in the short term: Firms with an *Extensive Sustainability Disclosure* reveal their achieved *Sustainability Performance* and allow stakeholders to value their sustainability investments (positive and significant coefficient). Firms with a *Limited Sustainability Disclosure* leave their stakeholders in doubt, and will not benefit for their degree of *Sustainability Performance* (insignificant coefficient).

Models 5 and 6 show that both firms with an *Extensive* and a *Limited Sustainability Disclosure* impact significantly and positively their *Long Term Financial Performance* when increasing their *Sustainability Performance* (Coefficients are respectively of 11.80 and 10.26, significant at a 0.1% level). Those results provide insight about the validity of hypothesis 3: In the long term the *revelation mechanism* might not be effective. In the long term, stakeholders are able to evaluate the degree of *Sustainability Performance* of all firms, even those with a *Limited Sustainability Disclosure*.

However, to robustly support hypothesis 1, the fact that *Sustainability Disclosure* is more likely

to positively impact firms' *Financial Performance* in the long term rather than in the short term, we needed to further prove that the estimated coefficient for *Sustainability Disclosure* in Model 2 was statistically different and higher than the estimated coefficient for *Sustainability Disclosure* in Model 1. In the same way, to robustly support hypothesis 2, the positive moderating effect of *Sustainability Disclosure* over the relationship between the firms' *Sustainability Performance* and their *Short Term Financial Performance,* we needed to assess if the coefficient of *Sustainability Performance* estimated in Model 3 (for firms with an *Extensive Sustainability Disclosure*) was statistically different and higher than the coefficient of *Sustainability Performance* estimated in Model 4 (for firms with a *Limited Sustainability Disclosure*). Finally, to support hypothesis 3, the fact that no moderating effect of *Sustainability Disclosure* exists in the long term, we needed to prove that the two estimated positive coefficients for *Sustainability Performance* in Models 5 and 6 (for the firms with an *Extensive* and a Limited *Sustainability Disclosure*) were not statistically different. In order to do so we estimated a Chow Test of equality of coefficients for these three sets of two coefficients (Chow, 1960). The results are presented in Table 15.

Table 15: Test of equality of sustainability performance and sustainability disclosure coefficients estimated in models 1 to 6 (Chow tests)

	(1)	*(2)*			*(3)*	*(4)*			*(5)*	*(6)*		
Dependent Variable	*Short Term Fin. Perf.*	*Long Term Fin. Perf.*	*Chow Test of Equality of coefficients*		*Short Term Financial Performance*		*Chow Test of Equality of coefficients*		*Long Term Financial Performance*		*Chow Test of Equality of coefficients*	
Screening Criteria	*None*	*None*	*X²*	*p-values*	*Extens. Sust. Disc.*	*Limited Sust. Disc.*	*X²*	*p-values*	*Extens. Sust. Disc.*	*Limited Sust. Disc.*	*X²*	*p-values*
Sustainability Disclosure	**0.28**	**1.79*****	11.41	**0.00**								
	(0.32)	(0.44)										
Sustainability Performance					**10.78****	**-5.54**	4.67	**0.03**	**11.80*****	**10.26*****	0.22	**0.64**
					(4.13)	(9.69)			(1.83)	(2.86)		

Robust Standard Deviations in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10*

Table 15 shows that the coefficients of *Sustainability Disclosure* estimated in Models 1 and 2 (Impact on *Short* and *Long Term Financial Performance*) are statistically different at a 1% level. *Sustainability Disclosure* impacts the firms' *Long Term Financial Performance* but not their *Short Term Financial Performance*. This result robustly supports hypothesis 1. The *conformity mechanism* is only effective in the long term. Table 15 also shows that the coefficients estimated in Models 3 and 4, that estimate the impact of *Sustainability Performance* on *Short Term Financial Performance* for firms with *Extensive* and *Limited Sustainability Disclosure*, are statistically different at a 5% level. The coefficient in Model 3 (Firms with *Extensive Disclosure*) is positive and significantly higher than the coefficient in Model 4 (Firms with *Limited Disclosure*). This test shows that *Sustainability Disclosure* positively moderates the positive impact of *Sustainability Performance* on *Short Term Financial Performance*, thus supporting hypothesis 2. The *revelation mechanism* is thus effective in the short term. Table 15 finally shows that the coefficients of *Sustainability Performance* estimated in Models 5 and 6 (Impact on *Long Term Financial Performance* for firms with *Extensive* and *Limited Sustainability Disclosure*) are not statistically different. *Sustainability Performance* has the same positive impact on *Long Term Financial Performance* whether firms adopt a *Limited* or *Extensive Sustainability Disclosure.* This result supports hypothesis 3: *Sustainability Disclosure* does not moderate the positive impact of *Sustainability Performance* on *Long Term Financial Performance.* The *revelation mechanism* is not effective in the long term.

Hypotheses 1, 2 and 3 being strongly supported, we finally computed the standardized coefficients of our independent variables in Table 14. Standardized coefficients allow comparison of the relative impact of different independent variables. It is interesting to note that *Sustainability Performance* seems to have both in the short and long term a relatively lower

impact on *Financial Performance* than economic factors such as firms' *Size*, *Short Term* or *Long Term Risk Exposure*. It also appears that in the long term *Sustainability Disclosure* has a relatively greater impact on *Financial Performance* than those same economic factors. This evidence provides partial insight about the relative strength of the *revelation* and *conformity* mechanisms. The *conformity mechanism* appears to have a relatively greater impact on the firms' *Financial Performance* than the *revelation mechanism*.

While our models strongly support hypotheses 1 to 3, we tested the robustness of the results. We first checked for any multicolinearity issue. The VIF of variables ranges from 1.01 to 9.93. Mean VIF of models ranges from 1.28 to 2.23. Such results allow us to ensure no multicolinearity bias.

As part of the literature we used proxy firm's Financial Performance with firms' Tobin's Q and not firms' return on assets (Surroca et al., 2010; Wang, Choi, & Li, 2008); we also estimated Models 1 to 6 with firms' Tobin's Q as a measure of their financial performance. Results are presented in Table 16.

Table 16: The impact of sustainability performance and sustainability disclosure on short and long term financial performance (Tobins' Q as a proxy for financial performance)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	*Short Term Financial Performance*	*Long Term Financial Performance*	*Short Term Financial Performance*		*Long Term Financial Performance*	
Screening Criteria	*None*	*None*	*Extensive Sustainability Disclosure*	*Limited Sustainability Disclosure*	*Extensive Sustainability Disclosure*	*Limited Sustainability Disclosure*
Sustainability Performance			**1.44****	**1.41**	**1.82*****	**2.14*****
			(0.00)	**(0.19)**	**(0.00)**	**(0.00)**
			0.07	*0.03*	*0.08*	*0.04*
Sustainability Disclosure (Dummy)	**0.06***	**0.09+**				
	(0.04)	**(0.09)**				
	0.03	*0.05*				
Size	-0.00*	-0.00*	-0.00*	-0.00*	-0.00*	-0.00***
	(0.03)	(0.02)	(0.04)	(0.03)	(0.03)	(0.00)
	-0.14	*-0.06*	*-0.26*	*-0.13*	*-0.10*	*-0.16*
Short Term Risk Exposure	-0.01	0.09**	0.02	-0.01	0.06	0.10**
	(0.56)	(0.00)	(0.14)	(0.29)	(0.19)	(0.00)
	-0.01	*0.15*	*0.03*	*-0.03*	*0.09*	*0.18*
Long Term Risk Exposure		0.01***			0.01*	0.01+
		(0.00)			(0.02)	(0.07)
		0.24			*0.18*	*0.10*
Year Dummies	Yes		Yes	Yes		
Industry Dummies	F.E.	Yes	F.E.	F.E.	Yes	Yes
Country Dummies	F.E.	Yes	F.E.	F.E.	Yes	Yes
Constant	1.31***		0.46*	0.88+		
	(0.00)		(0.04)	(0.05)		
Number of observations	11,308	1,171	5,711	5,597	567	604
Number of Firms	2,783	1,171	1,539	1,914	567	604
R-squared	0.17	0.73	0.22	0.15	0.82	0.72
F-statistics	131.7	72.33	90.88	50.20	62.08	34.30
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Robust p-values in parentheses
Robust normalized beta coefficients in italic
**** p<0.001, ** p<0.01, * p<0.05, + p<0.10*

Results of models with Tobin's Q as a dependent variable are most similar to our initial results and provide support to our hypotheses. The only difference is the positive and significant impact of the firms' *Sustainability Disclosure* on their *Short Term Financial Performance*. This result may threaten hypothesis 1. However, the standardized coefficient estimated for the impact of

Sustainability Disclosure on the firms' *Short Term Financial Performance* (that equals 0.03) is still lower than the coefficient estimated for the impact of *Sustainability Disclosure* on the firms' *Long Term Financial Performance* (that equals 0.05). This finding provides partial support to hypothesis 1: the conformity mechanism is more effective in the long term than in the short term.

We also estimated Models 1 to 6 with a GMM estimator. GMM estimators relax the assumption of normally distributed variables which may be the case with dummies. Results were also similar to those of Table 14 in range, sign and significance.

Finally our theoretical framework assumes that stakeholders are evaluating the firms' absolute *Sustainability Performance* and *Disclosure,* and not their *Sustainability Performance* and *Disclosure* relative to their industry peers. However, as some scholars also made the assumption that stakeholders provide legitimacy to a firm that adopt an *Extensive Sustainability Disclosure* relative to its industry peers, and not to the whole universe of firms (Cho & Patten, 2007), we did run additional models. More specifically, instead of splitting our sample between firms with *Extensive* and *Limited Sustainability Disclosure* at the median per year of our *Sustainability Disclosure measure*, we made this split at the median per year and per industry of our *Sustainability Disclosure* measure[65]. Therefore, for each year and each industry, firms were divided in two equal size groups: firms with *Extensive*, and firms with *Limited Sustainability Disclosure*. We estimated the same models as Models 1 to 6 with this new *Sustainability Disclosure Dummy.* Estimated coefficients for *Sustainability Performance* and *Sustainability Disclosure* (available in the Table 28 of Appendix) were very similar in range, sign and

[65] Using as an industry indicator the first two digits of the firms' Thomson Reuters Business Classification Code

significance to our initially estimated results.

2. Hypotheses 4 & 5

2.1. Analysis

Hypotheses 4 and 5 compare the level of *Financial Performance* achieved by a firm depending on the strategy it adopted, and not the impact of a variable on the firm's *Financial Performance*. We therefore tested hypothesis 4 and 5 with a technique that allows comparison of the mean *Financial Performance* achieved by a firm depending on the strategy it adopted (*High* vs. *Low Sustainability*, *Limited* vs. *Extensive Sustainability Disclosure*), namely ANOVAs.

Hypotheses 4 and 5 assume that the firms achieved a certain degree of *Sustainability Performance*, and compare their *Short* and *Long Term Financial Performance* depending on their *Sustainability Disclosure*. To do so we first generated the predictions of Models 3 to 6 over the whole sample of firms and with all independent variables other than *Sustainability Performance* set at their mean.

Predictions over the whole sample of firms mean for instance that Model 3 was only estimated over the sub-sample of firms with an *Extensive Sustainability Disclosure* (6,941 observations), but we also generated the predictions of Model 3 for firms that both adopted an *Extensive* and a *Limited Sustainability Disclosure* (13,662 observations). As a consequence the predictions of Models 3 to 6 encompass 6,614 firms (and not 3,307 as in the initial estimation). This happens because for instance the predictions of Model 3 not only estimate the *Short Term Financial Performance* of firms that actually adopted an *Extensive Sustainability Disclosure*, but also the one of firms that actually adopted a *Limited Sustainability Disclosure,* but in the hypothetical case where they had adopted an *Extensive Sustainability Disclosure*. We therefore double the size

of our dataset. We did generate predictions of Model 3 to 6 over the whole sample of firms in order to cope with the latent endogeneity issue that exists in our dataset: Firms have a tendency to implement either a *High Sustainability Performance* / *Extensive Sustainability Disclosure* strategy or a *Low Sustainability Performance* / *Limited Sustainability Disclosure* strategy. This self-selection was an issue as our goal was to test for each value of *Sustainability Performance,* which *Disclosure* strategy was the most profitable. We therefore needed a dataset where firms had similar Sustainability Performance, but where heterogeneous in their Sustainability Disclosure. Predictions over the whole sample of firms cope with this issue. As an example the predictions of Model 3 over the whole sample of firms estimates the achieved *Short Term Financial Performance* of firms with *Extensive Disclosure,* and this for all potential values of *Sustainability Performance* (and not only for high Values of *Sustainability Performance*).

We generated the predictions of Model 3 to 6 with all independent variables other than *Sustainability Performance* set at their mean in order to only consider the degree of *Financial Performance* that had been achieved through *Sustainability Performance* (and not through other factors), and to adjust for differences in *Size* and *Risk Exposure* that may exist between the different sub-samples estimated.

The prediction of Models 3 to 6 over the whole sample of firms and with all independent variables other than *Sustainability Performance* set at their mean are presented in Figure 15, Figure 16 and Figure 17.

Figure 15: Adjusted predicted short term financial performance of firms with extensive and limited sustainability disclosure.

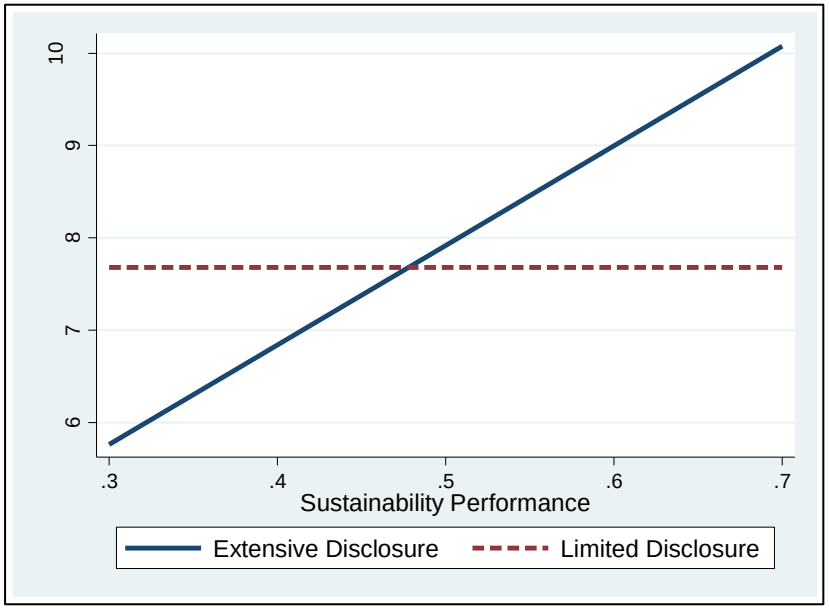


Figure 16: Adjusted predicted long term financial performance of firms with extensive and limited sustainability disclosure.

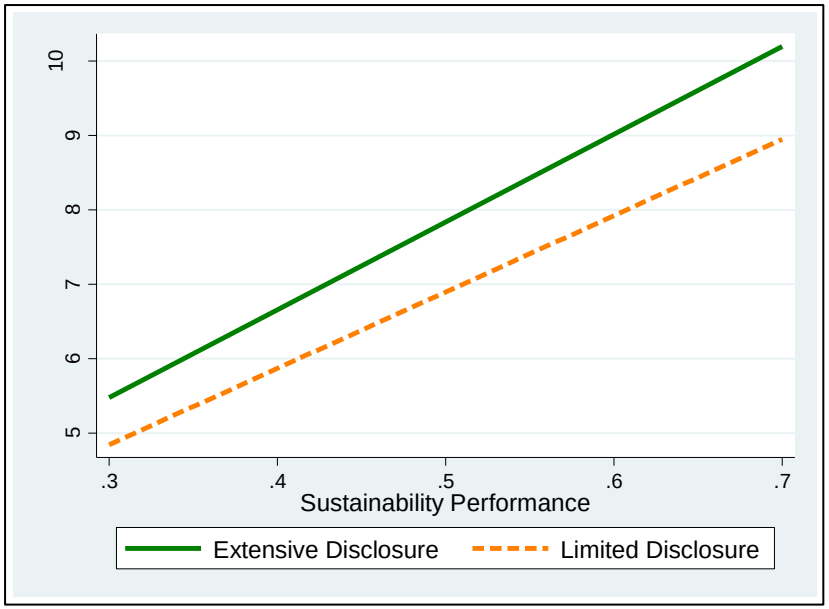
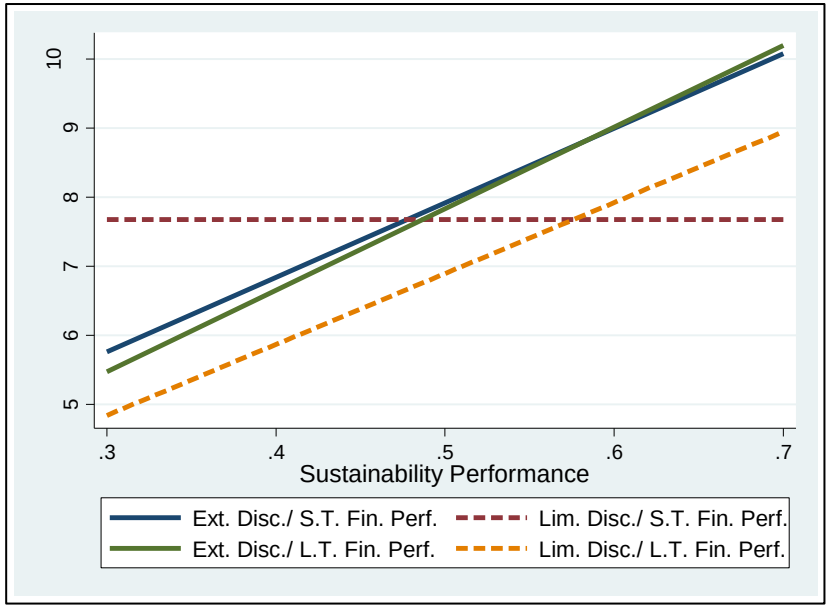


Figure 17: Adjusted predicted short and long term financial performance of firms with extensive and limited sustainability disclosure.



Our final predictions of Models 3 to 6 are a set of 27, 324 observations, 6,614 firms (Double the size of our initial dataset), for which we obtained 2 variables: the adjusted predictions of firms' *Short* and *Long Term Financial Performance*. There is no endogeneity bias in this set of firms: For each firm in our initial dataset, we generated its predicted *Short* and *Long Term Financial Performance* under the assumption that it implemented a *Limited Sustainability Disclosure*, but also under the assumption that this same firm implemented an *Extensive Sustainability Disclosure*.

Using the *Sustainability Performance Dummy,* we then allocated those 6,614 firms into four groups depending on their degree of *Sustainability Performance* and *Sustainability Disclosure*:

- Group 1: *Low Sustainability Performance / Limited Sustainability Disclosure*
- Group 2: *Low Sustainability Performance / Extensive Sustainability Disclosure*
- Group 3: *High Sustainability Performance / Limited Sustainability Disclosure*
- Group 4: *High Sustainability Performance / Extensive Sustainability Disclosure*

Predictions being estimated with other independent variables than *Sustainability Performance* set at their mean, firms in the different groups can be considered as independent observations in terms of *Size*, *Risk Exposure*, *Industry* or *Country*. Those four groups can therefore be assigned to sets of similar firms that received either a *Sustainability Performance,* or a *Sustainability Disclosure* treatment, and for which we are willing to investigate the difference in terms of *Short* and *Long Term Financial Performance*. ANOVA models have been developed to test the difference over a variable between different groups of similar individuals. In that sense they perfectly fit with our setting. We thus estimated two ANOVA models. The first ANOVA model considers firms' adjusted prediction of *Short Term Financial Performance* as a dependent

variable, while the second model considers the firms' adjusted prediction of *Long Term Financial Performance*. Both models have as an independent categorical variable the variable that codes groups in which firms are allocated. In both models we also computed the marginal effect of belonging to each group on the firms' *Short* and *Long Term Financial Performance.* ANOVA Results, marginal effects and their graphical illustrations are presented in Table 17, Table 18, Figure 18 and Figure 19 below.

Table 17: The effect of sustainability performance and sustainability disclosure on firms' average short term financial performance (ANOVA & analysis of marginal effects)

ANOVA								
DEPENDENT VARIABLE	.INDEPENDENT VARIABLE	*Sum of Square.*	*Mean Square*	*F statistic*	*p-value*	*Number of groups*	*Number of Observations*	R^2
Adjusted Prediction of Short Term Financial Performance	Group	4173.59	1391.19	16234.52	0.00	4	27324	0.64
	Residuals	2341.15	0.08					

MARGINAL EFFECTS ON FIRMS' SHORT TERM FINANCIAL PERFORMANCE							
INDEPENDENT VARIABLE *(Taken Values)*	INDEPENDENT VARIABLE *(Sustainability Strategies)*	*Marginal effect*	*Standard Error*	*p-value*	*99.9% confidence interval*		*Number of Observations*
Group = 1	*Low Sustainability Performance / Limited Sustainability Disclosure*	7.68	0.004	0.00	7.66	7.70	6,651
Group = 2	*Low Sustainability Performance / Extensive Sustainability Disclosure*	7.20	0.004	0.00	7.19	7.22	6,651
Group = 3	*High Sustainability Performance / Limited Sustainability Disclosure*	7.68	0.003	0.00	7.66	7.70	7,011
Group = 4	*High Sustainability Performance / Extensive Sustainability Disclosure*	8.30	0.003	0.00	8.29	8.32	7,011

Figure 18: Marginal effects of sustainability performance and sustainability disclosure on firms' average short term financial performance

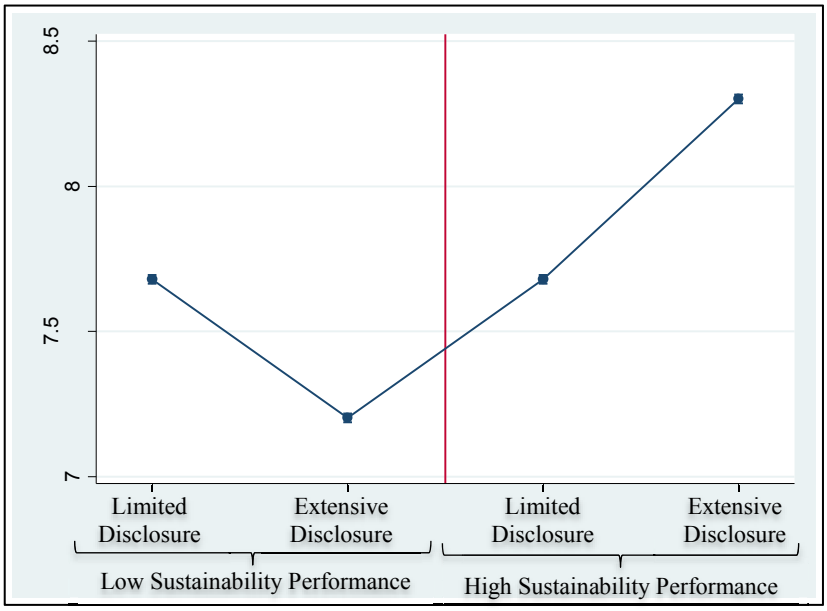
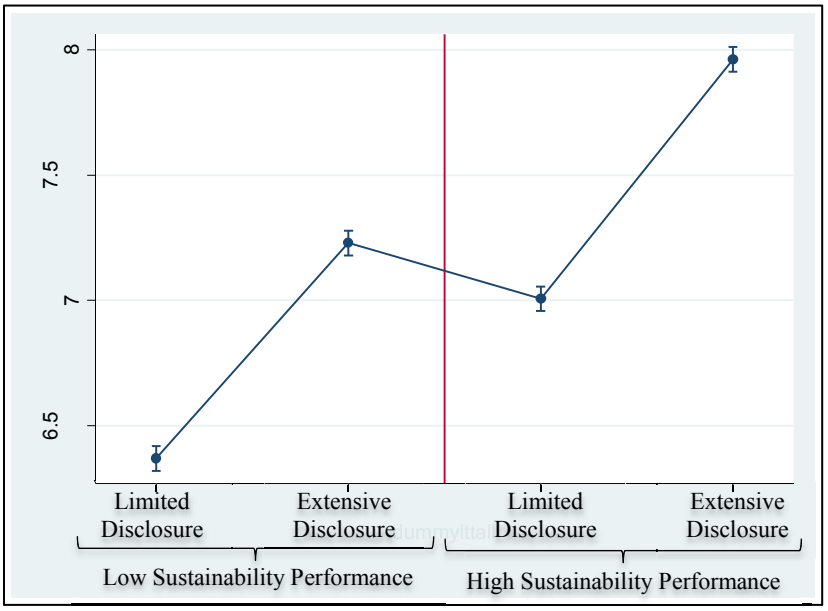


Table 18: The effect of sustainability performance and sustainability disclosure on firms' average long term financial performance (ANOVA & analysis of marginal effects)

ANOVA								
DEPENDENT VARIABLE	.INDEPENDENT VARIABLE	*Sum of Square.*	*Mean Square*	*F statistic*	*p-value*	*Number of groups*	*Number of Observations*	R^2
Adjusted Prediction of Long Term Financial Performance	Group	990.67	330.22	3278.65	0.00	4	3052	0.76
	Residuals	306.99	0.10					

MARGINAL EFFECTS ON FIRMS' LONG TERM FINANCIAL PERFORMANCE							
INDEPENDENT VARIABLE *(Taken Values)*	INDEPENDENT VARIABLE *(Sustainability Strategies)*	*Marginal effect*	*Standard Error*	*p-value*	*99.9% confidence interval*		*Number of Observations*
Group = 1	*Low Sustainability Performance / Limited Sustainability Disclosure*	6.37	0.012	0.00	6.32	6.42	754
Group = 2	*Low Sustainability Performance / Extensive Sustainability Disclosure*	7.23	0.012	0.00	7.18	7.28	754
Group = 3	*High Sustainability Performance / Limited Sustainability Disclosure*	7.01	0.011	0.00	6.96	7.06	772
Group = 4	*High Sustainability Performance / Extensive Sustainability Disclosure*	7.96	0.011	0.00	7.91	8.01	772

Figure 19: Marginal effects of sustainability performance and sustainability disclosure on firms' average long term financial performance



2.2. Results

Table 17 shows that firms belonging to the four different groups can be considered as different in terms of their achieved *Short Term Financial Performance* (ANOVA p-value inferior to 1%). The analysis of marginal effects and Figure 18 show that firms with a *Low Sustainability Performance* reach a higher *Short Term Financial Performance* with a *Limited Sustainability Disclosure,* rather than with an *Extensive Sustainability Disclosure* (Marginal effect of 7.68 compared to 7.20), supporting hypothesis 4a. They show however that firms with a *High Sustainability Performance* have a significantly higher *Short Term Financial Performance* when they adopt an *Extensive Sustainability Disclosure* (Marginal effect of 8.30 compared to 7.68 with a *Limited Sustainability Disclosure*), supporting hypothesis 4b. If both hypotheses are supported, it means that the *revelation mechanism* is effective in the short term. Firms with *Low Sustainability Performance* are able to mislead their stakeholders about their poor sustainability results with a *Limited Sustainability Disclosure*, while firms with *High Sustainability Performance* gain in revealing their good results to stakeholders. It is interesting to note that firms with a *Low Sustainability Performance / Limited Sustainability Disclosure* strategy still reach a lower level of *Short Term Financial Performance* than firms with a *High Sustainability Performance / Extensive Sustainability Disclosure* strategy. Benefits of hiding poor results are not as substantial as the benefits of revealing good results. Therefore the benefits of the *revelation mechanism* are unbalanced as to whether it is used to reveal, or hide *Sustainability Performance*.

Table 18 considers the adjusted prediction of the firms' *Long Term Financial Performance* as a dependent variable and shows that firms from the four groups can be considered as having different *Long Term Financial Performance* (ANOVA p-value inferior to 1%). The analysis of

marginal effects and Figure 19 reveal that both firms with a *Low* and a *High Sustainability Performance* reach a higher *Long Term Financial Performance* when their *Sustainability Disclosure* is *Extensive* (Marginal effects of respectively 7.23 and 7.96 with an *Extensive Sustainability Disclosure* compared to 6.37 and 7.01 with a *Limited Sustainability Disclosure*), supporting hypotheses 5a and 5b. Those results confirm that the *revelation mechanism* is much weaker in the long term, while the *conformity mechanism* remains effective. Firms gain by conforming to the norm of transparency, and cannot coat their poor results under a *Limited Sustainability Disclosure.*

We investigated further the analysis of the relative impact of the *revelation* and *conformity mechanisms*. Such investigation was necessary to understand the trade-off firms are facing between gaining in the short term and being penalized in the longer term. To do so we estimated a MANOVA[66] model. MANOVAs are specific ANOVAs that allow multiple dependent variables. We estimated our MANOVA model with an independent categorical variable, the variable that codes groups in which firms are allocated, and as dependent variables both firms' adjusted predictions of *Short* and *Long Term Financial Performance*. We then estimated the marginal effects of being in each group on what we defined as the *Growth of Financial Performance* (Firms' *Long Term* minus firms' *Short Term Financial Performance* in 2005), and on what we defined as firms' *Total Financial Performance* (Firms' *Short Term* added to firms' *Long Term Financial Performance*). The results are presented in Table 19, Table 20, Figure 20 and Figure 21.

[66] Multivariate Analysis of Variance

Table 19: The effect of sustainability performance and sustainability disclosure on the growth of firms' financial performance (MANOVA & analysis of marginal effects)

ANOVA							
DEPENDENT VARIABLE	.INDEPENDENT VARIABLE	*Statistic.*	*Statistic*	*F statistic*	*p-value*	*Number of groups*	*Number of Observations*
Adjusted prediction of Short Term Financial Performance & Adjusted prediction of Long Term Financial Performance	Group	Wilks' lambda	0.07	2850.61	0.00	4	3052
		Pillai's trace	1.39	2315.27	0.00		
		Lawley-Hotelling trace	6.84	3471.87	0.00		
		Roy's largest root	5.66	5755.28	0.00		

MARGINAL EFFECTS ON THE GROWTH OF FIRMS' FINANCIAL PERFORMANCE							
INDEPENDENT VARIABLE *(Taken Values)*	INDEPENDENT VARIABLE *(Sustainability Strategies)*	*Marginal effect*	*Standard Error*	*p-value*	*99.9% confidence interval*		*Number of Observations*
Group = 1	*Low Sustainability Performance / Limited Sustainability Disclosure*	-1.31	0.008	0.00	-1.34	-1.29	754
Group = 2	*Low Sustainability Performance / Extensive Sustainability Disclosure*	-0.14	0.008	0.00	-0.17	-0.10	754
Group = 3	*High Sustainability Performance / Limited Sustainability Disclosure*	-0.67	0.008	0.00	-0.71	-0.64	772
Group = 4	*High Sustainability Performance / Extensive Sustainability Disclosure*	-0.07	0.008	0.00	-0.11	-0.04	772

Figure 20: Marginal effects of sustainability performance and sustainability disclosure on the growth of firms' financial performance

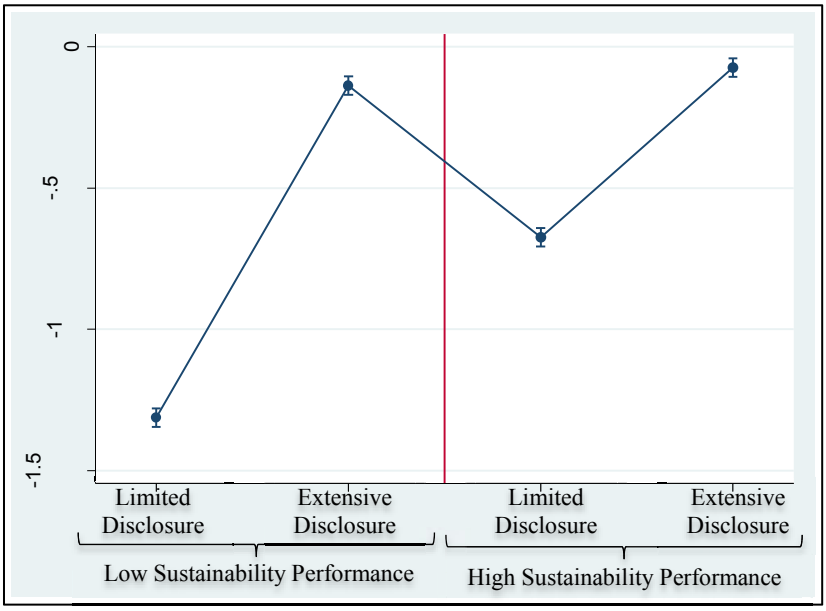
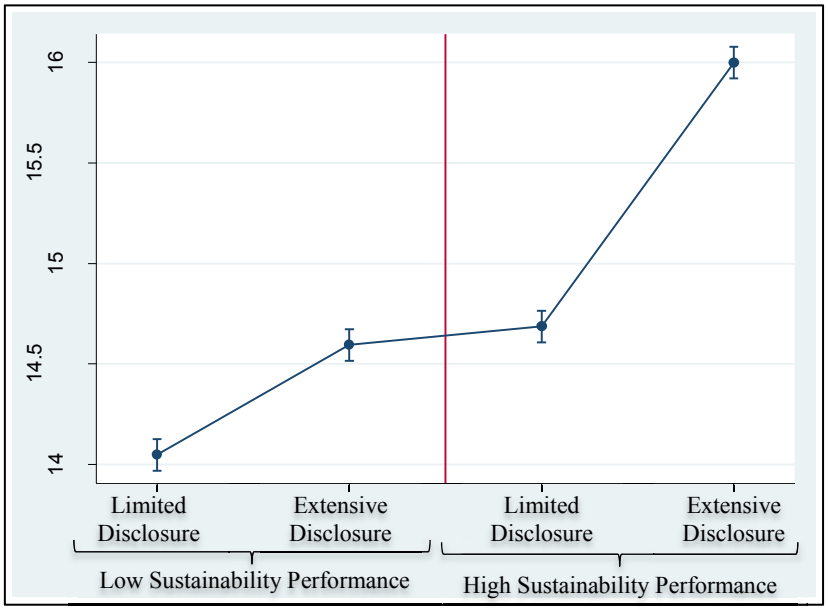


Table 20: The effect of sustainability performance and sustainability disclosure on firms' total financial performance (MANOVA & analysis of marginal effects)

ANOVA							
DEPENDENT VARIABLE	.INDEPENDENT VARIABLE	*Statistic.*	*Statistic*	*F statistic*	*p-value*	*Number of groups*	*Number of Observations*
Adjusted prediction of Short Term Financial Performance & Adjusted prediction of Long Term Financial Performance	Group	Wilks' lambda	0.07	2850.61	0.00	4	3052
		Pillai's trace	1.39	2315.27	0.00		
		Lawley-Hotelling trace	6.84	3471.87	0.00		
		Roy's largest root	5.66	5755.28	0.00		

MARGINAL EFFECTS ON FIRMS' TOTAL FINANCIAL PERFORMANCE							
INDEPENDENT VARIABLE *(Taken Values)*	INDEPENDENT VARIABLE *(Sustainability Strategies)*	*Marginal effect*	*Standard Error*	*p-value*	*99.9% confidence interval*		*Number of Observations*
Group = 1	*Low Sustainability Performance / Limited Sustainability Disclosure*	14.05	.0183	0.00	13.97	14.13	754
Group = 2	*Low Sustainability Performance / Extensive Sustainability Disclosure*	14.59	.0183	0.00	14.52	14.67	754
Group = 3	*High Sustainability Performance / Limited Sustainability Disclosure*	14.69	.0181	0.00	14.61	14.76	772
Group = 4	*High Sustainability Performance / Extensive Sustainability Disclosure*	16.00	.0181	0.00	15.92	16.08	772

Figure 21: Marginal effects of sustainability performance and sustainability disclosure on firms' total financial performance



It is interesting to note from Table 19 and Figure 20 that even if all firms encounter a decrease in their *Financial Performance* between the short to the long term, this drop in *Financial Performance* is much higher for firms with a *Limited Sustainability Disclosure* and almost insignificant for firms with an *Extensive Sustainability Disclosure*. This effect sheds light on the fact that even if *Sustainability Disclosure* does not directly influence the firms' *Short Term Financial Performance*, it is however a factor of *Financial Performance* stability. Firms with an *Extensive Sustainability Disclosure* are trustworthy to stakeholders. Compared to firms with a *Limited Sustainability Disclosure* they do not bear the risk of stakeholders' withdrawal once their actual *Sustainability Performance* is revealed in the long run.

It is also interesting to note from Table 20 and Figure 21 that in both cases of *High* and *Low Sustainability Performance*, firms with an *Extensive Sustainability Disclosure* reach a higher *Total Financial Performance* than firms with a *Limited Sustainability Disclosure*. This result shows that if firms with poor sustainability results gain in hiding their *Low Sustainability*

Performance in the short term, this gain is lower than the penalty of not conforming to the norm of transparency in the longer term (The *Total Financial Performance* of firms with *Low Sustainability Performance* is lower when they adopt a *Limited Disclosure* than when they adopt an *Extensive Disclosure*). The corollary is that firms with poor results are penalized when they reveal their *Low Sustainability Performance* in the short term, but gain more than they lost by showing their conformity to the norm of transparency in the long term. Those results clearly show that the *conformity mechanism* has more impact on the firms' *Total Financial Performance* than the *revelation mechanism.*

It is finally interesting to note from Table 19 and Table 20 and from Figure 20 and Figure 21 that firms with an *Extensive Sustainability Disclosure* have a more stable and higher *Financial Performance* than firms with a *Limited Sustainability Disclosure.* However firms with a *High Sustainability Performance* only have a higher but not automatically more stable *Financial Performance* than firms with a *Low Sustainability Performance*. This result may point to the fact that *Sustainability Disclosure* being both part of *revelation* and *conformity mechanisms,* impacts both the firms' *Financial Performance* and its stability, while *Sustainability Performance* being only part of a *revelation mechanism,* only impacts the firms' achieved level of *Financial Performance*.

To confirm the validity of hypotheses 4 and 5 we performed several robustness tests. As an example we computed Kruskal Wallis tests instead of ANOVAs and marginal effects. The Kruskal Wallis test is a non-parametric version of ANOVAs which therefore relaxes the assumption of normally distributed variables. Results of these tests were identical to our initial results and supported hypotheses 4 and 5.

Our final set of results provides an interesting insight to management literature. Scholars who investigated the link between *Sustainability Performance* and *Short Term Financial Performance* hypothesized either a positive (Surroca et al., 2010), a negative (Wright & Ferris, 1997), or a curvilinear relationship (Barnett & Salomon, 2006). Our theoretical framework assesses that in fact the relation is either positive or null, depending on the extent of the firm's *Sustainability Disclosure.* Our results also show that in the short term firms with a *Low Sustainability Performance* are better off with a *Limited Sustainability Disclosure*, while firms with a *High Sustainability Performance* are better off with an *Extensive Sustainability Disclosure*. Therefore, if firms act rationally, they implement either one or these two strategies, which may create a curvilinear relationship between *Sustainability Performance* and *Financial Performance* (Firms on the bottom of the *Sustainability Performance* scale having a *Limited Sustainability Disclosure*, firms at the top of the *Sustainability Performance* scale having an Extensive Sustainability Disclosure). We tested empirically this auto-selection process and its resulting curvilinear relationship between *Sustainability Performance* and *Financial Performance*. Our data showed a high correlation between the firms' degree of *Sustainability Performance* and the extent of their *Sustainability Disclosure* (see Table 12). This supports the idea of the firms' simultaneous selection of their *Sustainability Performance* and *Disclosure*. We also estimated models that encompassed the linear and curvilinear effects of *Sustainability Performance* on firms' *Short* and *Long Term Financial Performance* (Results available in Table 29 and Figure 25 of Appendix). Coefficients were significant for the curvilinear effect in the short term and both the direct and curvilinear effects in the longer term. These models therefore support the hypothesis that there exists a curvilinear relationship between the firms' *Sustainability Performance* and *Financial Performance* in both the short and long term, which connects our results with past literature.

G. DISCUSSION AND CONCLUSION

This article investigates the impact of sustainability performance and sustainability disclosure on firms' financial performance. It specifically points out the interaction that exists between sustainability performance and disclosure.

We argue that firms, by adjusting the extent of their sustainability disclosure, participate in two mechanisms: The *revelation mechanism* within which a firm either reassures or leaves its stakeholders in doubt about its actual sustainability performance, and the *conformity mechanism* within which a firm gains legitimacy by showing conformity to the norm of transparency.

We support this rationale by first assessing the validity of these mechanisms in both the short and long term. We show that the *conformity mechanism* is effective in the long term only: An extensive sustainability disclosure that shows conformity to the norm of transparency only impacts a firm's long term financial performance (hypothesis 1). We also show that the r*evelation mechanism* is effective in the short term only: The positive impact of sustainability performance on the firms' short term financial performance is positively moderated by their degree of sustainability disclosure (hypothesis 2). However, in the longer term, stakeholders are able to evaluate a firms' sustainability performance, even if it implemented a limited disclosure. Therefore sustainability disclosure does not moderate the relationship between firms' sustainability performance and their long term financial performance (hypothesis 3).

We secondly assess whether firms that achieved a certain degree of sustainability performance may take advantage of the *revelation* and *conformity mechanisms* to reach higher financial performance. In doing so we assess whether firms are better off leaving their stakeholders in doubt about their achieved degree of sustainability, or whether firms would be better off

conforming to the norm of transparency, even if poor results are revealed. We show that firms with low sustainability performance reach higher short term financial performance when misleading their stakeholders with a limited disclosure (hypothesis 4a), but a higher long term financial performance when conforming to the norm of transparency with an extensive disclosure (hypothesis 4b). By contrast, firms with a high sustainability performance always reach a higher financial performance by revealing their sustainability and conforming to the norm of transparency with an extensive disclosure (hypotheses 5a and 5b)

Despite the limitations of our study, our findings contribute to the literature on disclosure and signals. On the one hand economists understood the relationship between disclosure and its underlying characteristic. They investigated disclosure in the light of the *revelation mechanism*, disclosure being a way for a firm to reveal or hide some underlying characteristics of interest (Akerlof, 1970; Heil & Robertson, 1991; Ragozzino & Reuer, 2011; Spence, 1973). On the other hand sociologists concentrated on disclosure, and underlined the existence of pressure for conformity to the norm of transparency (Cho & Patten, 2007; Patten, 2002; Philippe & Durand, 2011). In this article we assess that both mechanisms co-exist, but on different time horizons. The *revelation mechanism* is effective in the short term, while normative pressure for conformity has a long term impact. As a consequence there exist situations where unsustainable firms do not reveal their sustainability impact while sustainable firms do and other situations where both types of firms have an interest in revealing their sustainability performance.

Consequently this article also contributes to the literature that considered sustainability performance and its disclosure as norms (Bansal & Clelland, 2004; Delmas & Toffel, 2008; Philippe & Durand, 2011). Our results show that norm conformity does not always lead to higher financial performance. For instance firms' with low sustainability performance, which do not

conform to the norm of sustainability, are better off in the short term with a limited disclosure, by not conforming to the norm of transparency. This result sheds light on the fact that disclosure participates in the conformity process and the norm of transparency, but also reveals conformity to the norm of sustainability. This result therefore provides insight about the fact that conformity is not of an independent nature: conforming to the norm of transparency is not enough to generate financial performance, a transparent firm also needs to conform to the norm of sustainability. Therefore only the conformity to a set of interrelated norms (such as transparency and sustainability) leads to higher financial performance.

Finally our findings contribute to the booming literature on firms' sustainability strategies and their impact on financial performance. Many past studies assumed either a positive (Waddock & Graves, 1997), a negative (Wright & Ferris, 1997) or a curvilinear relationship between sustainability performance and financial performance (Barnett & Salomon, 2006). We disentangle this debate by proving that, depending on the firms' extent of sustainability disclosure, this relationship may be either null or positive. Therefore what may misleadingly appear as a curvilinear effect is in fact the conjunction between a moderating effect of sustainability disclosure on the relationship between sustainability performance and financial performance, and the firms' endogenous selection of their sustainability disclosure as a function of their sustainability performance. Firms reveal if the payoff of revealing is higher than that of not revealing (Okuno-Fujiwara et al., 1990). Therefore firms have a tendency to locate themselves at both ends of the sustainability performance and disclosure scale. They are likely to either implement a high sustainability performance / extensive disclosure strategy, or a low sustainability performance / limited disclosure one, as those strategies are both profitable in the short term. We therefore hope this paper will provide an answer to a long standing debate

(Margolis & Walsh, 2003; Orlikowski, 1992), and therefore open new research avenues beyond the mere fact that doing good may or may not be making profits.

Chapter 5: Conclusion

A. MAIN RESULTS

This thesis opens with a research gap: stakeholders are not able to clearly observe and objectively evaluate firms' sustainability performance. When a firm limits the extent of its sustainability disclosure, it limits the information available to stakeholders about its achieved degree of sustainability performance, and prevents them from clearly assessing its degree of sustainability. The signaling perspective that considers such information asymmetry between agents makes valuable propositions about antecedents and consequences of sustainability disclosure (Akerlof, 1970; Spence, 1973). It argues that firms strategically adjust their sustainability disclosure to trigger stakeholders' support. Consequently, to protect themselves from stakeholders' evaluation, less sustainable and more reputed firms are more likely to limit their sustainability disclosure and less sustainable firms encounter higher financial returns when they limit their sustainability disclosure. However scholars also showed that an extensive sustainability disclosure participates in firms' conformity to the norm of transparency (Huang & Kung, 2010; Michelon, 2011; Philippe & Durand, 2011). Stakeholders value transparency and pressure firms to adopt an extensive disclosure. Normative pressure pushes more reputed and less sustainable firms to adopt an extensive disclosure, and therefore less sustainable firms encounter higher financial returns when they increase their sustainability disclosure. These propositions contradict the ones of the signaling perspective. A relevant research question to ask is thus: ***What are the normative limitations to the strategic use of sustainability disclosure?*** This thesis therefore attempts to understand if a firm can strategically limit its sustainability disclosure to prevent stakeholders from assessing its sustainability performance, and thus reach higher profits, or if the institutional

pressure for transparency weakens such a strategy.

This thesis answers this research question in three essays. The first essay assesses the relevance of the research gap, and shows that stakeholders are not able to objectively evaluate firms' sustainability performance. The second essay explores how a firm limits its sustainability disclosure to prevent stakeholders from evaluating its degree of sustainability. Finally, the third essay analyses the consequences of a limited sustainability disclosure in terms of financial performance.

The first essay assesses that stakeholders, and more specifically sustainability raters, are not able to objectively evaluate firms' sustainability performance. While most scholars considered that stakeholders were able to objectively evaluate the firms' sustainability performance, this essay shows that even sustainability raters are not able to converge in their assessment of a focal firm's sustainability performance. This divergence is explained by a lack of common theorization and commensurability between raters about the construct of sustainability performance. In addition, even when theorization and commensurability are controlled, there still exists a remaining measurement error that leads to divergence between raters. This measurement error indicates the firms' ability to prevent raters from evaluating their sustainability performance. This thesis assumes that firms succeed in doing so by limiting their sustainability disclosure. The first essay therefore supports the research gap of this thesis: stakeholders are not able to clearly evaluate firms' sustainability performance, as those firms limit their sustainability disclosure. The second essay therefore aims at understanding when firms choose to limit their disclosure, and more precisely whether firms can strategically limit their disclosure, or if stakeholders' pressure for transparency prevents them from doing so.

The second essay also shows that more sustainable firms, to reveal their engagement toward stakeholders' welfare, adopt an extensive disclosure. The corollary is less sustainable firms, to prevent stakeholders from evaluating their poor sustainability results, are more likely to adopt a limited disclosure. In addition, more reputed firms bear the risk of underperforming against their stakeholders' high expectations, and therefore are also more likely to limit their sustainability disclosure. These results provide support to the signaling perspective: More reputed and less sustainable firms strategically limit their sustainability disclosure to avoid stakeholders' displeasure. However, the second essay also shows that when the firms' sustainability performance is high, firms are less likely to decrease their sustainability disclosure as their reputation increases. This finding provides evidence that a high reputation weakens the ability of firms to strategically limit their sustainability disclosure. As the firms' reputation increases, stakeholders exert an increasing pressure for transparency, and firms with high sustainability performance conform to this pressure. Therefore this essay not only supports the signaling perspective, but also shows that when the firms' prior reputation is high, the normative pressure for transparency is also high, and weakens the firms' ability to strategically limit their disclosure.

Finally the third essay investigates whether less sustainable firms reach a higher financial performance when they limit their sustainability disclosure. This essay shows that such a strategy succeeds in the short term. In the short term, less sustainable firms that adopt a limited disclosure prevent stakeholders from evaluating their poor sustainability results, and thus reach higher financial performance. This finding supports the signaling perspective: firms can strategically limit their sustainability disclosure to reach higher financial returns. However, as stakeholders value firms' conformity to the norm of transparency, they tend, in the longer term, to withdraw their support from firms with low sustainability disclosure. Consequently, in the long term, less

sustainable firms that opted for a limited disclosure are penalized. They reach a lower long term financial performance than if they had implemented an extensive disclosure. This third essay therefore also challenges the signaling perspective. It shows that firms can strategically adjust their sustainability disclosure to reach higher financial returns in the short term. However, there also exists a normative pressure for the adoption of an extensive disclosure, which threatens the financial performance of firms with limited disclosure in the longer term.

This thesis aimed at identifying the conditions under which normative pressure for transparency prevented firms from adjusting their sustainability disclosure as a way to achieve higher financial performance***. Results from the three essays support the signaling perspective: Less sustainable and more reputed firms are more likely to limit their sustainability disclosure, in doing so less sustainable firms reach higher financial performance in the short term.*** However, pressure for conformity to the norm of transparency exists, and may in some cases prevent firms from strategically adjusting their disclosure. ***When the normative pressure for transparency is high*** (when the firms' prior reputation is high), ***firms are less likely to limit their disclosure***. ***This normative pressure increases in the longer term and only extensive signals lead to higher long term financial returns. As a consequence, the signaling perspective is only supported in the shorter term, and when normative pressure is not too high.***

B. CONTRIBUTIONS

1. Contribution to the strategy and business policy literature

This thesis contributes to theories in strategy and business policy, and to one of their major field of application: business sustainability.

The main theoretical contribution of this thesis is first to support the signaling perspective: firms can instrumentally deploy symbols and signals to influence stakeholders and garner their endorsement (Akerlof, 1970; Salancik & Pfeffer, 1978), and secondly to consider the conditions under which institutional pressure may alter the efficiency of such strategies. This thesis therefore assesses that propositions of the signaling perspective are effective in the short term, and when stakeholders' pressure for transparency is limited: less sustainable firms tend to limit their disclosure, and reach higher short term financial performance. In the long term, and when normative pressure is high, firms that limit their sustainability disclosure as a way to influence stakeholders do not reap the benefits of such strategy: less sustainable firms that limit their disclosure reach lower long term financial returns. In the long term, pressure for conformity to the norm of transparency is high and weakens the effectiveness of the strategic use of disclosure. Few scholars have tried to analyze the normative limitations of the strategic management perspective (Oliver, 1991; Suchman, 1995). They however only considered how institutional pressure may limit the effectiveness of legitimacy strategies. This thesis complements their work and considers the impact of the pressure for conformity to norms on the firms' financial performance.

This thesis therefore also contributes to the work of scholars who attempted to understand the situations in which firms might violate the imposed norms and still benefit from external evaluation (Durand et al., 2007). This thesis for instance shows that less sustainable firms with

short term financial objectives are better off violating the norm of transparency with a limited disclosure. When a firm with low sustainability performance does not conform to the norm of transparency, it prevents its stakeholders from evaluating its poor sustainability results, yet still benefits from their endorsement, and still achieve a higher short term financial performance. When a firm does not conform to the norm of sustainability (i.e has a low sustainability performance), it is better off violating the norm of transparency.

This thesis also theoretically contributes to the understanding of the firms-stakeholders relationship (Jones, 1995). Most scholars considered a simplistic framework where stakeholders observe and evaluate a firms' sustainability performance, and provide their support to the most sustainable firms (Barnett, 2007; Jones, 1995; McWilliams & Siegel, 2001; Waddock & Graves, 1997). This thesis assumes instead that stakeholders cannot observe a firm's sustainability performance. They only observe its sustainability disclosure. When a firm limits its sustainability disclosure, it leaves its stakeholders uncertain about its actual degree of sustainability performance. A less sustainable firm, when it limits its disclosure, can thus still get some stakeholders' support. This new assumption demonstrates the crucial role of firms' sustainability disclosure in triggering stakeholders' support. When a firm adjusts its sustainability disclosure, it controls how its stakeholders evaluate its degree of sustainability performance. The potential for firms to create uncertainty about their sustainability performance when limiting their disclosure therefore shows that firms have more strategic options to benefit from stakeholders' support than merely improving their sustainability performance.

This thesis also contributes to the field of business sustainability and to the literature that aimed to explain sustainable behaviours, and identifying their outcomes. It more specifically participates in two raging debates in this literature.

First this dissertation talks to scholars who attempted to identify the antecedents of sustainability disclosure. While academics still debate whether more sustainable (Al-Tuwaijri et al., 2004) or less sustainable firms (Cho et al., 2012; Cho & Patten, 2007; Patten, 2002) are more likely to disclose extensively, this thesis assesses that no answer can be given without taking into account the firms' prior reputation. Prior reputation sets the baseline with which stakeholders analyze the firms' sustainability disclosure. When firms adjust their disclosure they not only consider the information they can disclose, i.e. their sustainability performance, but also the information stakeholders expect to observe, which depends on the firms' prior reputation.

Secondly this dissertation enters the academic debate over the relationship between sustainability performance and financial performance (Barnett & Salomon, 2006; Cavaco & Crifo, 2009; Surroca et al., 2010; Waddock & Graves, 1997). While literature still does not state whether sustainability performance positively (Waddock & Graves, 1997), or negatively impacts the firms' financial performance (Wright & Ferris, 1997), this dissertations argues that no answer can be given without taking into account the firms' sustainability disclosure. When a focal firm limits its disclosure, it modifies stakeholders' evaluation of its sustainability performance. How stakeholders evaluate a firm's sustainability performance influences their willingness to support that focal firm. Therefore sustainability disclosure moderates the impact of sustainability performance on financial performance. Depending on the firms' extent of sustainability disclosure, the impact of sustainability performance on financial performance can either be positive, negative, or null.

2. Methodological contribution

The main methodological contribution of this thesis relates to methodologies that cope with the

endogeneity issue that the construct of sustainability triggers. This thesis identifies this issue and proposes two viable solutions to limit this bias.

Endogeneity comes from the fact that the construct of sustainability performance is simultaneous to the construct of sustainability disclosure. Firms do not select their sustainability performance and their disclosure separately but one depending on the other. This dependence creates an inherently high correlation between the two constructs. This high correlation may raise endogeneity and multicolinearity biases that may limit the validity of econometric models containing the two constructs.

To cope with this issue this thesis proposes two solutions. The first one inspired from difference in difference estimation methods (Bond, 2002) implies the use of the first difference of sustainability performance as an instrument of sustainability performance, and the estimation of a two stage model with instrumental variables. The first difference of sustainability performance measures the increase of a firm's sustainability performance from one year to the next. The first difference of sustainability performance appears to be a relevant instrument to mitigate the bias of simultaneity. It is rationally correlated with the firms' sustainability performance: when a firm increases its sustainability performance, it reaches a high sustainability performance. However, as it contains lagged information, it is less correlated with the firms' sustainability disclosure, which thus limits the simultaneity issue between the firms' sustainability performance and disclosure. As a consequence the difference of sustainability performance has been used as an instrument of sustainability performance in essay 2. A second solution consists of splitting the initial estimation sample between firms with an extensive sustainability disclosure, and firms with a limited sustainability disclosure, and to estimate models separately for the two sub-samples. This technique is more tricky as it implies controlling for any sample selection bias, and to compare

the estimated coefficients with a Chow test of equality of coefficients (Chow, 1960). This thesis however implemented this technique in conjunction with ANOVAs and MANOVAs and the results appear to be extremely robust.

3. Contribution to managers and business strategists

I hope this thesis will be a useful insight for practitioners, managers and business strategists. This dissertation first analyses antecedents of sustainability disclosure. It therefore provides managers with keys to understand the extent of their sustainability disclosure. This dissertation argues that firms adapt their disclosure to their achieved degree of reputation and sustainability performance. Managers first evaluate their stakeholders' expectations in terms of sustainability performance, expectations that those managers can estimate from their firms' general reputation. Managers then disclose extensively when their firm performs above stakeholders' expectations (Multiple accreditations, detailed sustainability reports, extensive communication about the firm's sustainability initiatives…), or implement green-washing strategies when their firm performs below stakeholders' expectations (Only communicating on local initiatives, hide the firm's detrimental impact on the environment…). Following this rationale, firms that recently implemented sustainability actions do not advertise those investments. A firm that has recently moved toward being more sustainable prefers to wait until it has reached a high enough level of sustainability performance before disclosing extensively.

In addition this dissertation analyzes combinations of sustainability performance and disclosure that trigger higher financial returns. It shows that firms that did not invest in sustainability initiatives reached higher short term financial returns when they worked on limiting the information available to stakeholders about their poor sustainability results. In other words,

managers of firms that were detrimental to society or the environment achieved a higher financial performance in the short term when they implemented green-washing strategies. Those strategies however did not transform into higher financial returns in the longer term. Furthermore, managers who invested in sustainability initiatives, such as environmental protection, fair trade practices with suppliers or employees' health and safety, only reached higher financial returns in both the short and long term when they also clearly and extensively communicated about those initiatives (Detailed sustainability reports, public communication on both social and environmental initiatives…). An extensive disclosure appears to be a necessary condition for sustainability performance to transform into financial performance.

Finally, this dissertation argues that managers that are trying to adapt their sustainability strategy to rank high in the several sustainability rankings available are not likely to succeed. Sustainability raters do not agree on what a sustainable firm is. Some firms will be highly ranked in some raters' indexes but lower ranked in some other raters' indexes. Therefore any effort by a firm towards increasing its ranking in one of the available indexes may also transform into a downgrade in one of the other indexes.

C. LIMITATIONS

This thesis provides several insights to both strategy literature and to business practitioners. However I recognize that, as with any thesis, there are still some limitations I could not address, that are detailed in the three essays. There are however two limitations common to those three essays.

Firstly, a main limitation of this thesis lies in the fact that its theoretical development is based on a single assumption: Stakeholders cannot easily observe the firms' sustainability performance. However, in order to test the hypotheses that I derived from this assumption, I needed to find a way to measure the firms' sustainability performance. I measured the firms' sustainability performance with sustainability ratings of a specific extra-financial ratings agency: Asset4 (Thomson Reuters). At first sight it might seem paradoxical to both assume that stakeholders are not able to precisely observe sustainability performance, and yet to also consider that raters, who are also stakeholders, *are* able to observe sustainability performance. However most stakeholders cannot easily observe sustainability performance because they are distant from firms and lack time to continuously focus on their sustainability performance. On their side, analysts working at Asset4 have the competences, the resources, and work full time to precisely evaluate firms' sustainability performance. Consequently, among stakeholders, sustainability raters appear as ones with the best ability to observe and evaluate firms' sustainability performance. Therefore, even if considering Asset4 sustainability ratings as a proxy of firms' sustainability performance may appear as a limitation, it was in my sense the best of the available solutions.

A second limitation is theoretical and relies upon the inference that firms control the information that stakeholders receive about sustainability performance. Firms are in fact not the only organizations to disclose information about their sustainability performance. Several NGOs

investigate firms' misbehaviours and most of the sustainability scandals of the past few years have been revealed by non-profit organizations. This dissertation considers that stakeholders use two signals from which they infer the firms' sustainability performance: the firms' sustainability disclosure, and the firm's prior reputation. I did not consider a third signal emitted by external organizations (NGOs) and thus one that the firms did not control. I omitted this because considering a signal sent by NGOs would not have impacted to any significant extent upon the conclusions of this thesis: NGOs, if they effectively emit a signal, mainly gather information regarding what a firm actually discloses. Few NGOs investigate so deeply that they can gather insiders' information. Therefore if some might consider NGOs' signals as a diverging signal from the firms' sustainability disclosure, some others could also see in the NGOs' signal purely an echo of the firms' sustainability disclosure.

D. AVENUES FOR FUTURE RESEARCH

Relaxing the assumption that stakeholders clearly observe and objectively evaluate firms' sustainability performance provides several interesting research avenues. It posits sustainability disclosure as a major construct whose strategic properties should be investigated. This thesis, by analyzing the antecedents and consequences of sustainability disclosure in terms of financial performance, addressed the core questions that this new assumption raises. However, this thesis also opens avenues for several future research projects that it could not address, as a matter of time and complexity, projects that could significantly contribute to the sustainability literature.

Firstly, scholars could investigate further the consequences of a limited disclosure. The concept of incomplete signals is quite old in the economics literature (Crawford & Sobel, 1982; Fudenberg & Tirole, 1986; Hertzendorf, 1993), but fairly new in the management one. While this thesis analyses the impact of sustainability disclosure on firms' financial performance, several other firms' characteristics have been proven to depend upon the firms' signaling strategies. Therefore scholars could address the consequences of noisy disclosure on constructs other than financial performance, such as the firms' legitimacy (Suchman, 1995), or the firms' reputation (Philippe & Durand, 2011).

Secondly, if this thesis considers the construct of sustainability disclosure as the extent of information a firm may disclose. It however recognizes that the norm of transparency does not only encompass the firms' extent of disclosure, the quantity of information disclosed, but also the quality of this disclosure. A transparent communication implies the provision of extensive and accurate information. Firms can disclose both their environmental and social impact, but furthermore they can be more or less accurate in their communication about this impact. They can either disclose their initiatives to pollute less, or disclose precise figures on their CO^2

emissions. They can adopt non-binding sustainability standards, or standards that require an external control and audit. An extensive disclosure does not automatically mean comparability of the information disclosed. As an example, CO^2 emissions can be measured with different methodologies, which may lead to different results (Andrew & Cortese, 2011). Disclosure will only be meaningful if it reflects some certain underlying events (Jaggi & Freedman, 1992). By adjusting the quality of the information it reveals, a firm may also leave its stakeholders in doubt about its actual sustainability performance. Transparency means both information in quantity and quality. Due to a better availability of data this thesis only considered the drivers and consequences of the provision of information in quantity. This choice was also led by the belief that firms tend to answer normative pressure with more extensive, and not automatically with more precise information Therefore future research projects should collect information about the quality of the firms' disclosure, and inspect whether normative pressure has a greater impact on precise rather than extensive information.

Thirdly, this thesis considered sustainability performance a unidimensional construct. However sustainability performance includes topics such as the firms' environmental impact, fair practices with suppliers, or equilibrated governance. Sustainability encompasses several topics that address different types of stakeholders. Those stakeholders may have different preferences over sustainability. If it seems obvious that employees in developing countries favour better working conditions, shareholders may consider better working conditions as inefficient and refuse to support firms with those practices (Bénabou & Tirole, 2010). Stakeholders may also be differently impacted by the firms' limitation of their disclosure. If it seems obvious that NGOs are less likely to evaluate the sustainability performance of firms with limited disclosure, internal stakeholders such as employees might still be better informed, even if the disclosure is limited.

Future research projects should thus differentiate sustainability performance depending on the type of stakeholder affected by sustainability actions. Future projects could, as an example, differentiate between the firms' environmental, social or governance performance (Cavaco & Crifo, 2009). I estimated several models under these conditions. Those models that were not reported in this thesis, as they would have brought complexity to the essays, seem to show that a limited disclosure is more efficient towards external, than internal stakeholders.

Finally the strength of normative pressure has been shown to vary between sectors and cultures (Cho & Patten, 2007; DiMaggio & Powell, 1991; DiMaggio & Powell, 1983). If this thesis identifies the conditions under which normative pressure prevents firms from strategically using their signals, it would be interesting to see if, in different sectors or different cultures, these conditions stand. As an example some sectors are much more institutionalized than others. Stakeholders will be much more inclined to pressure for transparency in the energy sector, known for its environmental disasters, than in the telecommunications sector, whose social and environmental impact is limited. In essay 2 and essay 3 robustness tests support this assumption but do not develop a theoretical framework where different degrees of normative pressure may moderate the impact of incomplete signals. Future research projects should address this idea. It is for instance interesting to note that some cultures value transparency and erect it as a norm, while some others reject transparency and stigmatize transparent behaviours. While the Christian based European culture rewards transparency and specifically sustainability transparency, the Buddhist culture considers that as soon as a firm's charitable activities are known or advertised, they cannot be anymore considered as pro-social behaviours. Revealing charitable activities benefits the firm and not the people served, and are therefore out of the scope of charity. Therefore in Asia sustainability disclosure is stigmatized and even high sustainability performers avoid an

extensive disclosure of their sustainability initiatives. As a consequence of these varying normative pressures there should exist sector and culture wide differences in how firms adjust their disclosure to reach higher financial returns. The conditions under which normative pressure prevents firms from strategically acting that have been developed in this thesis might not stand or may vary for some specific sectors or cultures. Academics should investigate further these aspects of firms' strategic behaviours.

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Appendix

A. CHAPTER 2: ESSAY 1

Table 21: Summary statistics for additional indexes

Membership in social indexes 2003–2005	IN	OUT	Universe (N)
KLD BMS	2210	792	3002
KLD LCS	668	312	980
Overlap between Asset4 and other raters' universes	**IN**	**OUT**	**Universe (N)**
KLD BMS	631	2371	3002
KLD LCS	609	371	980

Table 22: Pairwise tetrachoric correlations / Convergent validity of SRI raters for firms common to all universes (413 firms)

Membership in Social Indexes 2004–2006	KLD BMS	KLD LCS	KLD DS400	Calvert	DJSI	FTSE4Good	Innovest	Average correlation of this index**
KLD BMS								0.10
KLD LCS	**1.00* N = 413**							0.10
KLD DS400	**1.00* N = 413**	**1.00* N = 413**						0.24
Calvert	**0.75* N = 413**	**0.75* N = 413**	**0.65* N = 413**					0.18
DJSI	0.02 N = 413	0.02 N = 413	0.17 N = 413	0.10 N = 413				0.37
FTSE4Good	0.28* N = 413	0.28* N = 413	0.40* N = 413	0.17 N = 413	**0.52* N = 413**			0.38
Innovest	-0.23 N = 413	-0.23 N = 413	-0.00 N = 413	0.09 N = 413	0.47* N = 413	0.38* N = 413		0.33
Asset4 A+	-0.30* N = 413	-0.30* N = 413	-0.01 N = 413	-0.13 N = 413	**0.60* N = 413**	0.45* N = 413	**0.70* N = 413**	0.32

N = Universe
* p-value <.05
** For KLD indexes only mean correlation with non-KLD indexes / For non-KLD indexes only mean correlation with KLD DS400

Table 23: Pairwise tetrachoric correlations / Convergent validity of SRI raters on overlapping universes

Membership in Social Indexes 2004–2006	KLD BMS	KLD LCS
KLD LCS	1.00* N = 980	
KLD DS400	0.59* N = 3002	0.90* N = 980
Calvert	0.69* N = 1072	0.69* N = 980
DJSI	-0.09 N = 3002	-0.00 N = 980
FTSE4Good	0.23* N = 664	0.23* N = 655
Innovest	-0.25 N = 555	-0.23 N = 497
Asset4 A+	-0.27* N = 631	-0.26* N = 609

N = Universe of firms rated by both raters.
* *p*-value <.05

Table 24: Pairwise tetrachoric correlations 2003–2006 / Convergent validity of Asset4 A+ with KLD BMS

	Asset4 A+ / KLD BMS
2003	-0.21 N = 385
2004	-0.13 N = 523
2005	-0.28* N = 598
2006	-0.09 N = 605

N = Universe of firms rated by both raters.
* *p*-value <.05

Table 25: Indexes' gaps (KLD standardized scores of each index's members minus the KLD standardized scores of its non-members) / Convergent validity adjusting for explicit differences in theorization (Industry screening and norming)

Gaps	Screens	Industry norming	KLD DS400	Calvert	DJSI	FTSE4Good	Innovest	Asset4
Asset4 Style	No	No	0.19***	0.08***	0.33***	0.24***	0.25***	0.20***
Innovest & DJSI Style:	No	Yes	0.24***		0.36***		0.28***	
KLD Style:	Yes	No	0.19***					
Calvert Style:	Yes	Yes	0.25***	0.09***				
FTSE Style:	Yes	Yes	0.25***			0.25***		
Indexes' gaps relative to KLD DS400's gaps for each methodological style								
Relative Gaps	Screens	Industry norming	KLD DS400	Calvert	DJSI	FTSE4Good	Innovest	Asset4
Asset4 Style	No	No	1.00	0.42	1.74	1.26	1.32	1.05
Innovest & DJSI Style:	No	Yes	1.00		1.50		1.17	
KLD Style:	Yes	No	1.00					
Calvert Style:	Yes	Yes	1.00	0.36				
FTSE Style:	Yes	Yes	1.00			1.00		

Table 26: Pairwise Spearman correlations between KLD and Asset4's raw data 2002–2010

.	Tobacco involvement	Nuclear involvement	Military involvement	Gambling involvement	Alcohols involvement	Indigenous people protection	Biodiversity concerns	Trade unions relation	Average correlation
2002	0.35* N = 374		0.79* N = 374	0.40* N = 374	0.67* N = 374	0.02 N = 374		-0.01 N = 374	0.37
2003	0.51* N = 386		0.78* N = 386	0.50* N = 386	0.66* N = 386	0.02 N = 386		-0.01 N = 386	0.41
2004	0.65* N = 524		0.67* N = 524	0.44* N = 524	0.50* N = 524	0.01 N = 524		-0.01 N = 524	0.38
2005	0.56* N = 598		0.56* N = 598	0.48* N = 598	0.54* N = 598	0.01 N = 598		0.08* N = 598	0.37
2006	0.65* N = 608	0.57* N = 33	0.62* N = 608	0.75* N = 608	0.64* N = 608	0.01 N = 608		0.15* N = 608	0.48
2007	0.82* N = 626	0.81* N = 103	0.66* N = 626	0.61* N = 626	0.63* N = 626	0.01 N = 626		0.28* N = 626	0.54
2008	0.89* N = 802	0.91* N = 91	0.67* N = 802	0.69* N = 802	0.82* N = 802	0.01 N = 802		0.19* N = 802	0.60
2009	0.89* N = 915	0.87* N = 72	0.71* N = 915	0.69* N = 915	0.87* N = 915	0.00 N = 915		0.18* N = 915	0.60
2010	0.63* N = 839	0.85* N = 40	0.64* N = 839	0.71* N = 839	0.65* N = 839	-0.18 N = 43	0.27* N = 659	0.15* N = 213	0.46

N = Universe of companies rated by both raters
* *p*-value <.05

B. CHAPTER 3: ESSAY 2

Table 27: The impact of sustainability performance, sustainability performance inconsistency and prior reputation on sustainability disclosure (Per Industry)

Sustainability Disclosure	(1)	(2)	(3)
	Industrial Goods	Retailers	Software & IT services
	Fixed Effects Panel Models with instrumented Variables		
Sust. Performance (Instrumented)	**0.52*** (0.00)**	**0.41* (0.04)**	**0.51** (0.01)**
Prior Reputation	**-0.12 (0.12)**	**-0.25** (0.00)**	**-0.30* (0.01)**
Prior Reputation²	0.10 (0.12)	-0.01 (0.89)	-0.05 (0.65)
Prior Rep x Sust. Perf.	-0.14** (0.01)	-0.02 (0.84)	-0.14+ (0.09)
Prior Rep² x Sust. Perf.	**0.21* (0.04)**	**0.07 (0.53)**	**0.09 (0.62)**
Size	-0.06 (0.81)	0.81 (0.33)	0.21 (0.65)
Financial Performance	-0.03 (0.55)	-0.09 (0.30)	-0.12 (0.17)
Risk Exposure	0.11 (0.20)	-0.17 (0.34)	0.10 (0.48)
Heckman Correction	0.64* (0.01)	-0.22 (0.69)	0.11 (0.84)
Observations	158	101	62
Number of Firms	34	25	20
R^2	0.78	0.66	0.69
Kleibergen-Paap rk LM statistic X^2	19.5*** (0.00)	6.8** (0.01)	7.3** (0.01)
F Statistic	26.5*** (0.00)	70.2*** (0.00)	13.2*** (0.00)

p-val in parentheses;
*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Figure 22: The amplitude of the moderating effect of sustainability performance on the curvilinear relationship between prior reputation and sustainability disclosure (Industrial goods)

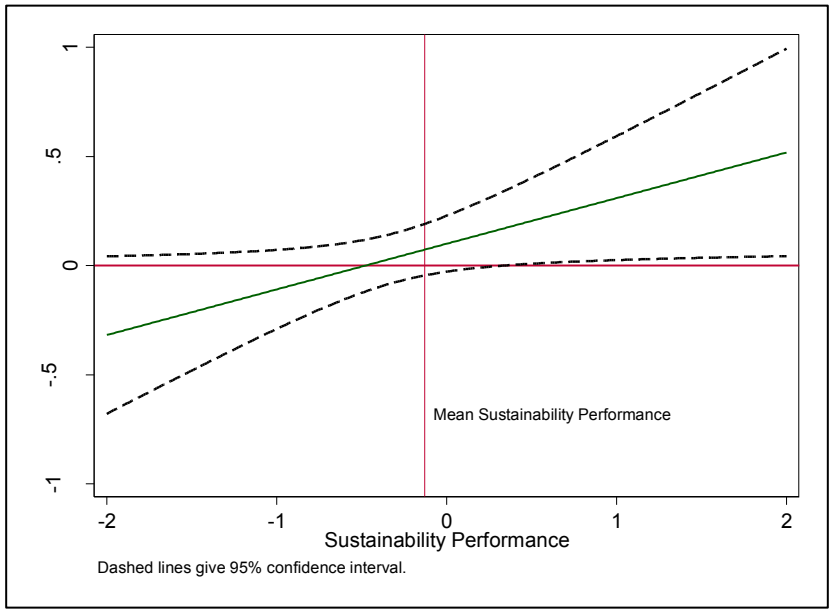


Figure 23: The amplitude of the moderating effect of sustainability performance on the curvilinear relationship between prior reputation and sustainability disclosure (Retailers)

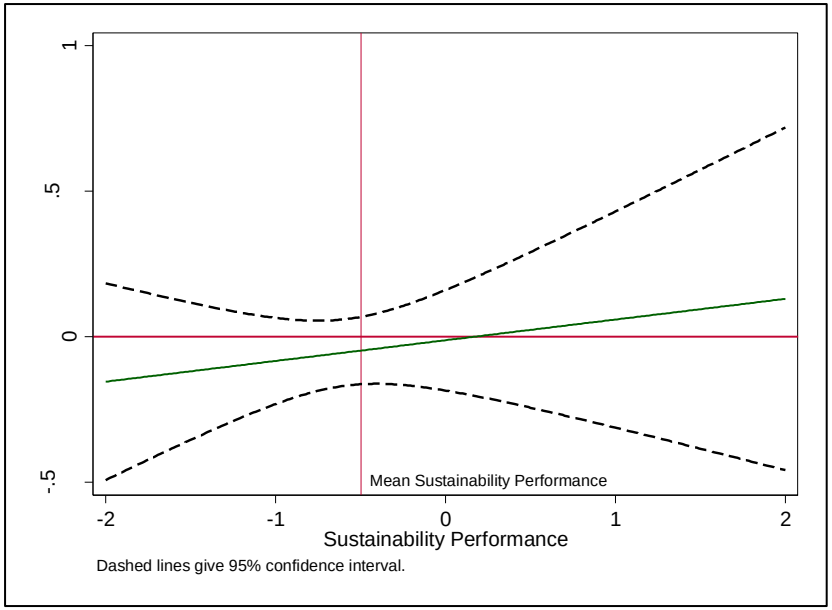
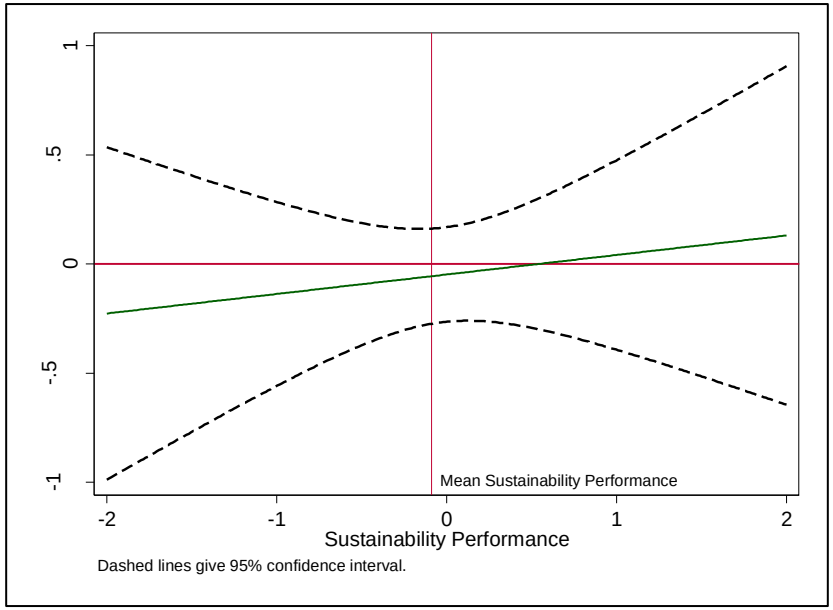


Figure 24: The amplitude of the moderating effect of sustainability performance on the curvilinear relationship between prior reputation and sustainability disclosure (Software & IT services)



C. CHAPTER 4: ESSAY 3

Table 28: The impact of sustainability performance and sustainability disclosure on short and long term financial performance (Sustainability Disclosure at an industry level)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	*Short Term Financial Performance*	*Long Term Financial Performance*	*Short Term Financial Performance*		*Long Term Financial Performance*	
Screening Criteria	*None*	*None*	*Extensive Sustainability Disclosure*	*Limited Sustainability Disclosure*	*Extensive Sustainability Disclosure*	*Limited Sustainability Disclosure*
Sustainability Performance			**8.02+** **(0.08)** ***0.04***	**2.55** **(0.76)** ***0.01***	**11.19***** **(0.00)** ***0.06***	**9.67***** **(0.00)** ***0.03***
Sustainability Disclosure (Dummy)	**0.32** **(0.29)** ***0.01***	**1.98***** **(0.00)** ***0.12***				
Size	-0.00 (0.13) *-0.04*	-0.00 (0.65) *-0.01*	-0.00* (0.03) *-0.11*	0.00 (0.33) *0.04*	-0.00 (0.14) *-0.04*	-0.00* (0.01) *-0.09*
Short Term Risk Exposure	0.23** (0.00) *0.05*	-0.07 (0.77) *-0.02*	-0.26+ (0.05) *-0.05*	-0.20+ (0.07) *-0.05*	0.15 (0.42) *0.05*	-0.50* (0.04) *-0.11*
Long Term Risk Exposure		0.11*** (0.00) *0.26*			0.07** (0.00) *0.17*	0.08*** (0.00) *0.20*
Year Dummies	Yes		Yes	Yes		
Industry Dummies	F.E.	Yes	F.E.	F.E.	Yes	Yes
Country Dummies	F.E.	Yes	F.E.	F.E.	Yes	Yes
Constant	7.23*** (0.00)		3.86 (0.13)	5.13 (0.17)		
Number of observations	13,662	1,526	6,722	6,940	746	780
Number of Firms	3,307	1,526	1,802	2,341	746	780
R-squared	0.08	0.50	0.10	0.06	0.61	0.46
F-statistics	74.49 (0.00)	33.27 (0.00)	53.26 (0.00)	24.80 (0.00)	25.87 (0.00)	15.38 (0.00)

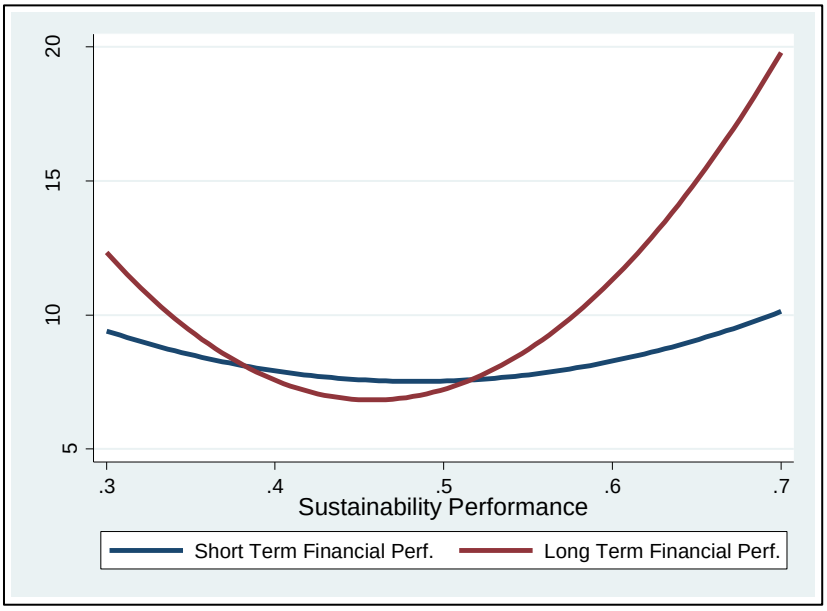
Robust p-values in parentheses
Robust normalized beta coefficients in italic
**** p<0.001, ** p<0.01, * p<0.05, + p<0.10*

Table 29: The linear and curvilinear impacts of sustainability performance on firms' short and long term financial performance

	(7)	(8)
Dependent Variable	*Short Term Financial Performance*	*Long Term Financial Performance*
Screening Criteria	*None*	*None*
Sustainability Performance	**4.76** (0.22) *0.03*	**11.44***** (0.00) *0.06*
Sustainability Performance²	**55.76*** (0.04) *0.03*	**221.05***** (0.00) *0.08*
Size	-0.00+ (0.06) *-0.05*	-0.00** (0.00) *-0.06*
Short Term Risk Exposure	-0.23** (0.01) *0.05*	0.07 (0.72) *-0.02*
Long Term Risk Exposure		-0.07*** (0.00) *0.18*
Year Dummies	Yes	
Industry Dummies	F.E.	Yes
Country Dummies	F.E.	Yes
Constant	4.72* (0.01)	
Number of observations	13,662	1,526
Number of Firms	3,307	1,526
R-squared	0.08	0.52
F-statistics	69.29*** (0.00)	36.04***. (0.00)

Robust p-values in parentheses
Robust normalized beta coefficients in italic
**** p<0.001, ** p<0.01, * p<0.05, + p<0.10*

Figure 25: The curvilinear effect of sustainability performance on the firms' short and long term financial performance



D. SUMMARY OF THE THESIS IN FRENCH

1. Principaux résultats

Cette thèse considère que la littérature académique antérieure n'a pas considéré l'asymétrie d'information qu'il existait entre les entreprises et leurs parties prenantes (Clients, actionnaires, fournisseurs...), notamment en termes d'information sur la performance sociale et environnementale des entreprises. Cette thèse étudie donc les conséquences financières des stratégies de développement durable des entreprises (Réduction des émissions polluantes, préservation de l'environnement, meilleures conditions de travail, gouvernance équilibrée...), tout en considérant l'effet modérateur que peut avoir la divulgation d'informations sociales et environnementales.

Cette thèse se fonde donc sur le constat suivant : les acteurs économiques ne sont pas en mesure d'observer clairement et d'évaluer objectivement la performance sociale et environnementale des entreprises. Quand une entreprise limite l'étendue de sa communication sociale et environnementale, elle limite l'information à disposition des parties prenantes sur son degré réel de performance sociale et environnementale, et les empêche donc d'évaluer cette dernière.

La théorie du signal permet d'analyser les causes et conséquences de cette asymétrie d'information (Akerlof , 1970; Spence , 1973). Elle met en avant le fait que les entreprises peuvent stratégiquement adapter l'étendu de leur communication afin de déclencher le soutien de leurs parties prenantes (Rapports plus ou moins détaillés, obtention d'accréditations ou stratégies de green-washing). Dans cette logique, les entreprises les moins responsables ont tendance à limiter l'étendue de leur communication sociale et environnementale afin de se protéger d'une évaluation négative de la part de leurs parties prenantes. De même, les entreprises les plus réputées tendent à limiter leur communication sociale et environnementale afin de se protéger des

attentes élevées de leurs parties prenantes. En suivant ce type de stratégie, ces entreprises réussissent à tromper leurs parties prenantes, obtiennent leur support, et atteignent des rendements financiers plus élevés.

Cependant la recherche académique démontre aussi qu'une communication étendue sur la performance sociale et environnementale d'une entreprise lui permet de se conformer à la norme de transparence (Huang & Kung , 2010; Michelon , 2011; Philippe & Durand , 2011). Les parties prenantes des entreprise valorisent la conformité des entreprises à cette norme et font donc pression sur ces dernières afin qu'elles adoptent une communication sociale et environnementale étendue. Dans cette logique, les entreprises les plus réputées sont poussées à divulguer leur niveau de performance sociale et environnementale afin de se conformer à leur statut, et les entreprises les moins responsables ont tendance à révéler leur faible engagement en termes de développement durable afin de se conformer à la norme de transparence et éviter toute accusation de greenwashing. Les propositions de cette perspective institutionnelle sont donc en contradiction avec celles de la théorie du signal. Cette thèse tente donc de comprendre si une entreprise peut se permettre de stratégiquement moduler l'étendue de sa communication sociale et environnementales, et atteindre ainsi des profits plus élevés, ou si la pression normative pour une plus grande transparence affaiblit l'efficacité de ce type de stratégie. Cette thèse tente donc de répondre à la question suivante : Quelles sont les limites normatives à la divulgation stratégique d'informations sociales et environnementales?

Cette thèse répond à cette question de recherche en trois essais. Le premier essai évalue la pertinence du constat de recherche, et montre en effet que les parties prenantes ne sont pas en mesure d'évaluer objectivement les performances sociale et environnementale des entreprises. Le deuxième essai explore les raisons pour lesquelles les entreprises limitent l'étendue de leur

communication sociale et environnementale. Enfin, le troisième essai analyse les conséquences de la divulgation d'informations sociales et environnementales par les entreprises en termes de performance financière.

Le premier essai montre que les parties prenantes, et plus particulièrement les agences de notation extra-financière, ne sont pas en mesure d'évaluer objectivement la performance sociale et environnementale des entreprises. Alors que la plupart des chercheurs ont fait l'hypothèse que les parties prenantes étaient capable d'évaluer objectivement la performance sociale et environnementale des entreprises, cet essai démontre que même les agences de notation ne sont pas en mesure converger dans leur évaluation de cette performance. Cette divergence s'explique par un manque de théories et de mesures communes entre les différentes agences de notation. Par ailleurs, même quand ce manque de théorisation et de commensurabilité est contrôlé, il existe une erreur de mesure résiduelle qui conduit à la persistance d'une divergence entre les notes des différentes agences de notation. Cette erreur de mesure résiduelle est un indice de la capacité des entreprises à biaiser l'évaluation des agences de notation. Cette thèse fait l'hypothèse que les entreprises réussissent ceci en limitant l'étendue de leur communication sociale et environnementale. Ce premier essai supporte donc le constat fondateur de cette thèse: les acteurs économiques ne sont pas en mesure d'évaluer clairement la performance sociétale des entreprises, car les entreprises limitent l'étendue de leur communication sociale et environnementale. Le deuxième essai de cette thèse vise donc à comprendre les raisons pour lesquelles les entreprises limitent la divulgation d'informations sociales et environnementales. Ce deuxième essai tente plus précisément de comprendre si les entreprises peuvent stratégiquement limiter cette information, ou si la pression des parties prenantes pour une conformité à la norme de transparence les en empêche.

Le deuxième essai de cette thèse démontre que les entreprises les plus responsables tendent à révéler leur engagement sociétal envers leurs parties prenantes, et adoptent donc une communication claire et étendue. La corollaire est que les entreprises les moins responsables, afin de se protéger d'une évaluation négative de la part de leurs parties prenantes, sont plus susceptibles de limiter l'information sociétale qu'elles divulguent. Par ailleurs, cet essai démontre aussi que les entreprises les plus réputées, qui encourent ainsi le risque de décevoir leurs parties prenantes quant à leur performance sociétale, se protègent d'un tel risque en limitant la divulgation d'informations sociales et environnementales. Ces résultats sont donc en ligne avec la théorie du signal : Les entreprises les plus réputées et les moins responsables limitent stratégiquement leur communication sociale et environnementale afin d'éviter le mécontentement des parties prenantes. Toutefois, ce deuxième essai montre également que lorsque la performance sociale et environnementale d'une entreprises est élevée, cette dernière a moins tendance à limiter sa communication lorsque sa réputation augmente. Ce résultat apporte la preuve qu'une forte réputation couplée à une performance sociétale acceptable réduit la volonté des entreprises de limiter leur communication sociale et environnementale. Lorsque la réputation des entreprises augmente, les parties prenantes exercent une pression croissante pour que les entreprises se conforment à la norme de transparence, et les entreprises qui peuvent se le permettre, celles qui ont atteint un certain niveau de performance sociétale, cèdent à cette pression. Par conséquent cet essai soutient non seulement le point de vue de la théorie du signal, mais démontre également que lorsque la réputation des entreprises est élevée, la pression normative est également élevée, et affaiblit la capacité des entreprises à moduler stratégiquement l'étendue de leur communication sociale et environnementale.

Enfin, le troisième essai de cette thèse examine si les entreprises les moins responsables peuvent

atteindre un niveau de retour financier plus élevé lorsqu'elles limitent l'étendue de leur communication sociale et environnementale. Cet essai démontre que cette stratégie de green-washing réussit à court terme. Sur le court terme, les entreprises les moins responsables qui limitent la divulgation d'informations sociales et environnementales empêchent leurs parties prenantes d'évaluer leur impact négatif sur la société et l'environnement, et atteignent ainsi une meilleure performance financière. Ce constat appuie la théorie du signal: les entreprises peuvent limiter l'étendue de leur communication afin d'atteindre un retour financier plus élevé. Cependant, les parties prenantes valorisent tout de même la conformité des entreprises à la norme de transparence. Par conséquent, ces parties prenantes on tout de même tendance, sur long terme, à retirer leur soutien aux entreprises les moins transparentes. Sur le long terme, les entreprises les moins responsables qui ont opté pour une communication limitée de leur engagement en termes de développement durable sont pénalisées. Elles atteignent un retour financier plus faible que si elles avaient initialement divulgué leurs impact négatif sur la société et l'environnement. Ce troisième essai modère donc les propositions de la théorie du signal. Il démontre que les entreprises peuvent stratégiquement ajuster leur communication sociale et environnementale afin d'atteindre de meilleurs retours financiers sur le court terme . Cependant, sur le long terme, la pression normative pour l'adoption d'une communication transparente limite ce gain financier, et les entreprises les plus performantes financièrement sont celles qui ont adopté une communication transparente, quel que soit leur niveau réel de performance sociale et environnementale.

Cette thèse vise à identifier les conditions dans lesquelles la pression normative de transparence empêche les entreprises d'ajuster stratégiquement leur degré de communication afin de parvenir à une meilleure performance financière. ***Les résultats des trois essais soutiennent les prédictions***

de la théorie du signal : Les entreprises les moins responsables et les plus réputés sont les plus susceptibles de limiter leur communication sociale et environnementale, et atteignent ainsi de meilleurs retours financiers sur le court terme. Cependant, une pression de conformité à la norme de transparence existe de la part des parties prenantes, et cette dernière peut dans certains cas limiter la capacité des entreprises à ajuster stratégiquement l'étendue de leur communication. L***orsque la pression normative pour une plus grande transparence est élevée*** *(lorsque la réputation des entreprises est élevée)****, les entreprises sont plus susceptibles de divulguer leur degré réel de performance sociale et environnementale. Cette pression normative augmente sur le long terme, et sur ce dernier seule une communication sociale et environnementale étendue permet d'atteindre de meilleurs retours financiers, même pour les entreprises les moins responsables. Par conséquent, les prédictions de la théorie du signal ne sont valides que sur le court terme, et lorsque la pression normative est limitée.***

2. Contribution à la littérature en stratégie et politique d'entreprise

Cette thèse contribue à la littérature académique en stratégie et politique d'entreprise et à l'un de ses principaux champs d'investigation: les stratégies de développement durable.

La principale contribution théorique de cette thèse est d'un part de soutenir les propositions de la théorie du signal: les entreprises déploient des signaux et symboles afin d'influencer leurs parties prenantes et recueillir leur approbation (Akerlof , 1970; Salancik & Pfeffer , 1978), mais d'autre part d'examiner aussi les conditions pour lesquelles les forces institutionnelles peuvent modifier l'efficacité de ces stratégies. Cette thèse analyse donc les limites normatives de la théorie du signal.

Cette thèse démontre que les propositions de la théorie du signal sont efficaces à court terme, et

lorsque la pression normative des parties prenantes pour une certaine transparence est limitée : les entreprises les moins responsables ont tendance à limiter l'étendue de leur communication sociale et environnementale, et atteignent ainsi sur le court terme un retour financier plus élevé. Cependant, sur le long terme, et lorsque la pression normative est élevée, les entreprises qui limitent l'étendue de leur communication comme un moyen d'influencer leurs parties prenantes ne bénéficient pas de cette stratégie : les entreprises les moins responsables qui limitent leur communication atteignent de plus faibles retours financiers sur le long terme. Sur le long terme, la pression de conformité à la norme de transparence est élevée, et affaiblit l'efficacité des stratégies de modulation des signaux. Peu de chercheurs ont essayé d'analyser les limites normatives des comportements stratégiques des entreprises (Oliver , 1991; Suchman , 1995). Ces derniers se sont cependant concentrés sur l'impact des pressions institutionnelles sur la légitimité des entreprises. Cette thèse complète leurs travaux en examinant l'impact de ces pressions pour une conformité aux normes sur la performance financière des entreprises.

Cette thèse contribue donc également aux travaux de chercheurs ayant tenté de comprendre les situations pour lesquelles les entreprises peuvent se permettre de violer les normes imposées et cependant bénéficier de meilleures évaluations externes (Durand et al . , 2007) . Cette thèse par exemple démontre que les entreprises les moins responsables ayant des objectifs financiers de court terme atteignent plus facilement leurs objectifs en violant la norme de transparence. Lorsqu'une entreprise a atteint un faible niveau de performance sociale et environnementale et ne se conforme pas à la norme de transparence, elles empêche ses parties prenantes d'évaluer son engagement réel en termes de développement durable, et peut donc toujours bénéficier de leur appui, achevant ainsi à court terme un retour financier plus élevé. En d'autres termes, quand une entreprise ne se pas conforme pas à la norme de développement durable (faible performance

sociale et environnementale), elle atteint plus facilement ses objectifs en ne se conformant pas non plus à la norme de transparence.

Cette thèse contribue de même théoriquement à la compréhension de la relation entreprises - parties prenantes (Jones , 1995). La plupart des académiques ont considéré un cadre simpliste où les parties prenantes sont capable d'observer et d'évaluer la performance sociétale des entreprises, et apportent donc leur support aux entreprises les plus responsables (Barnett , 2007; Jones , 1995; McWilliams et Siegel , 2001; Waddock et Graves , 1997). Cette thèse fait au contraire l'hypothèse que les parties prenantes ne sont pas capables d'observer la performance sociale et environnementale des entreprises. Elles n'observent que la communication que ces dernières veulent bien émettre, avec plus ou moins de transparence. Quand une entreprise limite l'étendue de sa communication sociale et environnementale, elle laisse aux parties prenantes un doute sur son degré réel d'engagement sociétal. Les entreprises les moins responsables, en limitant le degré d'information qu'elles révèlent, peuvent donc encore obtenir le soutien de certaines parties prenantes. Cette nouvelle hypothèse met en valeur le rôle crucial de la divulgation d'informations sociales et environnementales dans le mécanisme d'appui des parties prenantes. Quand une entreprise ajuste le degré de transparence de sa communication sociale et environnementale, elle contrôle la manière qu'ont les parties prenantes d'évaluer son degré de performance sociétale. Ce potentiel pour les entreprises de créer de l'incertitude sur leur performance sociétale en limitant leur transparence démontre que les entreprises ont plus d'options stratégiques pour bénéficier de l'appui de leurs parties prenantes que de simplement améliorer leur performance sociale et environnementale.

Cette thèse contribue également au champs du développement durable et de la responsabilité sociale et environnementale des entreprises. Elle participe plus particulièrement à deux débats qui

font rage au sein de la communauté académique. Premièrement cette thèse s'adresse aux chercheurs qui ont tenté d'identifier les antécédents du degré de transparence sociale et environnementale des entreprises. Alors que certains académiques débattent encore afin d'élucider si les entreprises les plus responsables (Al -Tuwaijri et al , 2004.) ou les moins responsables (Cho et al , 2012; . Cho et Patten , 2007; Patten , 2002) sont celles les plus susceptibles de communiquer de façon transparente, cette thèse démontre qu'aucune réponse ne peut être donnée sans prendre en compte le degré de réputation des entreprises. La réputation des entreprises définit le niveau attendu de performance sociale et environnementale par leurs parties prenantes. Lorsqu'une entreprises module son niveau de transparence sociale et environnementale, elle considère non seulement les informations qu'elle peut se permettre de divulguer (son niveau de performance sociale et environnementale), mais aussi les informations que les parties prenantes s'attendent à observer (qui dépendent elles du niveau de réputation de l'entreprise). Deuxièmement, cette thèse adresse le débat académique sur la relation entre performance sociale et environnementale et performance financière des entreprises (Barnett et Salomon , 2006; Cavaco & Crifo , 2009; . Surroca et al , 2010; Waddock et Graves , 1997). Alors que la littérature actuelle se demande encore si la performance sociale et environnementale des entreprises a un impact positif (Waddock et Graves , 1997), ou négatif sur la performance financière des entreprises (Wright & Ferris , 1997), cette dissertations démontre qu'aucune réponse ne peut être apportée sans tenir compte du degré de transparence de l'information divulguée par les entreprises. Quand une entreprise limite l'information divulguée sur sa performance sociale et environnementale, elle modifie l'évaluation que font ses parties prenantes de son niveau de performance réel. Cette évaluation influe sur la volonté des parties prenantes de supporter ou non cette entreprise. Par conséquent, le degré de transparence des entreprises quant à leur performance sociale et environnementale modère l'impact de cette dernière sur la

performance financière des entreprises. Ainsi, en fonction du degré de transparence adopté par une entreprise, l'impact de sa performance sociale et environnementale sur sa performance financière peut être aussi bien positif, négatif, que nul.

3. Contribution méthodologique

La principale contribution méthodologique de cette thèse concerne les méthodologies de limitation du biais d'endogénéité que la variable "performance sociale et environnementale des entreprises" souvent déclenche. Cette thèse identifie ce problème et propose deux solutions viables afin de limiter un tel biais.

L'endogénéité propre à la plupart des études s'intéressant au niveau de performance sociale et environnementale des entreprises provient du fait que cette variable est simultanée à celle de transparence sociale et environnementale. Les entreprises ne choisissent pas leur niveau de performance et transparence sociale et environnementale séparément mais l'une en fonction de l'autre. Cette interdépendance crée par nature une forte corrélation entre les deux construits. Cette forte corrélation soulève des problèmes d'endogénéité et de multicolinéarité qui limitent souvent la validité des modèles économétriques contenant ces variables.

Pour faire face à ce type de biais cette thèse propose deux solutions. La première inspirée des méthodes d'estimation en différence de différence (Bond , 2002) implique l'utilisation de la première différence de la variable "performance sociale et environnementale" (valeur en année n moins valeur en année n-1) comme instrument de cette même variable, d'où l'estimation d'un modèle en deux étapes, dit à variables instrumentales. La première différence de la variable performances sociale et environnementale mesure l'augmentation de cette performance d'une année à l'autre. Cette première différence semble donc être un instrument pertinent afin d'atténuer

le biais de simultanéité. Elle est rationnellement liée à la performance sociale et environnementale des entreprises: quand une entreprise augmente sa performances sociale et environnementale elle atteint un niveau de performance élevé. Cependant, cette première différence contenant des informations passées (Année n-1), elle est bien moins corrélée avec le degré de transparence en année n de l'entreprise, ce qui limite donc le problème de simultanéité entre performance et transparence sociale et environnementale. Par conséquent, la différence de la variable performance sociale et environnementale est utilisée comme un instrument de cette même performance dans l'essai 2, et les résultats des modèles semblent robustes aux différents tests effectués. Une deuxième solution consiste à diviser l'échantillon d'estimation initial entre les entreprises les plus transparentes, et les moins transparentes, et d'estimer les modèles séparément pour les deux sous-échantillons . Cette technique est plus délicate car elle implique le contrôle de tout biais de sélection des deux échantillons, et de comparer les coefficients estimés avec un test de Chow d'égalité des coefficients (Chow, 1960) . Cette thèse cependant met en œuvre cette technique en association avec des analyses de variances simples et multiples (ANOVA et MANOVA) et les résultats apparaissent comme extrêmement robustes.

4. Contribution aux managers et stratégistes d'entreprise

J'espère que cette thèse s'avèrera utile aux praticiens, managers et autres stratégistes d'entreprise. Cette thèse analyse tout d'abord les causes du niveau de transparence sociale et environnementale des entreprises. Elle fournit donc aux praticiens des clés de compréhension sur l'étendue de la communication sociale et environnementale de leur entreprise. Cette thèse soutient que les entreprises adaptent l'étendue de leur communication en fonction de leur niveau de réputation, et du niveau de performance sociale et environnementale atteint par l'entreprise. Les managers évaluent donc tout d'abord les attentes en termes de développement durable de leur parties

prenantes (qui dépendent de la réputation de l'entreprise), et décident ensuite de révéler clairement la performance sociale et environnementale de leur entreprise si celle ci est au dessus des attentes des parties prenantes (Accréditations multiples, rapport de développement durable détaillé...), ou de mettre en œuvre des stratégies de green-washing quand leur entreprise performe en dessous des attentes de ses parties prenantes (Communication focalisée sur des initiatives locales, tentative de masquer l'impact négatif de l'entreprise sur l'environnement...). Selon cette logique, les entreprises qui n'ont que récemment mis en œuvre un ensemble d'actions de développement durable n'ont pas intérêt à divulguer ces investissements . Une entreprise qui a récemment adopté une position plus responsable préfèrera attendre jusqu'à ce qu'elle ait atteint un niveau suffisant de performance sociale et environnementale avant de divulguer largement ce dernier.

Par ailleurs, cette thèse analyse les combinaisons de performance et transparence sociale et environnementale permettant de déclencher une hausse des retours financiers. Elle démontre que les entreprises qui n'ont pas investi dans des initiatives de développement durable atteignent des retours financiers plus élevés à court terme en limitant leur communication sociale et environnementale. En d'autres termes , les dirigeants d'entreprises préjudiciables à la société ou à l'environnement réalisent de meilleurs profits à court terme quand ils adoptent une stratégie de green-washing. Cependant, ces stratégies ne se transforment pas en rendements plus élevés sur le long terme. Au contraire, sur le long terme, seules les stratégies de transparence créent de la valeur. D'une part les managers ayant investi dans des initiatives de développement durable, telles que la protection de l'environnement, des pratiques commerciales équitables, ou la santé au travail de leurs employés, atteignent de plus hauts retours financiers en adoptant une communication claire et étendue au sujet de ces initiatives. Mais d'autre part, même les

entreprises les moins responsables, qui ont un impact négatif sur la société et l'environnement, atteindront de plus hauts retours financiers sur le long terme en divulguant cet impact négatif, se protégeant ainsi des controverses couteuses pouvant apparaitre sur ce laps de temps.

Finalement, cette thèse soutient que les managers cherchant à adapter leur stratégie de développement durable afin d'améliorer le classement de leur entreprise auprès des différentes agences de notation, ne sont pas susceptibles de réussir. Ces agences de notation ne convergent pas dans leur définition de ce qu'est une entreprise responsable, et certaines entreprises seront bien classés par certaines agences, et au contraire apparaitront dans le fonds du classement d'autres de ces agences. Par conséquent, toute tentative d'une entreprise visant à augmenter son classement dans l'un des indices disponibles, peut tout aussi bien se transformer en un déclassement dans l'un des autres indices.

[THE STRATEGIC VALUE OF SUSTAINABILITY AND ITS DISCLOSURE]

Three essays on the Impact of Sustainability Performance, Disclosure & Reputation on Firms' Financial Performance

Abstract: The signaling perspective argues that when a firm limits the extent of its sustainability disclosure, it prevents stakeholders from evaluating its achieved degree of sustainability performance, and may thus reach higher financial returns. However, transparency is an institutionalized norm that stakeholders value, and firms may not be able to limit their disclosure without being penalized. This thesis therefore raises the question of whether firms can strategically limit their sustainability disclosure to reach higher profits, or if pressure for conformity to the norm of transparency exists and weakens such strategies. Using econometrical methods, this thesis empirically shows that sustainability raters do not converge in their assessment of firms' sustainability performance, supporting the assumption that firms may prevent stakeholders from evaluating their actual degree of sustainability. It also shows that less sustainable and more reputed firms are more likely to limit their sustainability disclosure, that highly sustainable firms encounter higher short and long term financial returns when they adopt an extensive disclosure, and that less sustainable firms, on the contrary are more profitable in the short term when they limit their disclosure. This thesis therefore shows that in line with the signaling perspective, firms may strategically adjust the extent on their disclosure to reach higher returns in the short term. However, in the long term, normative pressure for transparency is too high and weakens the benefits of such strategies.

Keywords: *Signaling Perspective, Normative Perspective, Sustainability Performance, Sustainability Disclosure, Reputation, Sustainability Raters, Financial Performance*

[LA VALEUR STRATÉGIQUE DU DÉVELOPPEMENT DURABLE ET DE SA COMMUNICATION]

Trois essais sur l'impact de la Performance et de la Communication Sociale et Environnementale des entreprises sur leur Performance Financière

Résumé: La théorie du signal soutient qu'une entreprise qui limite l'étendue de sa communication sociale et environnementale limite la capacité de ses parties prenantes à évaluer son degré réel de performance en termes de développement durable, lui permettant potentiellement d'atteindre une meilleure performance financière. Cependant la transparence est une norme institutionnalisée à laquelle ces parties prenantes sont attachées. Les entreprises peuvent donc ne pas être capables de limiter l'étendue de leur communication sans être pénalisées. Cette thèse soulève donc la question de savoir si les entreprises peuvent stratégiquement limiter leur communication sociale et environnementale afin d'atteindre des niveaux de profit plus élevés, ou si la pression de conformité à la norme de transparence affaiblit ces stratégies. Cette thèse démontre économétriquement que les agences de notation sociale et environnementale ne convergent pas dans leur évaluation des entreprises, soutenant l'hypothèse que les entreprises sont capables de limiter la capacité des parties prenantes à évaluer leur degré de performance sociale et environnementale. Cette thèse démontre également que les entreprises les moins durables, et les plus réputées, sont les plus susceptibles de limiter l'étendue de leur communication, que les entreprises les plus durables accèdent à de plus hauts retours financiers sur le court et long terme lorsqu'elles adoptent une communication exhaustive, et que les entreprises les moins durables au contraire sont plus rentables sur le court terme quand elles limitent l'étendue de leur communication. Cette thèse montre donc que, conformément à la théorie du signal, les entreprises peuvent à court terme stratégiquement ajuster l'étendue de leur communication sociale et environnementale afin d'atteindre de plus hauts retours financiers. Cependant, sur le long terme, la pression de conformité à la norme de transparence est trop élevée, et limite les bénéfices de telles stratégies.

Mots Clés : *Théorie du Signal, Pression Normative, Performance Sociale et Environnementale, Communication Sociale et Environnementale, Réputation, Agences de Notation, Performance Financière*