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Board Diversity and Corporate Social Performance:
A Review and Empirical Investigations

par

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Résumé

Cette dissertation a été conçue pour faire la lumière sur les effets de la diversité des conseils d'administration (CA) sur la performance sociale des entreprises (PSE). J'essaie d'atteindre cet objectif à travers trois essais. Dans le premier, sur la base d'une revue de littérature, j'étudie théoriquement la relation Diversité du CA-PSE et je propose des hypothèses. Dans le deuxième, je teste les hypothèses proposées en utilisant un échantillon d'entreprise cotées sur le marché boursier américain. Dans le troisième, j'étudie si la relation entre la diversité des conseils scolaires et leur PSE demeure stable au fil du temps.

Dans le premier essai, je discute les différentes définitions de la diversité des CA dans la littérature. Après avoir effectué une revue systématique de la littérature, je montre que (1) les chercheurs utilisent des définitions différentes pour la diversité des conseils et de la performance sociale. Ils construisent leurs définitions de la diversité en utilisant, sans distinguer parmi celles-ci, des variables représentant à la fois la structure et la composition du conseil. De même, les conceptualisations de performance sociale sont également très différentes; (2) les chercheurs utilisent des outils différents pour mesurer la diversité des conseils d'administration. Ils utilisent à la fois des mesures tantôt quantitatives et tantôt qualitatives; (3) les chercheurs mesurent aussi la performance sociale différemment. Parfois, ils considèrent la responsabilité sociale d'entreprise de manière générale (RSE) comme une mesure de la performance sociale de l'entreprise. À d'autres moments, ils utilisent des composantes distinctes de la RSE. Dans ce premier essai, je propose de clarifier la diversité des CA en distinguant entre la « diversité des CA », qui mesure les différences de structure du conseil et la « diversité dans les CA », qui mesure les différences entre les administrateurs en utilisant des variables qui caractérisent les membres du conseil d'administration (sexe, éducation, expérience ...).

L'objectif du deuxième essai est de fournir des preuves statistiques de la relation entre la diversité des conseils et le PSE à l'aide d'un échantillon d'entreprises manufacturières et de services cotées sur le marché boursier américain. Je mesure la diversité des conseils et la diver-

sité dans les conseils en utilisant des indices de diversité que je développe. J'ai trouvé que (1) la diversité des conseils a un résultat négatif sur la PSE, et (2) la diversité dans les conseils a un effet positif significatif sur le PSE. De plus, je trouve aussi que (3) la diversité des conseils modère positivement la relation entre la diversité dans les CA et le PSE. En outre, en utilisant les composantes de chaque indice de diversité, j'ai constaté que la taille du conseil (positivement), l'actionnariat des administrateurs (négativement), le sexe féminin (positivement), l'éducation des directeurs (positivement) et l'ancienneté des administrateurs (positivement) affectent la PSE.

Le troisième essai étudie si la relation entre la diversité des CA et le PSE est stable. Pour cela j'examine si les changements de diversité entrainent des changements similaires dans la PSE. Mes résultats étaient marginaux et montrent que les changements dans la diversité des conseils ont un effet négatif significatif sur les changements dans la performance sociale des entreprises. Cependant, parmi les composantes de la diversité des conseils, les changements dans l'indépendance des administrateurs ont un effet positif important sur les changements dans la performance sociale de l'entreprise.

En résumé, j'ai essayé de répondre à la question de recherche : Dans quelle mesure la diversité des conseils affecte-t-elle la PSE ? En arguant que (a) la diversité des conseils est double, avec une diversité structurelle et une diversité compositionnelle des membres du CA, je montre que (b) la diversité des CA et la diversité dans les CA, ainsi que leurs interactions, influent sur la PSE; et (c) ces relations sont stables dans le temps. Cette thèse contribue à la littérature sur la stratégie et la gouvernance d'entreprise en clarifiant les définitions et les mesures et en montrant que la composante structurelle de la diversité des CA a un effet qui diffère de la diversité compositionnelle dans les CA.

Mots clés: Conseil d'administration, diversité, structure, composition, matrice de diversité, performance sociale de l'entreprise

Méthodes de recherche: Analyse de contenu, recherche quantitative

Board Diversity and Corporate Social Performance:
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Abstract

This dissertation has been built to shed light on the effects of board diversity on corporate social performance (CSP). I try to achieve this goal in three essays. In the first, I study the relationship theoretically, and propose hypotheses on the basis of a literature review. In the second, I test the proposed hypotheses relating board diversity and CSP. In the third, I investigate whether the relationship between board diversity and CSP remains stable over time.

In the first essay, I discuss the different definitions of board diversity in the literature. After conducting a systematic literature review, I show that (1) researchers use different definitions of both board diversity and social performance. They build their definitions of board diversity around variables representing both board structure and composition, without distinguishing between these. Similarly, social performance constructs are also widely different; (2) researchers measure board diversity differently. They use both quantitative and qualitative measures; (3) researchers measure social performance differently. Sometimes they take the more general corporate social responsibility (CSR) as a measure of corporate social performance; at other times, they use distinct components of CSR. In this first essay, I propose to distinguish between *diversity of boards*, which takes into account board structure variables, and *diversity in boards*, which uses board members' compositional variables (gender, education, experience, etc.).

The aim of the second essay is to provide statistical evidence of the relationship between board diversity and CSP using a sample of service and manufacturing firms listed on the US stock market. I measure *diversity of boards* and *diversity in boards* using diversity indices that I introduce. I have found that (1) *diversity of boards* has a negative, and (2) *diversity in boards* has a positive significant effect on CSP. Additionally, I have also found that (3) *diversity of boards* positively moderates the relationship between *diversity in boards* and CSP. In addition, using the components of each diversity index, I have found that board size (positively), director ownership (negatively), director gender (positively), director race (positively), and director tenure (positively) affect CSP.

The third essay investigates whether the relationship between board diversity and CSP is stable overtime. The results were marginal. I found that *changes in diversity of boards* has a negative significant effect on *changes in corporate social performance*. Furthermore, among components of board diversity, *changes in director independence* has a positive significant effect on *changes in corporate social performance*.

In sum, I have tried to answer the research question of the dissertation (i.e., *to what extent does board diversity affect CSP?*) by (a) arguing that board diversity covers both board structure (i.e., *diversity of boards*), and board composition (i.e., *diversity in boards*); (b) showing that both *diversity of boards* and *diversity in boards,* and their interactions, affect CSP; and (c) showing that these relationships are stable over time. This dissertation contributes to the strategy and corporate governance literatures by clarifying definitions and measurements, and showing that the structural component of board diversity has an effect, which differs from the compositional component of board diversity.

Keywords: Board of directors, diversity, structure, composition, diversity matrix, corporate social performance

Research methods: Content analysis, quantitative research

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List of Abbreviations

CEO	Chief Executive Officer
CFP	Corporate Financial Performance
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
EPS	Earnings per Share
IRRC	Investor Responsibility Research Center
KLD	Kinder, Lydenberg, Domini and Co., Inc.
OLS	Ordinary Least Squares
PCA	Principal Component Analysis
Q	Tobin's *q* Ratio
ROE	Return on Equity
ROI	Return on Investment
SEC	Securities and Exchange Commission
SIC	Standard Industrial Classification
SOX	Sarbanes-Oxley Act of 2002
SSCI	Social Sciences Citation Index
TMT	Top Management Team
UK	United Kingdom
US	United States
USA	United States of America
VIF	Variance Inflation Factor

To

my father, Yusuf Turgut,

and,

my mother, Zerrin Turgut.

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1. Introduction

1.1 Motive for Research

I have chiefly three motives to study board diversity and corporate social performance relationship.

From a personal stance, I have always been fascinated by boards of directors. The power boards possess as the uppermost segment of an organization's structure attracts my curiosity. Successful firms, often have well-functioning boards. When I look further at their directors, I see highly successful business people with awe-inspiring careers. Directors are handpicked among a large pool of elite human resources. They are among the best and the most talented members of the business community. They are, in a sense, exemplars of the business world, whose success stories are often told in biographies. At times, they are even called upon to advise governments in their areas of expertise. In addition, they lead charitable foundations, and they are involved in several other types of community work. In sum, considering the legal authority assigned to board of directors, coupled with the talent and skills of directors, I see their immense potential to directly change not only the fate of their firms, but also that of their stakeholders, and society, towards greater good (or sometimes greater evil).

From an academic stance, I believe that board of directors scholarship is a thriving ground of academic inquiry. While it is a well-developed field in terms of its theories, methodologies, and empirical evidence, it is still expanding, and there is a continuous demand for new research, particularly regarding corporate social performance. At the same time, this also makes publication endeavors in this field enormously difficult. However, I believe that these forces not only help develop my research skills as an up–and–coming researcher, but also contribute to make my evolving career more meaningful and promising. In that regard, I am deeply inspired by some highly-regarded senior scholars (such as, but definitely not limited to, Ruth Aguilera, Albert Cannella, Sydney Finkelstein, Catherine Daily, Dan Dalton, Donald Hambrick, Amy Hillman, Micheal Hitt, Robert Hoskisson, James Westphal, and Edward Zajac), who have virtually built their research careers by studying the board of directors. In sum, in this dissertation research, I am trying to answer the calls of such prominent researchers for new research in terms of board of directors and firm performance.

From a practitioner's stance, I see that board of directors scholarship is needed outside of academia. Professionals and practitioners, policy-makers, regulators, institutional and other type of investors, shareholders, executives and corporate directors, consulting firms, law firms, stakeholder representatives, and even business media seek guidance regarding the effects of board of directors on performance of for-profit and not-for-profit organizations. Conducting research related to needs of these kinds of organizations, as the subject of this dissertation, may not only serve as a step towards these calls for guidance, but also help increase the readership base of my research in this field.

1.2 Background of Research

The board of directors is an important element of corporate governance. Directors are responsible for overseeing the firm's actions. In a sense, boards' decisions shape the business world, or are likely to do so soon. Today, boards of directors are so important that public announcements about new director nominations of major companies are placed in business media headlines.

However, boards were not always under the limelight. Historically, boards were not even considered an important part of corporate life. In early 1900s, as a result of the rise of capitalism, the amount and spread of share ownership of the American corporation had become so great that owners no longer controlled the firms that they owned (Berle and Means, 1932). Although legally boards of directors had the responsibility for overseeing the well-being of the corporation, the conventional wisdom held that boards of directors actually did not have much impact on corporate operations or policies (Mace, 1971). Corporate boards were basically treated as a legal requirement of corporation, without any actual influence, where directors were playing only a minor and merely a ceremonial role (Anderson and Anthony, 1986).

The change started in the 1960s with the merger wave for conglomerate structures, and then gained pace in 1970s and 1980s with unfriendly corporate takeovers. For instance, when a company is faced with an undesired takeover bid, shareholders seek board's consent to determine whether the company should be sold to the bidder, and thus, whether the price offered is acceptable. Furthermore, boards became important again, with directors' involvement in legally questionable transactions. Directors became the subjects of a large and growing number

of lawsuits, and infamously gained the attention of the business community, and the public at large. Consequently, in 1990s—with the growing concentration in the corporate equity ownership, institutional investors, regulators, minority shareholders and directors themselves have paid greater attention to the governance of corporations, especially to boards of directors. Consequently, boards' influence on the firm grasped the attention of scholars, and corporate governance studies gained momentum during this period.

The major governance issue in this episode was the belief that the role of the board of directors, if any, becomes really important only when a company faces some form of a crisis (Chatterjee, Harrison and Bergh, 2003). It was assumed that, as long as things were going reasonably well, there is hardly any need for the board to question the firm's management. Nonetheless, this belief was dramatically changed by corporate scandals of the early 2000s. In a remarkably short period of time, astonishingly big and seemingly well-functioning firms, such as Enron, WorldCom, Tyco, Global Crossing, Adelphia, and some others, reported major deficits, or declared humiliating bankruptcy with massive losses to their expected shareowners and stunned creditors. Boards were immediately accused of failing to fulfill their responsibilities. As a solution to prevent similar events, with the crucial support of the American Securities and Exchange Commission (SEC), the Sarbanes-Oxley legislation was passed swiftly in the United States Congress. Public policy makers initiated codes of conduct by integrating them into law in order to strengthen firms against such unexpected meltdowns. Similar laws were passed in several other countries. Some additional governance rules were also reinforced by major organizations, such as stock exchanges, as a requirement for firms to be registered. Not surprisingly, every single one of these efforts had the board of directors as the focus of their attention. The underlying assumption in all these codes, regulations and reports was the belief that if a company fails, it is essentially as a result of board's poor decision-making. In a nutshell, it was suggested that: (1) directors need to be independent from managers, and the majority of them need to come from outside of the firm; (2) the chairman of the board and the CEO of the firm need to be held by separate individuals; (3) boards need to reduce the number of their directors, and (4) create several internal and specialized sub-committees in order to ensure proper attention to some important functions, such as nominating new directors. These suggestions were expected to minimize the risk of corporate failures, and re-assure the financial well-being of the firm's shareholders.

Board's effects on firm's financial prosperity is rather well-documented. To put into the context of social responsibility, consider the role of boards in shaping the society we live in. Firms drive economic activity. Historically, the privatization movement in many countries, and the decline in corporate regulations, increased firms' room to maneuver in the economy. The interaction among firm's shareholders, employees, creditors, consumers, and community is now dense. The need for a well-functioning mechanism to regulate these fragile relations is imperative. Nevertheless, despite many prescriptive codes governing boards' structure and operations (i.e., director independence, leadership separation, board size and committees), undesired consequences focusing board of directors can still occur (e.g., cases of: Enron, WorldCom, Vivendi, Adecco, Royal Ahold, ABB, Manesmann, Deutsche Telecom). Paradoxically, these troubled firms, all, had already separated the CEO and chairman roles, and had independent boards. Clearly, conformity to these corporate governance guidelines, alone, failed to thwart the occurrences of such mishaps. As such, the effectiveness of such measures in preventing firms from financial or social failures was regarded as questionable by numerous prominent governance scholars (e.g., Daily, Dalton and Cannella, 2003; Hillman and Dalziel, 2003).

Firm's non-financial performance is under scrutiny. The purpose of the firm has been extended beyond shareholder value creation (Bower, Leonard and Paine, 2011). As a result, directors are expected to exert closer oversight of firm's social responsibility decisions. Since the firm is a nexus of several diverse parties, who pursue, at times, divergent purposes, the interests of these parties need to be considered (Donaldson and Preston, 1995). To that end, the boundaries of board of directors' responsibilities have been extending from shareholders towards other constituents (Deutsch and Valente, 2013). Keeping a watchful eye on the interests of, for instance, employees, creditors, suppliers, customers, environment, and communities has become the norm (Olsen and Adams 2004). In that sense, studying the relationship between boards and their firms' social performance is meaningful.

1.3 Statement of Problem

The relationship between board diversity and firms' social performance relationship presents some research problems. At a glance, these problems revolve around the *vagueness in*

understanding of the effects of board diversity on corporate social performance. This refers to the major research problem of the dissertation. To elaborate, I tackle this major problem by dividing it into three minor research problems.

First, looking closer at the literature on board diversity, we can see that scholars use demographic variables indiscriminately. Sometimes, these variables are indeed related to demographic differences among company directors, sometimes the variables relate rather to disparities among corporate boards in terms of structure, processes and other board characteristics. At other times, board demographic variables are mixed together without differentiating whether they capture in terms of composition or structure. As a result, I believe that differences in researchers' approaches to define board diversity have generated some conceptual uncertainty about which variables are really meaningful in assessing boards' effects, which I suspect have made comparing the results difficult.

Research Problem 1: Strategy researchers use different definitions of board diversity when studying it with firm's social performance.

Second, in a relatively limited number of studies focusing on corporate social performance, researchers have reported that board diversity is reasonably influential in socially responsible firm behavior. However, these studies report conflicting results. Take director gender, for instance. Puzzlingly, Zhang, Zhu, and Ding (2013) report a positive; Walls, Berrone, and Phan (2012) report a negative; and, Rodriguez-Dominguez, Gallego-Alvarez, and Garcia-Sanchez (2009) report no significant relationships between board diversity and corporate social performance.

Research Problem 2a: Strategy literature reports inconsistent evidence regarding board diversity and corporate social performance.

In addition, I have noticed that the phrase *board diversity* is seen as an umbrella term that encompasses numerous characteristics, such as age, gender, ethnicity, etc. For instance, to Coffey and Wang (1998), "Board diversity is defined as variation among its members. This variation may derive from multiple sources such as expertise and managerial background,

personalities, learning styles, education, age and values." (p. 1596). However, I have realized that while researchers use the term board diversity (as a single construct) in their arguments, they measure it by individual demographic constructs per se. That is, even though some researchers perceive board diversity as an accumulation of board composition variables, they still study it through single demographic characteristics (i.e., they do not measure diversity as a unified construct). To illustrate, the title of Kim and Lim's study (2010) is "Diversity, outside directors and firm valuation", but the authors measure diversity in terms of director age and educational background separately. Similarly, the title of Mahadeo, Soobaroyen and Hanuman's (2012) study is "Board Composition and Financial Performance: Uncovering the Effects of Diversity in an Emerging Economy", but the authors measure diversity in terms of director gender, age, educational background, and independence separately.

Research problem 2b: Research studying board diversity and corporate social performance use varying measurement methods.

Third, the literature suffers not only of inconsistent results and measurement between board diversity and corporate social performance, but also lacks empirical continuity as this suspected relationship seemingly does not hold true in time. That is, researchers report differing findings of the same variables with data representing different time periods. Take director expertise, for instance. Using data representing years between 2000 and 2005, Bai (2013) found director expertise's positive effect on corporate social performance. However, studying the same relation, Bear, Rahman, and Post (2010) could not find any significant relation with data representing year 2008. Another example can be director race. While Ntim and Soobaroyen (2013) found a positive relationship between director race and corporate social performance using data representing years between 2002 and 2009, Hafsi and Turgut (2013) fail to find the same relationship with data representing year 2005.

Research Problem 3: Evidence in the strategy literature do not represent a stable relation (in time) between board diversity and corporate social performance.

1.4 Aim of Research

The major research aim of this dissertation is *to shed light on the effects of board diversity on corporate social performance*. To elaborate, I tackle this major aim by dividing it into three minor research aims. Based on the research problems stated above, I have created the following as the aims of this dissertation research.

The first aim of this research is to unveil the problems regarding how board diversity is defined by scholars.

Research Aim 1: To pinpoint the differences of board diversity definitions in studies focusing boards' effects on firm's social performance.

The second aim of this research is to provide evidence to the puzzling results reported throughout the literature.

Research Aim 2: To provide statistical evidence, if any, to the relationship between board diversity, measured as a (single-unit) construct, and corporate social performance.

The third aim of this research is to study the stability of the relationship over time between board diversity and social performance.

Research Aim 3: To study the stability overtime of the relationship between board diversity and corporate social performance.

1.5 Research Questions

The major research question of this dissertation is *to what extent, if any, does board diversity affect corporate social performance*? To elaborate, I tackle this major question by dividing it into three minor research questions. Based on the research goals stated above, I have constructed the following research questions.

The first research question concerns the definition of board diversity (and how it is measured with corporate social performance).

Research Question 1: What are the sources of different definitions of board diversity when researchers study it with firm's social performance?

The second research question concerns the measurement of board diversity and corporate social performance.

Research Question 2: Is there a statistically significant relationship between board diversity and corporate social performance, especially when board diversity is measured as a single-unit construct?

The third research question concerns the stability of board diversity and corporate social performance.

Research Question 3: Is the relationship between board diversity and corporate social performance stable over time?

1.6 Significance of Research

From a theory perspective, this research seeks to distinguish the separate roles of directors (i.e., monitoring vs. advising), and highlights this dual importance for effective functioning of the board. Traditionally, researchers chose to study boards for their monitoring role. With a few exceptions (e.g., Coffey and Wang, 1998; Siciliano, 1996), only recently, have they started to study the advising role comprehensively (Bear, Rahman and Post, 2010; Rose, 2007). Importantly, scholars have also brought into attention to study both of these roles together (e.g., Hillman and Dalziel, 2003). By acknowledging this separation in board roles, and choosing to study them together, this research aims to provide answers to such calls.

Second, this research aims to put order into the board diversity literature through studying it with an epistemological eye. By bringing attention to the definitional problems (Milliken and

Martins, 1996), and pinpointing the sources of such problems, I systematically study board diversity, and aim to provide a more precise meaning of it. Third, while the board literature is dominated by research on financial performance, this research focuses on social performance. The rise in importance of stakeholders and the need for understanding social behavior of firms in the face of some notorious corporate scandals, such as Enron, drove scholars' attention to this domain (Walls, Berrone and Phan, 2012). By studying board diversity with social performance, I aim to provide answers to such calls.

From a methodology perspective, first, I address measurement problems within board diversity literature. Diversity is not a well-established field of inquiry, and there are numerous measurement-related problems that are caused by definitional issues (Nielsen, 2012). Following, I provide tools, such as diversity matrices, that remedy some of these measurement issues within board diversity literature. Second, researchers use different approaches in operationalizing board diversity constructs (Jehn, Northcraft, and Neale, 1999). I acknowledge these differences, and aim to use metrics that provide more precise measurements. Third, board diversity, and its relation to social performance, is a relatively new literature within strategy scholarship, where the number of empirical studies that provide evidence is comparatively limited (Post, Rahman and Rubow, 2011). By studying board diversity with corporate social performance in this dissertation, I aim to bring further empirical evidence to this literature.

1.7 Structure of Research

The structure of dissertation is as follows. In this introductory chapter, I discussed the motives, background, problems, goals, questions and significance of the dissertation.

The first essay (i.e., the theoretical study) concerns the definition of board diversity and tries to answer the first research question (i.e., the sources of different board diversity definitions) by pointing at, and discussing, the different definitions of board diversity in the literature on firm's social performance. Here, after discussing the dual roles of board of directors that stem from different theoretical perspectives, I systematically examine the literature and investigate the sources of different definitions.

The second essay (i.e., the first empirical study) concerns the measurement of board diversity, and tries to answer the second research question (i.e., a possible significant

relationship) by providing statistical evidence on the relationship between board diversity and corporate social performance, especially when I measure board diversity as a single-unit construct. Here, using data from S&P500 firms, and data representing year 2005, I conduct descriptive, inferential and post-hoc analyses in order to prove the existence of the previously hypothesized relationships.

The third essay (i.e., the second empirical study) concerns the stability of board diversity and tries to answer the third research question (i.e., a possible stable relationship) by providing statistical evidence of the relationship between board diversity and corporate social performance over time. Here, using data from S&P500 firms, and data representing years 2000 and 2010, I conduct descriptive, inferential and post-hoc analyses to investigate how this relationship changes over time.

Lastly, in a concluding section, first, I discuss how each dissertation essay is interconnected. Then, I summarize the findings of each dissertation essay. Next, I discuss my contribution to the literature with this dissertation. Lastly, I discuss the limitations regarding each dissertation essay.

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2. Conceptual Study (First Essay)

Board Diversity Research:
An Exploration Using Systematic Literature Review

Abstract

Research on board diversity and firm performance is plagued with many deficiencies. First, board diversity is disparately defined. Although researchers use demographic variables to measure diversity, they do not consider that some of these variables are related to the board structure, while others represent directors' attributes. This alone explains the variety of empirical findings in the extant literature. Second, variables have combined effects, which suggest that the use of diversity indices and the consideration of their interactions is a necessary step for sound research. Finally, measuring diversity is also problematic. Institutional changes, coupled with strategic pressures, are leading to increasingly homogeneous boards. As a result, traditional measures do not show enough intra-sample variance. Relative measures might be the necessary tool to capture board diversity effects. Using a systematic literature review on the effects of board diversity on corporate social performance, this article is an attempt to provide answers to such problems, and to facilitate the debate among scholars within the field. These suggestions provide consistent and convincing findings, and lead to better theory development.

Keywords: Board of directors, diversity, systematic literature review, diversity matrix, corporate social performance

2.1 Introduction

Despite extensive research on the relationship between board diversity and firm-level outcomes (for a review, see, for example, Johnson, Daily & Ellstrand, 1996), it seems that we still know little about such an important issue. A large number of empirical investigations on board diversity has brought both insights and disagreement. A closer look into the research indicates that scholars use demographic variables indiscriminately. Sometimes, these variables are indeed related to demographic differences among company directors, sometimes the variables relate rather to disparities among corporate boards in terms of structure, processes and other board characteristics. At other times, board demographic variables are mixed together without differentiating whether they capture group diversity in terms of composition or structure (Hambrick, 1994) and overlook the differences in the effects that structure and composition may have on board effectiveness and, consequently, firm-level outcomes (e.g., Post, Rahman & Rubow, 2011).

As a result, differences in researchers' approaches to board diversity have generated some conceptual uncertainty about which demographic variables are really meaningful in assessing boards' effects, and have made comparing the results difficult. The precise meaning of board diversity is still to come (see Harrison & Klein, 2007 for the etiology of the ambiguity in diversity constructs). Therefore, there is a need for a more precise language to guide board diversity research, which is the focus of this study. Research on top management groups (Hambrick, 1994) provided some relevant conceptual clarity by proposing a framework. I am going to argue that this framework can also be useful to deal with board diversity research given its common theoretical assumptions and similar firm-level outcome directionalities.

Not only the theoretical language, but the tools used to conduct research on board diversity seem also to be questionable. Diversity variables or constructs are measured in widely different ways by researchers. Furthermore, board diversity is a dynamic process (Daily, Dalton & Cannella, 2003). Laws, such as the Sarbanes-Oxley Act, provide a normative framework that pushes toward uniformity among boards of directors (Aguilera and Cuervo-Cazurra, 2009). Therefore, an isomorphic trend in board composition practices, as highlighted by Ocasio (1999), makes conceptual and diversity measurement issues even more salient. Such normative, and somewhat coercive, isomorphism also represents an important challenge for board diversity

research. If researchers keep on using the traditional definitions and measures of board diversity, they will, most likely, have harder time capturing differences among boards in terms of structure and composition.

In this article, these research difficulties are addressed, using a systematic literature review and following a three-fold approach. First, I show that the extant literature lacks a common conceptual framework to study board diversity. Second, I use Hambrick's (1994) group diversity conceptualization to argue that board diversity can be divided into structure and composition elements. I also discuss the need to consider the interaction between diversity in structure and diversity in composition in order to generate finer results on the effects of boards on firm-level outcomes. Third, I argue that the measurement of board diversity should be improved to capture context-specific and board attributes beyond isomorphic effects.

In the next sections, first I develop a theoretical framework. Then, I present the systematic literature review that is used to support my contention that the field should be revisited. In the following sections, I propose solutions to the theoretical and empirical challenges facing it, and offer a discussion about the implications for future research.

2.2 Theoretical Framework

2.2.1 Responsibilities of Board of Directors

"The director walks a tightrope. His responsibility is to be supportive to management but not a rubber stamp. He directs, but he does not manage. Legally he has the ultimate responsibility for both the formulation of strategy and its implementation, but as a practical matter he relies on the CEO. He and his fellow directors elected the CEO, but he may later have to remove him. He is responsible for the long-run health of the corporation but most of the information he receives on its performance relates to the short run. He has a legal responsibility to the shareholders, but he has a moral responsibility to the employees, customers, vendors and society as a whole. He is responsible for keeping the shareholders informed, but at the same time be should not disclose information that would be adverse to the company's best interests. He has personal goals, as does the CEO. However, the director must ensure that neither his goals nor those of the CEO overshadow their obligations to the corporation and its goals."

excerpt from the book,
The New Corporate Director
(Anderson and Anthony, 1986)

Gilson and Kraakman (1991, p. 873) assert that "in the corporate governance debate, all arguments ultimately converge on the role of the board of directors." From a legal standpoint, a board oversees the firm in order to avoid harm to the society or the community it operates in. From a moral perspective, directors commit themselves 'with prudence and honesty' to accept the responsibility of guaranteeing the usage of shareholders' money under the best possible circumstances. Board of directors is, also, vital to the well-being and effective functioning of a corporation (Blair & Stout, 2001; Johnson, Daily, & Ellstrand, 1996). It has the responsibility for the overall performance of the business. It has the power to hire and fire senior executives, to set executive compensation, to review, approve, and evaluate firm strategies, and has specific responsibilities, such as to set the long-term goals of the company. It is a self-governing body that has the power, within very few limits, to manage its own affairs. In this sense, the board, by law, is the primary decision-making body of the corporation (Clark, 1986). Crucially, as the

board makes proper decisions, the firm benefits. To the contrary, ineffective boards will eventually harm the firm and to the society at large.

Theoretically, a firm's board of directors fulfills two roles. First, it links organizations to critical resource providers and to valuable information through a network of director interlocks (Hillman and Dalziel, 2003; McDonald and Westphal, 2003; Pfeffer, 1972). Second, they play an administrative role by being responsible for monitoring management and setting policy (Fama and Jensen, 1983; Johnson, Daily, and Ellstrand, 1996; Zald, 1969). In this study, I focus on the latter.

2.2.1.1 Boards' Monitoring Responsibility and Agency Theory

Monitoring or control role of the board is usually seen as 'board vigilance'. As put by Fama, the board's "most important role is to scrutinize the highest decision makers in the firm" (1980, p. 294).

According to agency theory, shareholders and managers have different goals, driven to a large extent by the separation of ownership and control in public corporations, and by the different risks that shareholders and managers face in organizations (Jensen and Meckling, 1976). While shareholders can diversify their risk by investing in multiple firms, management is tied to a single firm (Baysinger and Hoskisson, 1990). A clear implication of this difference in risk profiles is that top managers have somewhat different incentives than shareholders, potentially leading to inefficient managerial decisions, such as making short-term, risk-averse strategic investments (Hill, Hitt and Hoskisson, 1988; Lambert and Larcker, 1985). Faced with this principal-agent problem, the primary responsibility of the board of directors is to minimize the conflict of interest problems (Jensen, 1986), and therefore, to ensure that top managements' actions are consistent with shareholders' interests (Alchian and Demsetz, 1972). According to this view, the board acts to separate decision management from decision control, keeping for itself the roles of ratification and monitoring (Fama and Jensen, 1983).

In corporate governance studies, conventionally, the monitoring role is seen as the first and foremost responsibility of a board of directors. Board monitoring has been centrally important in governance research (Johnson et al., 1996), with boards of directors described as the apex of the internal control system (Jensen, 1994). Relatedly, the agency theory perspective

dominates researchers' approach to boards in the literature (Dalton, Daily, Ellstrand, & Johnson, 1998; Shleifer & Vishny, 1997).

Importantly, governance scandals of early 2000s also intensified the scrutiny on board's control role. To re-establish investors' confidence on the financial system, the Sarbanes-Oxley Act was passed in 2002, and policy makers directed firms to implement regulations regarding board structure in order to better oversee the activities of a corporation with respect to shareholders' interests. Furthermore, shareholder activist organizations (e.g. Business Roundtable, National Association of Corporate Directors, California Public Employees' Retirement System, and Teachers Insurance and Annuity Association-College Retirement Equities Fund) reinforced the trend toward tighter controls. As a result, almost universally, it was recommended that boards should be comprised of mostly management-unrelated directors (i.e., independent boards); chairman of the board and CEO of the firm must not be held by the same person (i.e., leadership separation); and the size of the board should be reduced to a relatively small number, perhaps somewhere between eight and twelve directors. Although some are voluntary, it has become customary for boards to conform to these rules (Aguilera & Cuervo-Cazurra, 2004).

However, contrary to expectations, these regulations may not really be effective (see Appendix 2.1 for anecdotal evidence), and can fail to prevent corporate failures. In fact, numerous misbehaving firms, such as Enron, WorldCom, Adelphia and some others, had board structures consistent with norms and were praised for their governance practices (Gillan and Martin, 2007, p. 932). Although the evidence is still far from clear, while regulating board structure may be a necessary condition for monitoring management practices, it is a poor predictor of board effectiveness—especially when effective governance is defined in terms of corporate financial performance. The Academy of Management discussed board structure and firm performance linkages in a special topic forum on corporate governance in 2003. In the conclusion, named 'Corporate Governance: Decades of Dialogue and Data', it was reported that board independence was not found related to firm performance (Daily, Dalton, & Cannella, 2003). The typical structural indicators of corporate governance used in academic research, and in institutional rating services, do not explain the quality of managerial decisions or a firm's performance (e.g. Dalton, Daily, Ellstrand, & Johnson, 1998; Dalton, Daily, Johnson, & Ellstrand, 1999; Dalton, Daily, Certo, & Roengpitya, 2003; Larcker, Richardson and Tuna,

2007; Shleifer & Vishny, 1997). Appendix 2.2 displays the views of a number of governance scholars on the matter.

Since studies are unable to show convincing relationships between monitoring responsibility of boards and effective corporate governance, researchers then should direct their studies towards new perspectives (Carpenter, Geletkanycz, & Sanders, 2004; Finkelstein, Hambrick, & Cannella, 2009), and directors' strategic value creation function is an important one, as discussed in the next section.

2.2.1.2 Boards' Strategic Value Creation Responsibility and Resource Dependency Theory

In addition to the monitoring role, directors fulfill a strategy role (Johnson et al., 1996; Zahra & Pearce, 1989. Nevertheless, several early governance researchers stated that boards of directors were not deeply involved in strategy formation (Mace 1971; Mueller 1979; Herman 1981; Vance 1983; Wolfson 1984; Whisler 1984). According to Clark (1986, p. 108) "It is unrealistic to view directors as making any significant number of basic business policy decisions. Even with respect to the broadest business policies, it is the officers who generally initiate and shape the decisions. The directors simply approve them, and occasionally offer advice and raise questions." Boards were passive and directors were expected to avoid confrontation, stay in the background, and not 'rock the boat' (Patton and Baker, 1987).

However, this has changed. Concerns about director liability, the influence of pension funds, the market for corporate control, and more importantly, the implementation of the Sarbanes-Oxley Act have pushed the trend. In the strategy tradition many authors, such as Kenneth R. Andrews (Andrews, 1971) or Jay W. Lorsch (Lorsch and Maciver, 1989), were strong advocates of the need for directors' strategic input. Today's boards hold a strategy-making function, perhaps, to a degree unimaginable for boards of the past (Westphal, 2002). In a competitive and globalized business world, seeing the board of directors as a strategic asset in decision making is not only fruitful, but also essential for survival and value creation of strategic decision making (Leblanc and Gillies, 2005).

Strategy responsibility of the board is performed mainly through advice and counsel to the management, but also by initiating strategic decisions (Carpenter, Geletkanycz, & Sanders,

2004). Specifically, directors directly affect strategy through their involvement in committees, recommendations to top management and oversight of executive decisions. Directors also indirectly affect strategy by reducing inter-organizational dependencies, and by conveying information about other firms' strategies. Further, directors can indirectly affect strategy by providing advice and social support to the CEO (McDonaid and Westphal, 2003; McDonald, Khanna, and Westphal, 2008; Westphal, 1999) and through managing the context in which strategic decisions are made (McNulty & Pettigrew, 1999).

Board of directors represents a critical resource for the firm (Hillman and Dalziel, 2003). Regarding resources, two perspectives are relevant to study corporate boards (Medcof, 2001); (a) resource-based view, and (b) resource dependency theory. (a) Resource-based view assumes that competitive advantage may be achieved by possessing resources and competences that only few other firms can acquire, or they are extremely difficult to imitate by other firms (Barney 1991). Internally focused resource-based view is orientated at resources owned by the firm that can contribute to achieve competitive advantage (Barney and Clark, 2007). (b) In contrast, externally focused resource dependence theory is orientated at the resources obtained from the firm's environment. That is, firms can develop key competences by acquiring external resources through environment from certain other firm(s) (Selznick, 1949). In that sense, resource dependence theory specifically emphasizes dealing with the uncertainties in the external environment, where those critical resources are coming from (e.g., emerging competitions limiting the access to resources) (Pfeffer and Salancik, 1978).

I acknowledge that a relatively recent debate has been brewing within strategy scholarship regarding the use of these two competing resource-related theoretical views in studying boards (Gabrielsson and Huse, 2005; Mellahi et al., 2016; Nemati, et al., 2010). I also accept that these views are both useful in explaining the effects of boards on firm performance from different angles of inquiry (i.e., internal vs external focus). Nonetheless, I take resource dependence stance in studying board diversity in this dissertation. There are several reasons for this choice. First, the sample that I use in the empirical studies in this dissertation is composed of firms, whose board of directors are heavily dominated by outside directors. Since these outsiders (i.e., outsider or independent directors), by definition, come from external environment of the firm (i.e., they are not attached to firm internally), it is more meaningful, here, to study the boards using resource dependence perspective. Second, numerous scholars

consider board diversity as a notion of bringing differences to boards from outside the firm, rather than developing these different traits internally (e.g., Coffey and Wang, 1998; Goodstein, et al., 1994). Third, prominent board diversity researchers overwhelmingly take resource dependence perspective over resource-based view in their studies (e.g., Boyd, 1990; Dalton, Daily, Johnson, & Ellstrand, 1999; Hillman, Shropshire, & Cannella, 2007; Hillman, Withers, & Collins, 2009). Since I aim to contribute directly to this literature, I choose to build my arguments upon resource dependence theory.

Resource dependence perspective contributed greatly to understanding of the boards' role in terms of linking the firm with its environment. The general idea is that corporate boards will reflect the environment of the firm (Boyd, 1990; Hillman et al., 2000; Pfeffer, 1972) and corporate directors will be chosen to maximize the provision of important resources to the firm. This theory has been applied to research on boards (Boyd, 1990; Daily & Dalton, 1994a, b; Gales & Kesner, 1994; Hillman, Cannella, & Paetzold, 2000; Pfeffer, 1972; Pfeffer & Salancik, 1978) and stakeholder traditions (Hillman, Keim, & Luce, 2001; Johnson & Greening, 1999; Luoma & Goodstein, 1999).

The primary role of boards from a resource dependence perspective, therefore, is to serve as resource providers. Different types of resources are provided by boards (Hillman, Cannella, and Paetzold, 2000; Pfeffer and Salancik, 1978): (a) Advice: Directors are important sources for transfer of advice and counsel to management on strategic matters (Baysinger and Butler, 1985; Gales and Kesner, 1994; Westphal, 1999); (b) Legitimacy: Directors, whom proved their trustworthiness with prior experience or performance, enhance the reputation and legitimacy of the firm (Daily and Schwenk, 1996; Hambrick and D'Aveni, 1992); (c) Information Channel: Directors of external environment-origins act as channels for communicating valuable information between the firm and other organizations. Similarly, director interlocks play an important role in disseminating information across firms (Burt, 1980; Useem, 1984); (d) Resource Transfer: Directors assist the firm in obtaining resources or commitments from important elements outside the firm. Director interlocks are regarded as securing preferential access to critical resources (Boeker and Goodstein, 1991; Mizruchi and Stearns, 1994). Empirical studies in the resource dependence tradition have consistently shown a relationship between board and firm performance (e.g., Boyd, 1990; Dalton, Daily, Johnson, & Ellstrand, 1999; Pfeffer, 1972).

In contrast to the structure, the composition of a board of directors, traditionally, defines affiliations of each director (e.g., family members, lawyers of family owners, affiliated directors, etc.). However, numerous researchers see the demographic background, and thus the expertise, of each director as elements of composition. In this regard, board composition can be defined by such characteristics as the age, tenure, gender, race, managerial experience, industry and experience.

In relation to the demographic aspects of board composition, upper echelons view of the firm is dominant. Although the upper echelons view initially was focused on top management, it is possible to extend this theory to the board of directors, and study the relationships between director characteristics and organizational outcomes (Carpenter, Geletkanycz, & Sanders, 2004; Daily, Certo, & Dalton, 1999; Goodstein, Gautam, & Boeker, 1994; Hillman, Cannella & Harris, 2002; Hillman, Shropshire, & Cannella, 2007).

There is considerable evidence in the literature that board of directors affects the firm's strategy. For example, Judge and Zeithaml (1992) examined effects of board involvement from both the institutional and strategic choice perspectives. Baysinger and Hoskisson (1990) reported that outside dominated boards would be associated with greater diversification. Mizruchi and Stearns documented how financial representation on boards is associated with corporate borrowing (Mizruchi & Stearns, 1994; Stearns & Mizruchi, 1993). Haunschild reported association between board interlocks and acquisition activities (Haunschild, 1993). Certo (2003) noted that in initial public offerings, board characteristics influence legitimacy. Westphal and Fredrickson (2001) concluded that outside directors influence strategy through the selection of a new CEO. These constitute only a small sample of the studies on the topic. In sum, directors also serve as strategic decision makers, and affect the performance of the firms (Finkelstein, Cannella and Hambrick, 2009).

2.2.2 Board's Effects on Corporate Performance

Extending agency research by suggesting that pro-active behavior, especially by non-executive directors, depends not only on the extent of board independence, but also on the strategic perspective and base of directors' individual attributes (i.e., demographic characteristics, such as gender, age, experience, etc.) that they bring into the firm is gaining

popularity (Carpenter, 2002; Carpenter and Westphal, 2001; Golden and Zajac, 2001; Westphal and Zajac, 1995; Westphal, 1999).

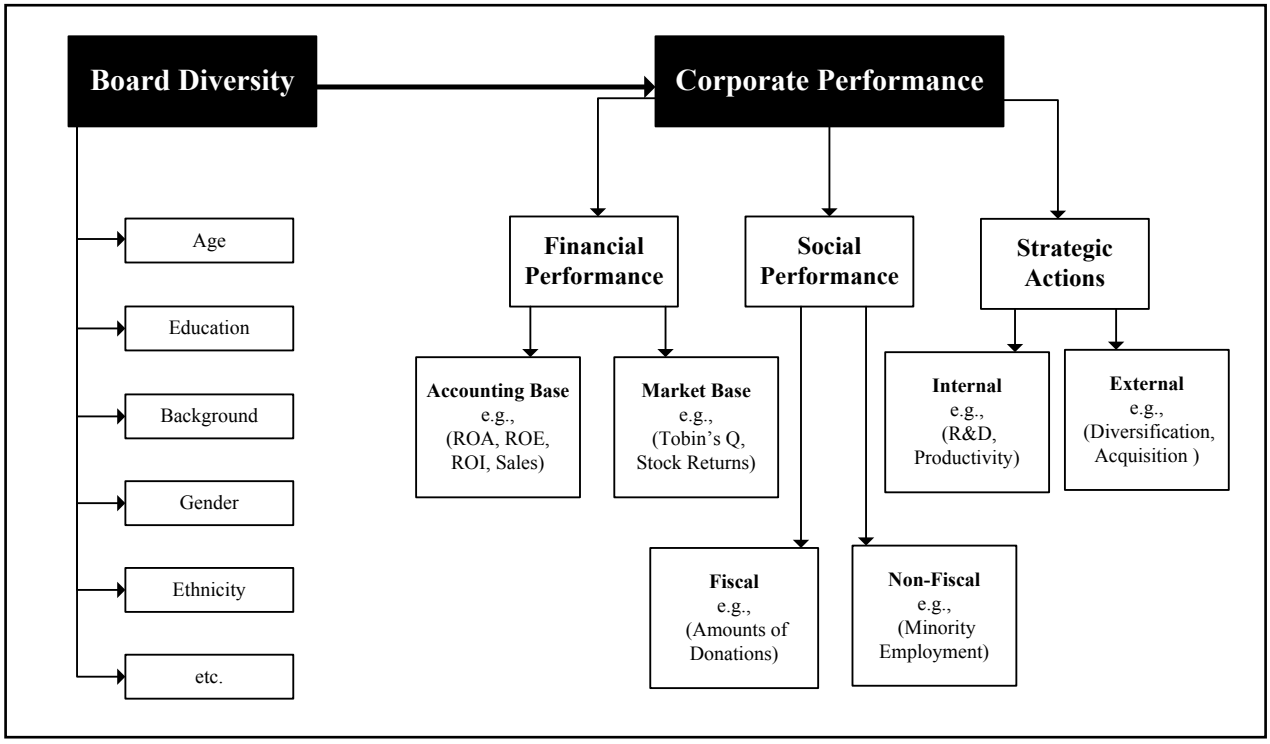
Thus, boards of directors is believed to have a direct impact on corporate performance (Pettigrew, 1992; Zahra and Pearce, 1989). Research has concentrated on large-sample, quantitative studies examining the relationship between various types of corporate performance, board structural attributes (e.g., board size, duality, etc.), and directors' individual attributes (e.g., gender, age, race or ethnicity, etc.)(Dalton, Daily, Ellstrand, & Johnson, 1998; Zahra & Pearce, 1989).

Boards help reduce dependency on external contingencies (Pfeffer and Salancik, 1978), reduce uncertainty for the firm (Pfeffer, 1972), lessen transaction costs (Williamson, 1981), and eventually, contribute to the survival of the firm (Singh, House, and Tucker, 1986). Although, the notion that diverse boards perform better is empirically challenged by many studies (Dalton, Daily, Ellstrand and Johnson, 1998), extending organizational diversity literature's position—that diversity tends to generate higher creativity, innovation and quality decision-making at individual and group levels—to board of directors, seems logical.

Several reasons could explain the generally inconclusive empirical findings. Researchers use a variety of board diversity measures. Much of the existing empirical work uses demographic measures of diversity such as gender, age and race, and most focus upon a single dimension of board diversity, typically the presence of women on corporate boards.

Generally, three types of performance are used throughout the board diversity literature (Figure 2.1): (1) financial performance criterion, (2) social performance criterion, and (3) other strategic actions.

Figure 2.1 Board Diversity and Corporate Performance Relationship



2.2.2.1 Board's Effects on Corporate Financial Performance

Boards of directors are believed to have a direct impact on corporate financial performance (Zahra and Pearce, 1989; Pettigrew, 1992). Agency theory scholars generally study the role of the structural elements of the boards, while researchers using strategy-related perspectives generally study directors' individual attributes' effects on corporate financial performance (Dalton, Daily, Ellstrand, & Johnson, 1998; Zahra & Pearce, 1989).

2.2.2.2 Board's Effects on Corporate Social Performance

Corporate social performance has roots in the early attempts to define managerial responsibilities in economic and legal terms, where scholars argued for or against a larger and multidimensional sphere of obligations (Friedman, 1962). Bowen (1953) brought to notice that the legitimacy of business derives from societal acceptance of its actions. Carroll (1979)

extended these extra-economic and extra-legal commitments to corporate social responsibilities. Following on Carroll's footsteps, scholars support a complex, multidimensional construct to measure corporate social performance (Wartrick and Cochran, 1985; Wood, 1991).

Contrary to Friedman's (1962) contention that the social responsibility of business is to make a profit, the social responsibility / performance view emphasizes business's inter-dependencies with other elements of society and the responsibilities that arise out of that (Wood and Jones, 1995). From a stakeholder theory perspective (Freeman, 1984), corporate social performance assesses to what extent a firm meets the demands of multiple stakeholders. Here, corporate social responsibility is seen as an unavoidable cost of doing business (Ruf, Muralidhar, Brown, Janney, & Paul, 2001). Today, most researchers follow Carroll's view in measuring corporate social responsibility. This includes, apart from the economic responsibilities the legal, the ethical, and then (if resources permit) the philanthropic responsibilities.

From a strategy perspective, corporate social performance of a firm is regarded as one of its most important assets (Quinn, Mintzberg and James, 1987). Firms' investments in their reputations, particularly firm-specific attributes like board characteristics, governance and ownership (Sur and Sirsly, 2013), including being socially responsible, enhance their chances of survival (Rao, 1994).

Resource dependency theorists' argument—that a firm's socially improved relationships with its constituencies may bring economic benefits—is often put forward in managers' quest for socially responsible activities. However, the linkages between corporate social and financial performance are rather fuzzy. Such a relationship was found to be negative, neutral or positive (for a review, see Simpson and Kohers, 2002; Waddock and Graves, 1997).

Although social performance is used in various areas of organizational studies, it is relatively less studied in corporate governance research. Research on board of directors has chiefly focused on their effect on corporate financial performance. In the relatively limited number of studies focusing on corporate social performance, researchers have reported that board diversity is influential in socially responsible firm behavior (e.g., Bear et al. 2010; Hafsi and Turgut, 2013; Post et al. 2011; Wang and Coffey 1992; Williams 2003).

2.2.2.3 Board's Effects on Other Firm-Level Strategic Outcomes

While corporate governance research has traditionally been dominated by financial economics and corporate finance perspectives, the strategic management view of the firm has also been gaining traction. Combining agency and resource perspectives, strategy scholars have studied organizational factors affecting firms' (non-financial) performance and long-term survival (Filatotchev, 2012). Directors are seen as resources, which could help reduce external dependencies (Dalton et al., 1999), provide access to key constituents (Hillman et al., 2000), and lead firms to better strategic choices (Hillman and Dalziel, 2003).

Researchers in this stream have studied the role of directors in strategic change, restructuring, and corporate entrepreneurship (Hoskisson et al., 2002; Pearce and Zahra, 1992; Tihanyi et al., 2003). In addition, they have investigated board's board's role when making important decisions, including diversification and M&A (Hoskisson et al., 2002; Sanders and Carpenter, 1998; Tihanyi et al., 2003; Zajac and Westphal, 1996), R&D expenditures, innovation intensity (Baysinger et al., 1991); risk-taking preferences (Baysinger and Hoskisson, 1990); and takeover defenses (Mallette and Fowler, 1992). Other areas of research in this domain include, but are not limited to, corporate crime and fraud; firm failure or survival; internationalization strategies; strategic change or conformity.

2.2.3 Board Diversity

2.2.3.1 Diversity in Organization Theory

In organizational sociology and group research literature, the concept of diversity is typically seen as differences among organizational actors' or group members' individual attributes (Triandis et al., 1994). Researchers, in this field, study how group composition affects group performance, cohesion, and social interaction (Van Knippenberg and Schippers, 2006). This demographic profile contribution increases the degree of in-group diversity, and in turn, is expected to affect group processes and outcomes (e.g., Pelled et al., 1999). Therefore, as the belief goes, a diverse group will have a wider and more elaborate perspective, which will drive more thorough analyses or considerations and end up with better chances of success. In this literature, research has focused, for the most part, on differences in gender, age and race; and

to a lesser extent, on tenure, educational background, and functional background (Milliken and Martins 1996). The main research question investigated in this stream is how differences between organizational members affect group process and performance (Williams and O'Reilly 1998).

The social categorization perspective highlights the existence of similarities and differences between group members and denotes that individuals distinguish between similar in-group members and dissimilar out-group members (Brewer and Brown, 1998; Tajfel and Turner, 2004); and thus, individuals tend to trust more in-group members and are more willing to work with them (Jackson, 1992; Van Knippenberg and Schippers, 2006). In addition, the similarity/attraction paradigm complements social categorization of groups view by focusing on interpersonal similarity that creates likeliness, trust, and interaction with others (Byrne, 1971).

The information/decision-making perspective (Tsui and Gutek, 1999) highlights task-relevant knowledge, skills, and abilities of group members; and denotes that members with different opinions and perspectives give groups a larger pool of resources that may be useful in solving group difficulties, and may lead to more creative and innovative group performance (van Knippenberg et al., 2004). In this perception, demographic characteristics serve as proxies for members' information, backgrounds, values, points of view and mind-sets (Jackson, 1992; Jehn, Northcraft, and Neale, 1999).

Paradoxically, while diversity provokes conflict, division, and dissolution; it simultaneously ignites creativity, insights and innovation. In other words, diversity may be auspicious for group performance, while at the same time, it is ominous for interpersonal relations inside the work group (e.g., Jehn, 1995; Lau and Murnighan, 1998; Li and Hambrick, 2005; Triandis et al., 1994; Tsui et al, 1992).

2.2.3.2 Diversity in Organizational Demography Scholarship

In his seminal work, Pfeffer (1983) defines organizational demography as the study of the composition of a social entity in terms of its members' attributes. Accordingly, organizational demography is influential in various firm-level outcomes and processes (Stewman, 1988), including, but not limited to, corporate performance (e.g., Richard, 2000);

rate and type of executive succession (e.g., Boeker, 1997); strategies of control (e.g., Herrmann and Datta, 2002); size of the executive arm (e.g., Carpenter, 2002); power distribution among members (e.g., Elliott and Smith, 2004); identity and conflict within group members (e.g., Pelled, 1996); links and transaction patterns with outside environment (e.g., Wiersema and Bantel, 1993); turnover rate (e.g., O'Reilly III et al., 1989); career prospects and associated training development needs (e.g., Judge et al., 1995).

Diversity literally means differences. Differences can be associated with age, physical appearance, culture, job function or experience, disability, race, personal style, gender, and religion. However, differences are seen as a means of strategic advantage in organizations (Arfken, Bellar and Helms, 2004). Examples of observable diversity are gender, age, and race; and examples of non-observable diversity are knowledge/experience, education, values, perception, affection and personality characteristics (Maznevski, 1994; Milliken and Martins, 1996; Pelled, 1996). However, most research on diversity and its effects on performance focus on observable or demographic diversity.

2.2.3.3 TMT Diversity Scholarship

Researchers of the upper-echelon view customarily take demographic attributes of managers as proxies for studying mental processes (Carpenter, Geletkanycz, and Sanders, 2004) and assume that profusion of members' attributes in a team composition generates within-group heterogeneity. Diversity of gender, age, education, tenure, or functional background could result in diverse mental processes among managers, and team heterogeneity could lead to different, perhaps creative solutions to strategic problems (Murray, 1989). Research on the performance consequences of diversity in top management has generated a large number of empirical studies (for reviews see Carpenter, Geletkanycz & Sanders, 2004; Finkelstein, Hambrick & Cannella, 2009; Joshi & Roh, 2009; Nielsen, 2010).

Elaborating further the upper echelons of the firm, Hambrick (1994, p. 176) proposes three dimensions to characterize top management groups in order to predict their behavior: *tasks, locus* and *types of individuals*. First, *tasks* are based on sets of patterned activities, which shape cognition and decision-making processes. *Locus* refers to the position within the organization, which determines the flow of influential information and data taken into account in everyday

behavior. Finally, the *type of individuals*, both psychological and demographic characteristics, as represented by background variables, such as gender, age, social origins, professional experiences, have been shown to have important bearings on behavior.

Building on these dimensions, and recognizing that top management groups reflect not only individuals, but also collective managerial behavior, Hambrick (1994) proposes a five-item conceptualization. First, the *composition* of the top management group, both demographic and psychological dispositions, can show "dispersion, or heterogeneity… as proxies for or predictors of social integration or breath of perspective (p. 178)." Then, the *structure* of the top group is the description of roles and relationships, which "has gone almost totally without attention in research." *Incentives* and their influences on the behavior of the top group is the third element and fourth, as in strategic management research, the *processes* (communication flows, socio-political dynamics) by which all these elements combine. Finally, one cannot ignore at the nexus of all these, the key integrating role that *leadership* may play.

The 'dominant coalition' of individuals responsible for setting firm direction (Cyert & March, 1963) includes more than the top management group. Accordingly, numerous scholars argue that it is possible to extend the upper echelons theory to the board of directors (Carpenter et al., 2004; Finkelstein et al., 2009; Rost, and Osterloh, 2010), and thus study the relationships between director characteristics and firm's strategic outcomes (Daily, Certo, & Dalton, 1999; Goodstein, Gautam, & Boeker, 1994; Hillman, Cannella & Harris, 2002; Hillman, Shropshire, & Cannella, 2007; Pugliese, et al., 2009). Furthermore, insights from TMT research can be applied to board diversity scholarship (Finkelstein et al., 2009).

2.2.3.4 Board Diversity Scholarship

Boards (1) include numerous outside members, who serve on a part-time basis; (2) have a size considerably greater than that of other work teams; and (3) function only episodically. As such, boards of directors are regarded as 'large, elite, and episodic decision-making groups that face complex tasks pertaining to strategic-issue processing' (Forbes & Milliken, 1999, p. 492).

For many years, corporate boards have traditionally been viewed as a homogenous group of elites, who have similar socioeconomic backgrounds, hold degrees from the same ivy-

league schools, have similar educational and professional training, and, as a result, have very similar views about appropriate business practices (Domhoff, 1970; Useem, 1984). However, in the previous decade, corporate governance experts often advocated greater demographic diversity inside corporate boards (Daily, Certo, and Dalton, 1999; Westphal and Milton, 2000).

Although, the representation of diverse groups on boards has gradually increased, directors remain largely Caucasian and male (Bilimoria and Piderit 1994, Conyon and Mallin 1997, Singh et al. 2001, Singh and Vinnicombe 2004). While most boards still have clear demographic majorities, they also increasingly tend to include demographic minorities (Westphal and Milton, 2000), most probably due to a shared-belief that diversity is advantageous for the corporate board.

Diverse directors are expected to promote diverse perspectives, which should reduce the probability of group think, and produce a wider range of solutions and decision criteria for strategic decisions (Goodstein, Gautam, & Boeker, 1994; Schweiger, Sandberg, and Ragan, 1986). In sum, diversity leads to a greater knowledge base, creativity and innovation, and therefore, could become a competitive advantage (Erhardt, Werbel & Shrader, 2003; Watson et al., 1993).

Researchers see diversity as a team-level construct. The interactions among team members make use of these differences for the shared decision making, and problem solving processes at hand (Nielsen, 2012).

Diversity can be defined in three different ways: as separation, variety and disparity (Harrison and Klein, 2007). Diversity as variety represents differences in kind or category, primarily on information, knowledge, or experience among unit members. Diversity as separation refers to differences in opinions among unit members and reflects horizontal distance along a single continuum in a particular attitude or value. Finally, diversity as disparity indicates differences in concentration of valued social assets or resources such as pay and status among group members. Most board diversity studies use a definition of diversity as variety and investigate team-level diversity across different demographic characteristics (Nielsen, 2012). While some TMT studies on pay disparity and power differentials exist in the literature (e.g. Siegel & Hambrick, 2005), diversity as disparity has rarely been investigated in board research.

Early studies on board diversity focused on traditional, task-oriented directors' attributes such as educational and functional background, organizational and board tenure

(Golden & Zajac, 2001; Goodstein, Gautam & Boeker, 1994; Westphal & Zajac, 1995). Following the pressures to increase minority representation on corporate boards (Daily & Dalton, 2003), the focus has shifted towards relation-oriented dimensions, such as age, gender and race. In North America, researchers were more interested in studying race and gender of directors (Hillman, Shropshire & Cannella, 2007; Miller & Triana, 2010; Westphal & Milton, 2000). However, in Europe, alongside gender (Nielsen & Huse, 2010), director nationality was considered (Oxelheim & Randoy, 2003, Ruigrok, Peck & Tacheva, 2007). Today, researchers studying board diversity use, among others, director gender, age, race, education, nationality, tenure, functional background or expertise to measure its effects on different firm level outcomes.

2.2.4 Previous Research on Board of Directors

2.2.4.1 Increase in Board Diversity-Corporate Performance Research

Board of directors scholarship is a thriving ground of academic inquiry. Management researchers have been increasingly interested in studying board of directors. Moreover, within board scholarship, board diversity has also been gaining popularity in the recent years. The same is true for board research focusing on corporate social performance (see Table 2.1 for an illustration). In sum, this dissertation research is an effort to contribute to an active and growing body of research in management literature.

Table 2.1 Gaining Popularity of Board Diversity & CSP Research (*) (**)

Year	Board	Diversity	BoardDiv	CSP
1990	4	0	0	11
1991	9	2	0	30
1992	37	5	0	49
1993	29	3	0	38
1994	47	2	1	61
1995	40	4	0	61
1996	36	12	0	84
1997	42	6	0	76
1998	41	8	0	80
1999	68	12	0	107
2000	71	16	0	131
2001	77	12	2	134
2002	73	12	0	117
2003	105	30	1	177
2004	81	24	1	197
2005	126	28	1	213
2006	93	28	0	276
2007	165	36	2	354
2008	160	41	2	444
2009	163	35	1	688
2010	168	47	6	783
2011	196	62	7	822
2012	179	65	6	746
2013	198	69	10	872
2014	206	65	13	919
2015	296	70	17	1304
2016	328	82	20	1358
TOTAL	**3038**	**776**	**90**	**10132**

(*) All studies (i.e., articles, reviews, editorials and notes) published in SSCI journals in Management and Business research areas that were written in English.

(**) Boolean search strings with relevant keywords were used to filter results (e.g., For *board diversity*, 'director', 'board, diversity', 'heterogeneity', 'composition', and 'demography' were added to search query).

2.2.4.2 The Problem in Empirical Board Diversity-Corporate Performance Research

A large number of empirical investigations on board diversity has brought both insights and disagreement. Let's take director gender studies (see Table 2.2).

Erhardt, Werbel and Shrader (2003) examined the effect of the percentage of women and minorities on return on investments of 127 large US companies, for the 1993-98 period. In their study, board diversity was positively associated with the financial indicators.

Farrell and Hersch (2005), in their Journal of Corporate Finance article, examined a data of Fortune 500 and Fortune 500 Service firms between 1990 and 2000. They observed that the number of women serving on corporate boards increased substantially during 1990s. Therefore, the probability of adding a woman is materially increased when a female director departs the board. They concluded that adding a director to a board is not gender neutral. Although they found in their Poisson regression analysis that women tend to serve on better performing firms, they failed to find convincing evidence that gender diversity affects firm financial performance.

Rose (2007) used a sample of 147 listed large Danish firms during the period of 1998–2001. He argued that despite Denmark has gone very far in the liberalization of women, Danish board rooms are still to a large extent dominated by men. Also, he couldn't find any significant relationship between firm performance and board members' educational background or female board representation.

Williams (2003) examined the relationship between female directors and corporate social performance, using a sample of 185 Fortune 500 firms for the 1991-1994 periods. He found that firms with a higher proportion of women engage in charitable giving to a greater extent than other firms.

Johnson and Greening (1999), examined the effects of institutional investor types and governance devices on corporate social performance, using gender and ethnicity characteristics as diversity measures in 252 Fortune companies. They chose KLD database, covering a firm's social performance with regard to local communities, women and minorities, employee relations, the natural environment, and the quality of products or services. They didn't find any significant relation between gender and ethnicity of directors and companies' social performance.

Coffey and Wang (1998) studied board diversity and company social performance. Using data from 98 Fortune 500 firms and multiple regression analyses, the found no relationship between corporate philanthropic giving and directors' gender.

These findings suggest the following proposition:

Proposition 1: There is inconsistent evidence in empirical research studying the board diversity-corporate performance relationship.

Table 2.2 Illustration of Inconsistent Results in Empirical Board Diversity and Corporate Performance Studies

Study	Sample	Sample Country	Sample Period	Data Source	Diversity Measure	Performance Measure	Method	Results	Evidence
Erhardt, Werbel and Shrader (2003)	112 Fortune firms	USA	1993-1998	Secondary data (Fortune and Compact Disclosure databases)	Gender Ethnicity	Financial (ROE and ROI)	Correlation and regression analyses	Board diversity is positively associated with financial performance.	+
Farrell and Hersch (2005)	Fortune 500 and Service firms	USA	1990-2000	Secondary data (Catalyst database and SEC proxy statements)	Gender	Financial (ROA)	Poisson regression	Fail to find any convincing evidence that gender diversity affects performance	0
Rose (2007)	147 large firms	Denmark	1998–2001	Secondary data (company annual reports)	Gender	Financial (Tobin's Q)	Cross-sectional Regression	Gender does not influence firm performance	-
Williams (2003)	185 Fortune 500 firms	USA	1991-1994	Secondary data (Directories of Corporate Philanthropy and Giving)	Gender	Social (each firm's total charitable contributions)	Multiple regression	Firms with more female directors engage in charitable giving to a greater extent	+
Johnson and Greening (1999)	252 Fortune 1000 firms	USA	1993	Secondary data (KLD database)	Gender Ethnicity	Social (KLD ratings)	Confirmatory factor analysis	No conclusive result related to board diversity	0
Coffey and Wang (1998)	98 Fortune 500 firms	USA	-	Secondary data (proxy statements)	Gender	Social (Corporate Philanthropy)	Multiple regression	Gender does not influence firm social performance	-

(+) There is a positive relationship between board diversity and firm performance.
(-) There is a negative relationship between board diversity and firm performance.
(0) No conclusive result.

2.2.4.3 Possible Causes of the Problem in Empirical Board Diversity-Corporate Performance Research

There are mainly three reasons for these inconsistent results: (1) different definitions; (2) different diversity constructs or variables; (3) different performance constructs or variables. .

First, scholars tend to use demographic variables indiscriminately. Sometimes, these variables are indeed related to demographic differences among company directors, sometimes the variables relate rather to disparities among corporate boards in terms of structure, processes and other board characteristics. At other times, board demographic variables are mixed together without differentiating whether they capture group diversity in terms of composition or structure (Finkelstein, et al., 2009; Hambrick, 1994) and overlook the different effects structure and composition may have on board effectiveness and, consequently, firm-level outcomes (e.g., Post, Rahman & Rubow, 2011).

Proposition 2: Differences in board diversity definitions explain some of the inconsistent empirical results of empirical research studying the board diversity-corporate performance relationship.

Second, researchers choose different board diversity variables or constructs. Taking gender diversity as an example, sometimes simple measures are used, as when percentages of women among board members are reported (e.g., Erhardt et al., 2003). At other times, the presence of female directors is represented with a dichotomous dummy variable (e.g., Hillman, Shropshire & Cannella, 2007). At some other times, more elaborate measures, such as diversity indices, are preferred (e.g., Siciliano, 1996). Each of these is defensible, but again, makes comparing of findings and debating a real challenge.

Proposition 3: Differences in board diversity measures explain some of the inconsistent empirical results of empirical research studying the board diversity-corporate performance relationship.

Three, regarding financial performance, there are important differences in the choice of performance constructs. For instance, researchers use either market-based measures or accounting-based measures (Shleifer & Vishny, 1997). These measure totally different and uniquely distinct aspects of the firm's finances. Market performance measures include, but are not limited to, cumulative abnormal stock returns, Tobin's q, Jensen's alpha, economic value added, market value added, share price or total shareholder return. Accounting-based measures include, but are not limited to, profitability ratios, such as return on assets, return on investments, return on equity, return on sales, annual net sales, market-to-book ratio, earnings per share, and cash to total assets.

Proposition 4: Differences in defining and measuring corporate financial performance explain some of the inconsistent results of empirical research studying the board diversity-corporate financial performance relationship.

Four, regarding social performance, two types of social performance criteria are used. The first is a form of fiscal social criteria, such as the annual total amount of donations. The other measure is an assessment of social actions or activities not published in accounting statements, such as minority employment or handicapped-centered labor policies. Some of these data can be obtained through surveys or specialized databases such as. KLD.

Proposition 5: Differences in defining and measuring corporate social performance explain some of the inconsistent results of empirical findings about the board diversity-corporate social performance relationship.

2.3 Systematic Literature Review

2.3.1 Rationale for Systematic Review

Above, I have argued that board diversity literature suffers a definition problem, which leads to inconsistent results found in the empirical research studying board diversity and corporate performance. Reviewing the literature may remedy such a problem. Walker (2010) recommended that when researchers face fundamental problems, such as inexistence of a comprehensive and well-accepted definition in their targeted literature that brings the difficulty in operationalizing constructs and the need for more developed theory therein, .a systematic review of the literature can provide some guidance. In a similar fashion, top management team diversity literature suffers a comparable problem. The empirical results were inconclusive either. To cope with this, Nielsen (2010) also conducted a systematic literature review, which brought some clarity to definition problems. Further, regarding the problems in board diversity research, Nielsen suggested the use of systematic literature review: "Moreover, the complexity of diversity as a theoretical construct needs to be acknowledged and operationalized accordingly in upper echelons studies" (Nielsen, 2010, p. 301).

In this study, I systematically review the literature focusing the effects of board diversity on corporate social performance. There are several reasons for choosing social performance over financial performance. First, there is a need for providing empirical evidence to this literature (Walls, et al., 2012). Relatedly, earlier, I have argued that differences in defining and measuring corporate social performance may explain the inconsistent results of empirical findings about the board diversity-corporate social performance relationship. Second, by studying board diversity and corporate social performance, I am trying to answer the call for further research on this relationship (Berrone, et al., 2010; Marquis, and Lee, 2013). Third, while the research on board diversity and corporate social performance is still embryonic (de Villiers, et al., 2011); the research on board diversity and corporate financial performance is relatively plenty (Dalton, et al., 1998).

2.3.2 Systematic Literature Review Method

Most of the studies in management are based on traditional narrative literature reviews. This usage has been criticized as subjective and biased (Fink, 1998; Hart, 1998). Transfield et al. (2003) proposed to apply the specific principles of the systematic review methodology as used in the medical sciences.

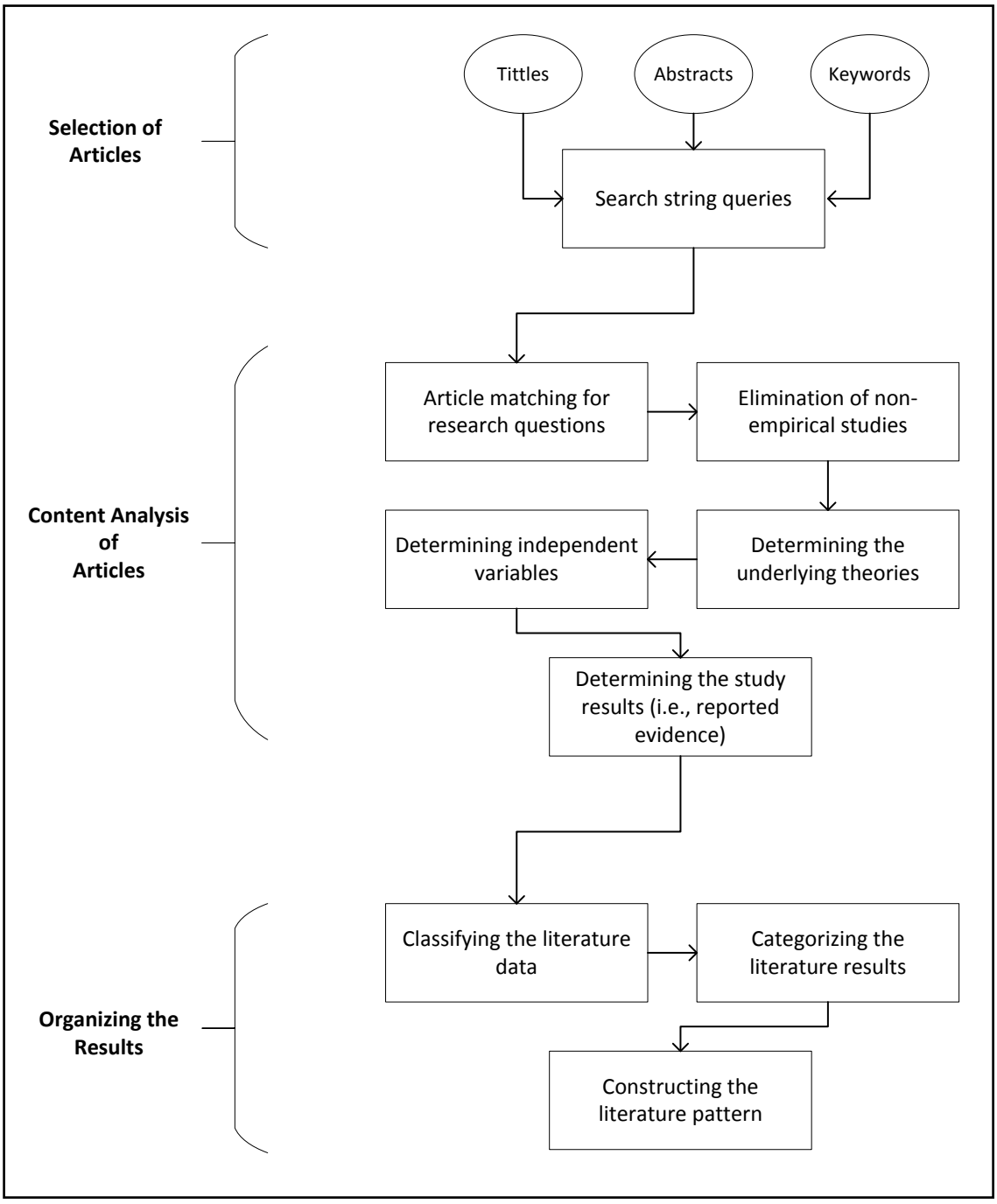
A systematic review is a literature review focused on a single question which tries to identify, appraise, select and synthesize all high-quality research evidence relevant to that question. Systematic reviews use a rigorous, replicable, scientific and transparent process (Becheikh, et al, 2006), to perform a thorough literature search and sometimes include critical appraisal of individual studies to identify the valid and applicable evidence. It could use appropriate techniques (such as meta-analyses) to combine these valid studies.

A systematic review is, however, different from a meta-analysis in the sense that it does not use statistical (i.e., inferential) and econometric procedures for synthesizing findings and analyzing data (Transfield et al., 2003). The main purpose of a systematic review is to identify key scientific contributions to a field or question, and its results are often descriptively presented and discussed. Applying the principles of the systematic review will then help to limit bias (i.e., systematic errors), reduce chance effects, enhance the legitimacy and authority of the ensuing evidence and provide more reliable results upon which to draw conclusions and make decisions.

2.3.3 Research Protocol

Figure 2.2 is a summary of the systematic review process of this paper.

Figure 2.2 Systematic Literature Review Steps



2.3.4 Data Source

The literature review was conducted between August and September 2014 using Thompson-ISI Web of Knowledge database. This electronic resource sorts academic studies according to their influencing power among peer scholars by calculating the number of citations and impact factors. It is a guaranteed source, which covers many other journal databases in this respect (see Clark, Floyd, and Wright, 2006; Judge, Cable, Colbert, and Rynes, 2007; Tahai and Meyer, 1999 for extensive reviews on academic citations).

2.3.5 Sample Selection

I traced articles published in Social Sciences Citation Index (SSCI) journals. SSCI fully indexes over 1,950 journals across 50 social sciences disciplines, and it indexes individually selected, relevant items from over 3,300 scientific and technical journals with current information and retrospective data from 1956 forward.

I chose studies on board of directors and corporate social performance, using the following keywords: (1) default keywords to capture *board of directors* studies: (a) board; (b) director; and (c) corporate governance; (2) keywords to capture *social performance* studies: (a) social performance; (b) environmental performance; (c) social responsibility; and (d) sustainability. The final search string was:

((director OR board* OR (corporate SAME governance)) AND ((environmental SAME performance) OR (social* SAME (perform* OR responsib*)) OR sustainab*))*

This procedure yielded 1,840 studies.

2.3.6 Inclusion and Exclusion Criteria

First, I limited the search to studies published between 2004 and 2014 (all inclusive). This procedure yielded 681 studies. Looking through citations and abstracts, I eliminated duplications.

Second, using the latest SSCI journal rankings (2012), I selected journals with the highest 5-year impact factor both in the SSCI Business and in the SSCI Management lists, dropping journals that do not publish empirical studies, such as the *Academy of Management Review*, or that did not publish research on board of directors. I ended up with 372 studies published in 13 journals (see Table 2.3 below).

Table 2.3 Initial Results of Sample Selection

Journal Name	# of Studies	%
Academy of Management Journal	10	3
Administrative Science Quarterly	3	1
Asia Pacific Journal of Management	7	2
Corporate Governance-An International Review	69	19
Journal of Business Ethics	193	52
Journal of Business Research	14	4
Journal of International Business Studies	5	1
Journal of Management	5	1
Journal of Management Studies	10	3
Management Decision	16	4
Organization Science	16	4
Small Business Economics	4	1
Strategic Management Journal	20	5
TOTAL	**372**	**100**

Finally, I eliminated studies that were not empirical, such as conceptual studies and experiments, or research reviews and commentaries, studies that did not focus on a firm-level phenomenon (e.g., board decision making quality, power relationships, etc.), and studies that did not focus on corporate social performance.

2.3.7 Final Sample

At the end, it remained 26 studies, as shown in Tables 2.4 and 2.5.

Table 2.4 Final Sample-Publications per Journal

Journal Name	# of Studies	%
Administrative Science Quarterly	1	4
Corporate Governance-An Int'l Review	4	15
Journal of Business Ethics	15	58
Journal of Business Research	2	8
Journal of Management	2	8
Strategic Management Journal	2	8
TOTAL	**26**	**100**

Table 2.5 Final Sample-Publications per Year

Year	# of Studies	%
2004	0	0
2005	0	0
2006	0	0
2007	0	0
2008	0	0
2009	1	4
2010	5	19
2011	2	8
2012	6	23
2013	12	46
2014	0	0
TOTAL	**26**	**100**

2.3.8 Initial Findings

There are six board composition variables to predict social performance: (a) age, (b) gender, (c) race, (d) nationality, (e) education, and (f) expertise.

In general, the results favor diversity's effects on social performance (see Table 2.6). (a) Two out of three studies (66%) found a positive relationship between director age and social performance; (b) eleven out of fifteen studies (73%) found a positive relationship between director gender and social performance; (c) all three studies (100%) found a positive relationship between director race and social performance; (d) the only study (100%) found a positive relationship between director nationality and social performance; and finally, (e) the only study (100%) found a positive relationship between director education and social performance (f) both two studies (100%) found a positive relationship between director expertise and social performance. What is surprising in here is that out of twenty-six studies, only fifteen (42%) sought a direct relationship between board diversity and corporate social performance.

Table 2.6 Initial Findings of the Systematic Literature Review on Board Diversity and Corporate Social Performance Relationship

Study	Year	Diversity Measure	Evidence Provided
Bai, G.	2013	Expertise	+
Bear, S., Rahman, N., & Post, C.	2010	Gender	+
Boulouta, I.	2013	Gender	+
de Villiers, C., Naiker, V., & van Staden, C. J.	2011	Expertise	+
Hafsi, T., & Turgut, G.	2013	Age Gender Race	- + +
Jia, M., & Zhang, Z.	2013	Age Gender	+ +
Kabongo, J. D., Chang, K. Y., & Li, Y	2013	Gender Race	+ +
Mallin, C., Michelon, G., & Raggi, D.	2013	Gender	+
Marquis, C., & Lee, M.	2013	Gender	+
Ntim, C. G., & Soobaroyen, T.	2013a	Age Gender Race Nationality Education	+ + + + +
Ntim, C. G., & Soobaroyen, T.	2013b	Gender Race	+ +
Prado-Lorenzo, J. M., & Garcia-Sanchez, I. M.	2010	Gender	0
Rodriguez-Dominguez, L., Gallego-Alvarez, I., & Garcia-Sanchez, I. M.	2009	Gender	0
Walls, J. L., Berrone, P., & Phan, P. H.	2012	Gender	+
Zhang, J. Q., Zhu, H., & Ding, H. B.	2013	Gender	+

(+) *Positive significant effect found*
(-) *Negative significant effect found*
(0) *No significant effect found*

2.4 Synthesizing the Literature

2.4.1 Further Investigations on the Data

In this section, I analyze each study in terms of the variables used.

2.4.1.1 Single versus dual functions of the board

First, I observe that researchers do not consider composition variables (i.e., directors' demographic attributes) alone when studying board diversity. As discussed earlier, board composition variables pertain to the board's advising function. A great number of studies also consider the monitoring function of the board as an aspect of board diversity, and thus, bring structural elements of the board into their research.

Studies use the following board composition variables: (a) director age, (b) director gender or biological sex, (c) director race represents certain shared distinctive interbreeding physical traits, (d) director nationality represents citizenship of a particular nation, (e) director education represents the level knowledge and skills acquired at a school or university, (f) director expertise shows established skills or knowledge in a firm's functions, operations, industry, etc., (g) director experience in executive positions, international operations, projects, markets, products, etc., and (h) director tenure or time spent as a board member. For the board structure, the variables used are (a) board size or number of board members, (b) board leadership duality when board chair and CEO positions are held by the same person, (c) director compensation represents the payments received by board members as remuneration/salary, bonus, equity/stocks, options, etc., (d) board independence is assessed by the number of board members who are unrelated to officers, (e) board committees (e.g., for nomination or remuneration), and (f) director interlocks when board members sit on other boards.

2.4.1.2 Compositional and/or structural elements of the board as the independent variable(s)

Table 2.7 shows studies using only compositional elements as independent variables. Table 2.8 shows studies using only structural elements as independent variables and Table 2.9 shows studies using both compositional and structural elements as independent variables.

Table 2.7 Studies Using Compositional Elements as Independent Variable(s) (Single Board Function)

Study	Year	Diversity Measure	Evidence Provided
Boulouta, I.	2013	Gender	+
Jia, M., & Zhang, Z.	2013	Age Gender	+ +
Kabongo, J. D., Chang, K. Y., & Li, Y	2013	Gender Race	+ +

(+) Positive significant effect found

Table 2.8 Studies Using Structural Elements as Independent Variable(s) (Single Board Function)

Study	Year	Diversity Measure	Evidence Provided
Arora, P., & Dharwadkar, R.	2011	Independence	-
Berrone, P., Cruz, C., Gomez-Mejia, L. R., & Larraza-Kintana, M.	2010	Duality	+
Deutsch, Y., & Valente, M.	2013	Independence Compensation	- -
Harrison, J. S., & Coombs, J. E.	2012	Independence	+
Jo, H., & Harjoto, M. A.	2012	Independence Compensation	+ +
Khan, A., Muttakin, M. B., & Siddiqui, J.	2013	Duality Committees Independence	+ + +
Kock, C. J., Santalo, J., & Diestre, L.	2012	Independence	+
Ortiz-de-Mandojana, N., Aragon-Correa, J. A., Delgado-Ceballos, J., & Ferron-Vilchez, V.	2012	Interlocks	+ / -
McGuire, J., Dow, S., & Ibrahim, B.	2012	Compensation Committees	- +

(+) Positive significant effect found
(-) Negative significant effect found

Table 2.9 Studies Using Both Compositional and Structural Elements as Independent Variable(s) (Dual Board Function)
(Continuing next page)

Study	Year	Composition Variable	Evidence Provided	Structure Variable	Evidence Provided
Bai, G.	2013	Expertise	+	Size	-
Bear, S., Rahman, N., & Post, C.	2010	Gender Expertise Experience	+ 0 0	Interlocks	0
de Villiers, C., Naiker, V., & van Staden, C. J.	2011	Expertise	+	Size Duality Independence Compensation Interlocks	+ 0 + 0 0
Hafsi, T., & Turgut, G.	2013	Age Gender Race Tenure	- + 0 0	Size Duality Independence Compensation Committees	0 0 0 0 0
Mallin, C., Michelon, G., & Raggi, D.	2013	Gender	+	Duality Independence Committees	+ + +
Marquis, C., & Lee, M.	2013	Gender	+	Size Interlocks	+ +
Ntim, C. G., & Soobaroyen, T.	2013a	Age Gender Race Nationality Education Expertise	+ + + + + +	Duality	0

Ntim, C. G., & Soobaroyen, T.	2013b	Gender Race	+ +	Size Independence	+ +
Prado-Lorenzo, J. M., & Garcia-Sanchez, I. M. (2010).	2010	Gender	0	Duality Independence	0 0
Rodriguez-Dominguez, L., Gallego-Alvarez, I., & Garcia-Sanchez, I. M.	2009	Gender	0	Independence Compensation	+ -
Walls, J. L., Berrone, P., & Phan, P. H.	2012	Gender	-	Size Duality Independence Committees	+ 0 + +
Zhang, J. Q., Zhu, H., & Ding, H. B.	2013	Gender	+	Independence	+

(+) *Positive significant effect found*
(-) *Negative significant effect found*
(0) *No significant effect found*

2.4.1.3 Measurement of board diversity as the independent variable

Table 2.10 shows that studies use different measures of board diversity.

Table 2.10 Measurement of Board Compositional Elements as Independent Variable(s)

Study	Year	Diversity Measure	Operationalization of Diversity Measure	Evidence Provided
Bai, G.	2013	Expertise	%	+
Bear, S., Rahman, N., & Post, C.	2010	Gender Expertise Experience	raw number index index	+ 0 0
Boulouta, I.	2013	Gender	%	+
de Villiers, C., Naiker, V., & van Staden, C. J.	2011	Expertise	raw number	+
Hafsi, T., & Turgut, G.	2013	Age Gender Race Experience Tenure	index index index index index	- + + 0 0
Jia, M., & Zhang, Z.	2013	Age Gender	standard variance critical mass	+ +
Kabongo, J. D., Chang, K. Y., & Li, Y	2013	Gender Race	index index	+ +
Mallin, C., Michelon, G., & Ragi–D.	2013	Gender	%	+
Marquis, C., & Lee, M.	2013	Gender	%	+
Ntim, C. G., & Soobaroyen, T.	2013a	Age Gender Race Nationality Education Expertise	categorical % % binary categorical categorical	+ + + + + +
Ntim, C. G., & Soobaroyen, T.	2013b	Gender Race	% %	+ +
Prado-Lorenzo, J. M., & Garcia-Sanchez, I. M.	2010	Gender	%	0
Rodriguez-Dominguez, L., Gallego-Alvarez, I., & Garcia-Sanchez, I. M.	2009	Gender	%	0
Walls, L., Berrone, P., & Phan, H.	2012	Gender	%	+

Zhang, J. , Zhu, H., & Ding, H. B.	2013	Gender	%	+

(+) *Positive significant effect found*
(-) *Negative significant effect found*
(0) *No significant effect found*

2.4.1.4 Measurement of CSP as the dependent variable

Six different types of social performance measure are used: (1) *social responsibility*; (2) *code of ethics*; (3) *environmental strategy/performance*; (4) *philanthropic contributions*; (5) *reputation*; and (6) *disclosure*.

Social responsibility assesses a firm's behavior on overall environmental and societal issues. *Code of ethics* checks whether a firm has established a policy about ethical behavior of conduct and announced its code of ethics to its stakeholders. *Environmental strategy/performance* is a firm's behavior on environmental issues. *Philanthropic contributions* represents donations (in money and in nature) to worthy causes. *Reputation* represents the status of a firm in the eyes of its stakeholders. *Disclosure* checks whether a firm has established a policy to inform its stakeholders about it socially responsible behavior.

Half of all the studies captured in this systematic literature review (50%) use *social responsibility* to study corporate social performance (see Table 2.11 for a summary).

Table 2.11 Studies Using *Corporate Social Responsibility* as Corporate Social Performance Measure

Study	Year	CSP Measure	KLD Criteria	KLD Categories
Arora, P., & Dharwadkar, R.	2011	KLD composite index	S / C	7
Bai, G.	2013	index score measuring benefits	-	-
Bear, S., Rahman, N., & Post, C.	2010	KLD composite index	S	5
Boulouta, I.	2013	KLD composite index	S/C; S&C	4
Deutsch, Y., & Valente, M.	2013	KLD composite index	S&C	3
Hafsi, T., & Turgut, G.	2013	KLD composite index	S	7
Harrison, J. S., & Coombs, J. E.	2012	KLD composite index	S&C	1
Jo, H., & Harjoto, M. A.	2012	KLD composite index	S&C	5
Mallin, C., Michelon, G., & Raggi, D.	2013	KLD composite index	S&C	5
McGuire, J., Dow, S., & Ibrahim, B.	2012	KLD composite index	S/C	6
Ntim, C. G., & Soobaroyen, T.	2013	index score using content analysis	-	-
Zhang, J. Q., Zhu, H., & Ding, H. B.	2013	dichotomous variable	-	-
Fong, E. A	2010	KLD composite index	S&C	5

(S&C) Aggregation of strengths and concerns in index construction
(S/C) Separation of strengths and concerns in index construction
(S) Strengths only
(-) non-KLD measure used

The rest of the studies uses five different types or categories to measure corporate social performance. These studies and the different categories they use are summarized below in Table 2.12.

Table 2.12 Studies Using *Other* Constructs as Corporate Social Performance Measure

Study	Year	CSP Measure
Rodriguez-Dominguez, L., Gallego-Alvarez, I., & Garcia-Sanchez, I. M.	2009	*Code of ethics*
Berrone, P., Cruz, C., Gomez-Mejia, L. R., & Larraza-Kintana, M.	2010	*Environmental strategy / performance*
de Villiers, C., Naiker, V., & van Staden, C. J.	2011	
Kock, C. J., Santalo, J., & Diestre, L.	2012	
Ortiz-de-Mandojana, N., Aragon-Correa, J. A., Delgado-Ceballos, J., & Ferron-Vilchez, V.	2012	
Walls, J. L., Berrone, P., & Phan, P. H.	2012	
Jia, M., & Zhang, Z.	2013	*Philanthropic contributions*
Kabongo, J. D., Chang, K. Y., & Li, Y	2013	
Marquis, C., & Lee, M.	2013	
Delgado-Garcia, J. B., de Quevedo-Puente, E., & de la Fuente-Sabate, J. M.	2010	*Reputation*
Khan, A., Muttakin, M. B., & Siddiqui, J.	2013	*Disclosure*
Mallin, C., Michelon, G., & Raggi, D.	2013	
Ntim, C. G., & Soobaroyen, T.	2013	
Prado-Lorenzo, J. M., & Garcia-Sanchez, I. M.	2010	

2.4.1.5 Categorization of board diversity constructs and corporate social performance measures in tandem

Table 2.13 provides a count of studies crossing dependent and independent variables used. Tables 2.14 to 2.20 provide the descriptions of the studies for each of the dependent-independent variable configurations used.

Table 2.13 Board Research Studying Different Types of Social Performance Measures (*)

	Board Compositional Elements	Board Structural Elements	Both Board Compositional and Structural Elements	Total
Social Responsibility	1	5	6	12
Code of Ethics	0	0	1	1
Environmental Strategy	3	0	2	5
Philanthropic Contributions	0	2	1	3
Disclosure	1	0	3	4

(*) Empirical studies using independent variables only (i.e., dismissing the board diversity constructs used as control variables).

Table 2.14 Research Studying Board Compositional Elements and Corporate Social Responsibility

Study	Year	Diversity Measure	Evidence Provided
Boulouta, I.	2013	Gender	+

(+) Positive significant effect found

Table 2.15 Research Studying Board Structural Elements and Corporate Social Responsibility

Study	Year	Diversity Measure	Evidence Provided
Arora, P., & Dharwadkar, R.	2011	Independence	-
Deutsch, Y., & Valente, M.	2013	Independence Compensation	- -
Harrison, J. S., & Coombs, J. E.	2012	Independence	+
Jo, H., & Harjoto, M. A.	2012	Independence Compensation	+ +
McGuire, J., Dow, S., & Ibrahim, B.	2012	Compensation Committees	- +

(+) *Positive significant effect found*
(-) *Negative significant effect found*

Table 2.16 Research Studying Both Board Compositional and Structural Elements and Corporate Social Responsibility

Study	Year	Composition Variable	Evidence Provided	Structure Variable	Evidence Provided
Bai, G.	2013	Expertise	+	Size	-
Bear, S., Rahman, N., & Post, C.	2010	Gender Expertise Experience	+ 0 0	Interlocks	0
Hafsi, T., & Turgut, G.	2013	Age Gender Race Tenure	- + 0 0	Size Duality Independence Compensation Committees	0 0 0 0 0
Mallin, C., Michelon, G., & Raggi, D.	2013	Gender	+	Duality Independence Committees	+ + +
Ntim, C. G., & Soobaroyen, T.	2013b	Gender Race	+ +	Size Independence	+ +
Zhang, J. Q., Zhu, H., & Ding, H. B.	2013	Gender	+	Independence	+

(+) Positive significant effect found
(-) Negative significant effect found
(0) No significant effect found

Table 2.17 Research Studying Both Board Compositional and Structural Elements and *Code of Ethics* as Social Performance Measure

Study	Year	Composition Variable	Evidence Provided	Structure Variable	Evidence Provided
Rodriguez-Dominguez, L., Gallego-Alvarez, I., & Garcia-Sanchez, I. M.	2009	Gender	0	Independence Compensation	+ -

(+) *Positive significant effect found*
(-) *Negative significant effect found*

Table 2.18 Research Studying Both Board Compositional and Structural Elements and *Environmental Strategy* as Social Performance Measure

Study	Year	Composition Variable	Evidence Provided	Structure Variable	Evidence Provided
Berrone, P., Cruz, C., Gomez-Mejia, L. R., & Larraza-Kintana, M.	2010			Duality	+
Kock, C. J., Santalo, J., & Diestre, L.	2012			Independence	+
Ortiz-de-Mandojana, N., Aragon-Correa, J. A., Delgado-Ceballos, J., & Ferron-Vilchez, V.	2012			Interlocks	+ / -
de Villiers, C., Naiker, V., & van Staden, C. J.	2011	Expertise	+	Size Duality Independence Compensation Interlocks	+ 0 + 0 0
Walls, J. L., Berrone, P., & Phan, P. H.	2012	Gender	-	Size Duality Independence Committees	+ 0 + +

(+) Positive significant effect found
(-) Negative significant effect found
(0) No significant effect found

Table 2.19 Research Studying Both Board Compositional and Structural Elements and *Philanthropic Contributions* as Social Performance Measure

Study	Year	Composition Variable	Evidence Provided	Structure Variable	Evidence Provided
Jia, M., & Zhang, Z.	2013	Age Gender	+ +		
Kabongo, J. D., Chang, K. Y., & Li, Y	2013	Gender Race	+ +		
Marquis, C., & Lee, M.	2013	Gender	+	Size Interlocks	+ +

(+) Positive significant effect found

Table 2.20 Research Studying Both Board Compositional and Structural Elements and *Disclosure* as Social Performance Measure

Study	Year	Composition Variable	Evidence Provided	Structure Variable	Evidence Provided
Khan, A., Muttakin, M. B., & Siddiqui, J.	2013			Duality Committees Independence	+ + +
Mallin, C., Michelon, G., & Raggi, D.	2013	Gender	+	Duality Independence Committees	+ + +
Ntim, C. G., & Soobaroyen, T.	2013a	Age Gender Race Nationality Education Expertise	+ + + + + +	Duality	0
Prado-Lorenzo, J. M., & Garcia-Sanchez, I. M.	2010	Gender	0	Duality Independence	0 0

(+) Positive significant effect found
(0) No significant effect found

2.4.1.6 Theories used to measure CSP

The theoretical frames used have also been investigated and appear in Table 2.21.

Table 2.21 Theories Used in Research Studying Board of Directors and Different Social Performance Measures

	Code of Ethics	***Environmental Strategy***	***Philanthropic Contributions***	***Reputation***	***Disclosure***	***Social Responsibility***	**Total**
Agency	0	3	0	1	2	9	15
Critical mass	0	0	1	0	0	0	1
Institutional	0	1	0	0	0	2	3
Legitimacy	1	0	0	0	2	1	4
Resource dependence	0	2	1	1	2	3	9
Signaling	0	0	0	2	0	1	3
Stakeholder	1	3	0	0	2	6	11
Upper echelons	0	0	1	0	0	0	1
Total	2	9	3	4	8	22	
Number of studies	1	5	3	1	4	12	26
Average theory per study	2	1.6	1	2.5	2	1.8	

2.4.1.7 Source of data in board diversity studies

The data sources used are also a source of insights. Table 2.22 provides details on studies using compositional variables, Table 2.23 provides details on studies using structural variables, and Table 2.24 provides details on studies with both compositional and structural variables.

Table 2.22 Source of Data in Studies Using Compositional Elements as Independent Variable(s) (Single Board Function)

Study	Year	Sample	Industry	Country	Diversity Measure	Evidence Provided
Boulouta, I.	2013	126 firms	Mixed	USA	Gender	+
Jia, M., & Zhang, Z.	2013	492 firms	Mixed	China	Age Gender	+ +
Kabongo, J. D., Chang, K. Y., & Li, Y	2013	4,438 firms	Mixed	USA	Gender Race	+ +

(+) Positive significant effect found

Table 2.23 Source of Data in Studies Using Structural Elements as Independent Variable(s) (Single Board Function)

Study	Year	Sample	Industry	Country	Diversity Measure	Evidence Provided
Arora, P., & Dharwadkar, R.	2011	518 firms	Mixed	USA	Independence	-
Berrone, P., Cruz, C., Gomez-Mejia, L. R., & Larraza-Kintana, M.	2010	194 firms (101 family)	Mixed	USA	Duality	+
Deutsch, Y., & Valente, M.	2013	1,215 firms	Mixed	USA	Independence Compensation	- -
Harrison, J. S., & Coombs, J. E.	2012	1,060 firms	Mixed	USA	Independence	+
Jo, H., & Harjoto, M. A.	2012	2,952 firms	Mixed	USA	Independence Compensation	+ +
Khan, A., Muttakin, M. B., & Siddiqui, J.	2013	116 firms	Mixed	Bangladesh	Duality Committees Independence	+ + +
Kock, C. J., Santalo, J., & Diestre, L.	2012	377 firms	Mixed	USA	Independence	+
Ortiz-de-Mandojana, N., Aragon-Correa, J. A., Delgado-Ceballos, J., & Ferron-Vilchez, V.	2012	102 firms	Mixed	USA	Interlocks	+ / -
McGuire, J., Dow, S., & Ibrahim, B.	2012	473 firms	Mixed	USA	Compensation Committees	- +

(+) Positive significant effect found
(-) Negative significant effect found

Table 2.24 Source of Data in Studies Using Both Compositional and Structural Elements as Independent Variable(s) (Dual Board Function)

(Continuing next page)

Study	Year	Sample	Industry	Country	Composition Variable	Evidence Provided	Structure Variable	Evidence Provided
Bai, G.	2013	137 for-profit hospitals, 226 not-for-profit hospitals	Health care	USA	Expertise	+	Size	-
Bear, S., Rahman, N., & Post, C.	2010	51 firms	Health care	USA	Gender Expertise Experience	+ 0 0	Interlocks	0
de Villiers, C., Naiker, V., & van Staden, C. J.	2011	1,216 firms	Mixed	USA	Expertise	+	Size Duality Independence Compensation Interlocks	+ 0 + 0 0
Hafsi, T., & Turgut, G.	2013	95 firms	Mixed	USA	Age Gender Race Tenure	- + 0 0	Size Duality Independence Compensation Committees	0 0 0 0 0
Mallin, C., Michelon, G., & Raggi, D.	2013	135 firms	Mixed	USA	Gender	+	Duality Independence Committees	+ + +
Marquis, C., & Lee, M.	2013	420 firms	Mixed	USA	Gender	+	Size Interlocks	+ +
Ntim, C. G., & Soobaroyen, T.	2013a	75 firms	Mixed	South Africa	Age Gender Race Nationality Education Expertise	+ + + + + +	Duality	0

Ntim, C. G., & Soobaroyen, T.	2013b	75 firms	Mixed	South Africa	Gender Race	+ +	Size Independence	+ +
Prado-Lorenzo, J. M., & Garcia-Sanchez, I. M. (2010).	2010	283 firms	Mixed	28 countries	Gender	0	Duality Independence	0 0
Rodriguez-Dominguez, L., Gallego-Alvarez, I., & Garcia-Sanchez, I. M.	2009	351 firms	Mixed	Italy, UK	Gender	0	Independence Compensation	+ -
Walls, J. L., Berrone, P., & Phan, P. H.	2012	313 firms	Mixed	USA	Gender	-	Size Duality Independence Committees	+ 0 + +
Zhang, J. Q., Zhu, H., & Ding, H. B.	2013	611 firms	Mixed	USA	Gender	+	Independence	+

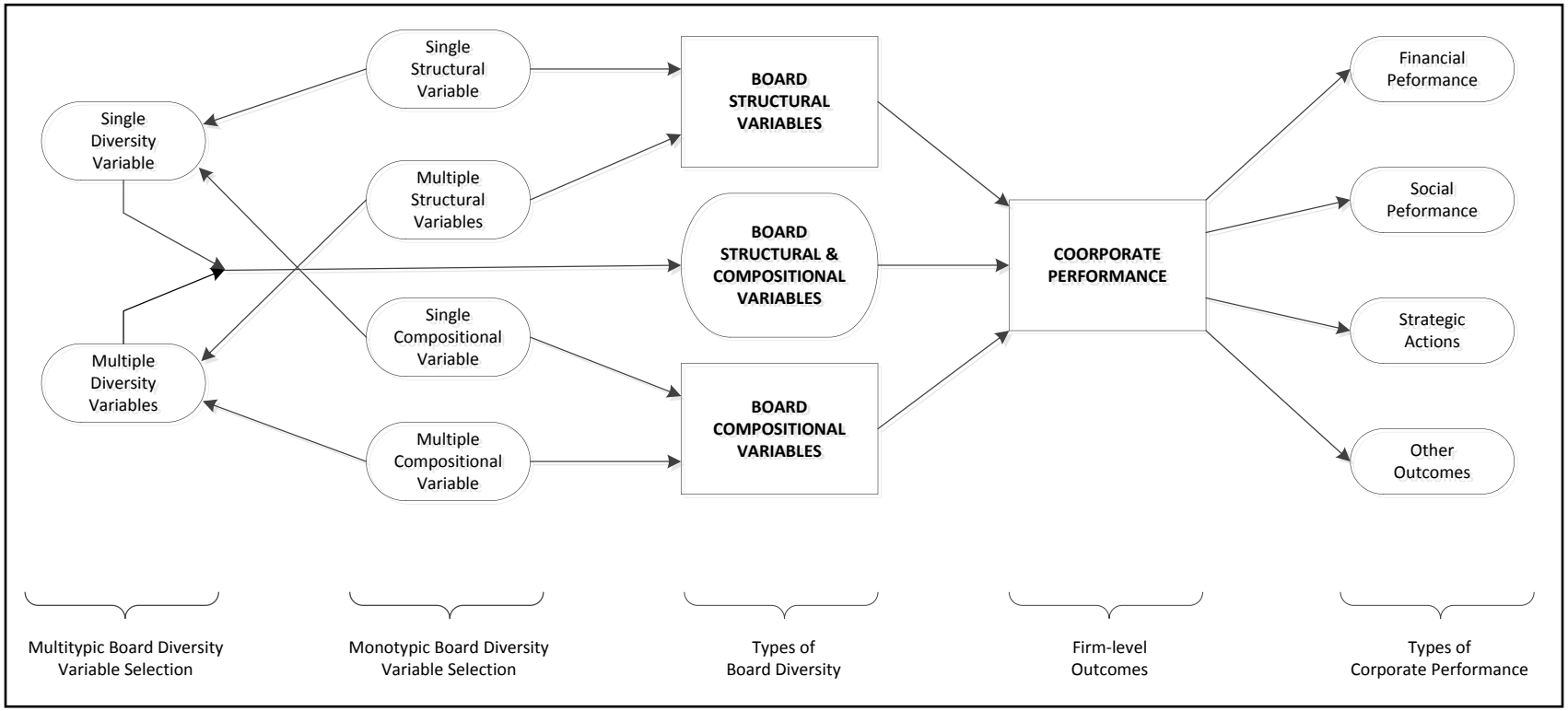
(+) *Positive significant effect found*
(-) *Negative significant effect found*
(0) *No significant effect found*

2.4.2 Detecting the research problem

I suggested earlier that there are three possible reasons for the inconsistent results in board diversity and corporate social performance relationship: (1) differences in researchers' definition of board diversity; (2) differences in researchers' measurement of board diversity; and (3) differences in researchers' measurement of social performance. In my initial findings, there is a partial support for the first possible reason. Going further, I have confirmed that researchers not always consider the advising function alone when examining board diversity and social performance relationship. They also consider the monitoring function of the board as an aspect of board diversity. As a result, when the studies are divided into composition and structure variables separately, the results portray a more stable picture (see Tables 2.8 and 2.9).

Also, I confirmed that researchers measure board diversity differently. This may be one of the reasons of inconsistent results as illustrated in Table 2.10 earlier. About the third possible reason, I have confirmed that researchers measure corporate social performance differently, which would naturally lead to differing results. In sum, Figure 2.3 illustrates and summarizes the identified patterns in the empirical board diversity-corporate performance research.

Figure 2.3 Variable Selection in Empirical Board Diversity-Corporate Performance Research



Going further, I found that studies do not use the same measure for the same social performance construct. For example, in Table 2.11, I see that research studying corporate social responsibility, use often KLD as the data source, but the data were used differently. Some researchers use an aggregation approach in building their indices. Others chose a separation approach to get their indices. Some researchers even chose to use strengths or concerns dimensions only. These different methods in measuring corporate social responsibility may be one of the reasons for the inconclusive results.

Continuing the investigation through the tables presented previously, I noted that researchers rarely studied board composition variables alone when taking *corporate social responsibility* into consideration. There is more interest in board structure variables. However, researchers seem to be more interested in studying both board composition and structure variables together. This observation reinforces my proposition that board diversity has a dual nature, highlighting both their advising and monitoring functions.

When going into the details of dependent variables used, I can see also a lot of difference, although some variables, like philanthropic contributions, are more widely used. The same can be said of theoretical frameworks, where agency theory dominates. Finally, tables 2.22 to 2.24 show that most studies take place in the United States and cover mostly for-profit firms.

2.5 Re-Defining Board Diversity

2.5.1 The need for a dual-perspective on board diversity

The complexity of board diversity effects may explain the inconclusive results regarding the relationship between board diversity, and corporate financial performance (Adams and Ferreira, 2009; Carter et al., 2003; Daily, Certo and Dalton, 1999; Erhardt et al., 2003; Haslam, Ryan, Kulich, Trojanowski and Atkins, 2010; Shrader, Blackburn and Iles, 1997). Only when considering non-linear effects, for instance, with small and large gender presence being associated with poor or inconclusive corporate performance, would I find convincing findings (e.g., BenAmar et al., 2013). All these illustrate the need to recognize that variables representing board diversity are not all equal and due to their intertwined nature, they may have combined effects.

In support of the argument provided above, the results of this systematic literature review revealed that board diversity studies use different types of diversity constructs, which can be categorized into three groups (a) board structure variables, (b) board composition variables, or (c) both of them jointly.

Looking at my results, I could state that scholars use board diversity without recognizing that it may cover a variety of phenomena. Some study what may be called the board statutory or structural diversity, generally mandated by either norms or laws. Some others study board diversity by focusing on demographic attributes of individual directors. There are also studies covering both of these two types of diversity. Looking closely at these studies, I could also observe that they do not recognize important differences among the variables chosen to assess the effect of board diversity on firm-level outcomes. This may explain some of the inconclusive results mentioned earlier, since directors' multiple identities (i.e., acting both as monitors/controllers and advisors/resource providers) are all required for an effective board (Beekun, Stedham and Young, 1998; de Villiers, Naiker and van Staden, 2011; Hillman et al., 2008).

We, therefore, contend that, to explain firm-level outcomes such as corporate social performance, board structural diversity should be complemented by the board compositional diversity. While structural diversity relies on agency perspective, or board control function, compositional diversity builds on other theories, and board functions, such as the ability to

provide resources, competencies and cultural values (e.g., Barroso, Villegas and Pérez-Calero, 2011; Kim, Burns and Prescott, 2009; Hillman, Nicholson and Shropshire, 2008; Selznick, 1984). For example, the resource dependence theory (and perhaps even the resource-based view) must be harnessed to complement the insights of agency-based views and better explain board-corporate performance relation.

Studying structural and compositional board diversity together is critical to reach meaningful results in governance research. The next section is an attempt in line with such a rationale.

2.5.2 Re-conceptualizing board diversity

In the strategy view of the firm, dissimilarities are seen as sources of competitive advantage (Richard, 2000). Board diversity has acquired a higher level of strategic significance within companies for at least two reasons.

First, the influence of *outside dynamics* (e.g., the influence of institutional investors) may oblige companies to adopt diversity practices (Singh, 2005). Also, companies favor diversity, because it is part of the inclusion criteria for many socially responsible investment indices (Coffey and Fryxell, 1991). It is believed, as well, that diversity is desired by customers and other stakeholders for whom it is a demonstration of the sensitivity of management to stakeholders' preferences, aspirations and concerns (e.g., Luoma and Goodstein, 1999; Wang and Dewhirst, 1992). Besides, it has also been argued by organizational researchers that employee diversity improves the ability of a firm to relate to a broader customer base and help compete more effectively in the highly diverse global marketplace (Robinson and Dechant, 1997; Thomas and Ely, 1996). Since, directors are representatives of shareholders, aligning them close to customers—not only local, but also global ones, given that a great number of enterprises are engaging in international business—makes it reasonable to expect the same affiliated benefits from the existence of internationally diverse boards.

Second, *inside dynamics* may also compel companies to increase diversity because it could enhance the ability of a firm to attract the best talents from the overall labor market without the biases of age, ethnicity, or gender (Berman et al., 1999). Moreover, given the information/decision-making standpoint of organizational diversity literature that diversity

breeds innovation, and thus brings organizational benefits (Powell, 1999); board diversity, in the same token, is expected to boost corporate performance given the boon of new and different ideas pouring into the board. Since board functioning is highly related to organizational performance (Zahra and Pearce, 1989), then it should be logical to assume observing the similar effects of organizational diversity on board diversity.

As such, my research builds upon the information/decision-making perspective of the organizational diversity literature (Tsui and Gutek, 1999). This view complements the strategic role of resources in strategy literature (Barney, 1991; Pfeffer and Salancik, 1978). The argument of these perspectives, by and large, is that the characteristics of the resource space of a firm determine its behavior. Studies using information/decision-making view used readily detected individual attributes to measure diversity. These studies include, but are not limited to, those studying demographic variables alone, such as gender and ethnicity (e.g., Daily, Certo and Dalton, 1999; Hillman, Cannella and Harris, 2002); or those studying demographic variables along with various board processes, such as board power, or CEO influence on director selection (e.g., Westphal and Zajac, 1995; Zajac and Westphal, 1996a). However, there is also a stream of research, which used demographic variables along with board variables, such as board committee membership, director stock ownership or board dependency (e.g., Bilimoria and Piderit, 1994; Kesner, 1988) to shed light on board diversity. I incorporate the contextual aspects of boards' strategic function in order to articulate a more comprehensive understanding regarding the relationship between board diversity and firm performance by measuring diversity at more than one level.

The complexity of the board-diversity, in conjunction with a lack of a universally agreed-upon definition, lead to the study of dissimilar aspects of diversity inside board; which makes the already intricate board diversity black box more elusive.

In order to tackle this conceptualization difficulty, I propose a classification which distinguishes the studies focusing on director attributes from those focusing on board attributes. Taken together, they paint a complementary picture of board diversity. Such a clarification is useful; as such it will help avoid mixing individual versus organizational factors. While both are important to assess the effect of diversity on corporate performance, their dynamics respectively show different patterns. That is, whereas the individual factors are related to the

meritocratic search for legitimacy and resources on the part of the firm; the organizational factors are generally related to power distribution.

2.5.2.1 Diversity of Boards

Diversity denotes dissimilarities. I use the term '*diversity of boards*' in this text to refer to dissimilarities in board attributes. These organizational level characteristics are related to board's formal structure. The distinctiveness among board attributes includes board size, leadership duality, founder leader as director, international directors, board committees, board independence, director tenure and director compensation. Previous studies investigating board attributes link them with other notions in strategy research, such as firm performance (e.g., Dalton, Daily, Ellstrand and Johnson, 1998; Hillman and Dalziel, 2003); strategic actions (e.g., Goodstein, Gautam and Boeker, 1994; Westphal and Fredrickson, 2001); or board processes (e.g., Judge and Zeithaml, 1992; Zajac and Westphal, 1996a).

Dissimilarities in board attributes, apart from individual attributes, are relevant to my diversity argument. That is, in part, because differences among corporate boards, and thus their effects on organizational behavior, have been the subject of much debate. Particularly following the governance scandals in 2002 the 'best practice' recommendations regarding the behavior and structure of the board of directors of a firm (Aguilera and Cuervo-Cazurra, 2004; Westphal and Zajac, 1998) became norms. However, in governance arrangements there is no one-size-fits-all type of solution. Formally well-trimmed yet structurally homogenous boards can be no panacea to deep-rooted problems of corporate governance (Leblanc, 2009). In this sense, diversely established boards are worth to study to better understand corporate boards.

Firm's competitive strategy is based on market and product conditions. Porter (1980) argued that differentiation brings competitive advantage and thus, high performance. Using different marketing techniques to achieve distinction in markets (i.e., market differentiation), and engaging in innovation to achieve distinction in products (i.e., product differentiation), firms can have a competitive edge over their competitors. Strategy literature informs that firm's structure supports its strategy to achieve performance goals. For instance, Chandler (1962) argued that changes in firm's product/market strategy required structural changes. Rumelt (1974) extended this argument to firm's performance and found that the fit between a firm's strategy

and its structure affects performance. Based on these arguments, Miles, Snow, Meyer, and Coleman (1978) developed a typology of strategies matching different structures. Further developing these ideas, Miller (1986, 1996) developed the notion of firm configurations that explore how firm structures fit with, and complement each other's strategies. Therein, Miller argued that a congruent, or fit, structure and strategy link can drive high performance for the firm. This literature on strategy and structure reports that different firm structures bring financial performance. For instance, Flynn, Huo and Zhao (2010) found positive relationship between firms' different supply chain structures and financial performance. Also, Zott and Amit (2007) found that different business model designs drives financial performance of entrepreneurial firms. In sum, different board configurations yield different outcomes, which directly affect firm competitiveness. This logic affirms that it is the diverseness of boards—not their likeness to each other—that contributes to enhanced success.

Proposition 6: 'Diversity of boards' refers to dissimilarities in board attributes. These organizational level characteristics are related to boards' formal structure. Boards can be differentiated by such variables as size, leadership structure (i.e., duality of chairman and CEO), founding leader as director, nature and operations of board committees, board independence, director ownership, and director compensation. These variables do not provide any insights about diversity within a specific board, but help distinguish among a sample of boards.

2.5.2.2 Diversity in Boards

I use the term *'diversity in boards'* to highlight dissimilarities in director attributes. These individual-level characteristics denote directors' readily detected attributes. Although, research on board diversity distinguishes between demographic (e.g., Hillman, Shropshire, and Cannella, 2007) and cognitive (e.g., Forbes and Milliken, 1999) dimensions of diversity; much of the existing empirical works focus upon demographic aspects of diversity examining director gender, age and race.

Boards have conventionally been viewed as a homogenous group of elites, who share similar socioeconomic backgrounds, hold degrees from the same, by and large, ivy-league schools, have similar educational and professional training, and, as a result, have very parallel

views about appropriate business practices (Useem, 1984). In the last decade, corporate governance advice and emerging norms often advocated greater demographic diversity inside corporate boards (Daily, Certo, and Dalton, 1999; Westphal and Milton, 2000). Responding to the call, institutional investors and shareholder activists pressured firms to appoint directors with different backgrounds and bases of expertise, thus endorsing the assumption that directors with similar demographic characteristics have similar attitudes and behaviors in board's decision-making process. Board activists' advocacy of well-balanced and diversified boards is based on the premise that different backgrounds in the board mean that different opinions, and a richer perspective will be present in the decision-making process; therefore, a greater diversity should improve the quality of board decision making, and thus lead to a propitious effect on firm performance (Useem, 1993). The representation of women and minority groups on boards has gradually, if slowly, increased; yet, company directors still remain largely Caucasian, male and of certain range of age (Bilimoria and Piderit 1994, Daily and Dalton 2003). Thus, while most boards still have clear demographic majorities, they also increasingly tend to include demographic minorities (Westphal and Milton, 2000), most probably in response to the normative belief that diversity leads to better boards.

Diversity in boards in the strategy literature is rooted in the executive/strategic leadership literature, better known as the upper echelons view of the firm. Hambrick and Mason (1984), in their seminal work, argued that top managers act on the basis of their psychological orientations. Executive cognitions, values, and perceptions of top managers influence the process of firms' strategic choice and result in performance outcomes. Since these individual elements are difficult to measure, the upper echelons perspective—using aspects of organization demography literature—regards demographic attributes as proxies for differences in cognitions, values, and perceptions. Research in this stream investigates the relationship between the demographic diversity of the top management team (such as, functional background, age, education, and tenure) and firm performance (e.g., Simons et al., 1999); team strategic decision process (e.g., Knight et al., 1999); firm strategic actions (e.g., Hambrick et al., 1996). However, Hambrick and Mason (1984) originally specify top management team (i.e., teams and officers holding top management positions) as the focal point of upper echelons perspective. Adding to some early studies (e.g., Finkelstein and Hambrick, 1990; Haleblian and Finkelstein, 1993) to more recent ones (e.g., Carpenter and Westphal, 2001; Hillman,

Shropshire and Cannella, 2007; Westphal and Fredrickson, 2001), this conceptualization brought board of directors into upper echelons model as important decision makers along with CEO and top management team (Carpenter, Geletkanycz and Sanders, 2004; Finkelstein, Hambrick and Cannella, 2009; Hambrick, 2005).

Proposition 7: 'Diversity in boards' refers to dissimilarities in director attributes. These individual-level characteristics are related to directors' demographic aspects in both readily-measurable attributes, such as director gender, age and race, and not-readily-measurable attributes, such as director tenure, experience and expertise. These variables provide insights about diversity within a specific board among its member directors.

Accordingly, variables specifying dissimilarities among boards, *diversity of boards (DoB),* have to be distinguished from those specifying dissimilarities within boards, *diversity in boards (DiB)*. *Diversity of boards* has to do with board attributes, defining, in particular, board's structure and sometimes its operations. *Diversity in boards* has to do with directors' individual attributes, illustrating the nature of board's composition. The effects of these two types of variables are different, and their measures should be differentiated. In addition, I expect that variables describing board structure and composition interact to produce actual behavior.

Research that uses only one of these representations leads to results that can be questioned. That is because structure does not shape behavior until board members act. Yet, once they act, structure may constrain the action significantly. Together, the two types of variables help predict firm-level outcomes better.

To conclude this theoretical position, it is important to note that the two streams of board diversity research (i.e., *diversity of boards* and *diversity in boards*) are not necessarily mutually exclusive. That is to say, while many studies investigated either diversity in director attributes or diversity in board attributes, there are limited number of studies in the literature that married these two perspectives. For example, Kesner (1988) and Bilimoria and Piderit (1994) studied director gender and committee membership; Daily and Dalton (2003) studied gender and ethnicity on director stock requirements; Peterson, Philpot and O'Shaughnessy (2007) studied gender and ethnicity on board committee memberships; and Zelechowski and Bilimoria (2004) studied gender and board tenure. In this study, following the footsteps of these prior works

investigating various aspects of board diversity, I take into account the two perceptions of diversity. This perspective is not only beneficial, but also important in considering the different effects of board diversity (Hillman and Dalziel, 2003). In this study, I build a research model that examines the effects of both perspectives of board diversity.

2.6 Discussion

2.6.1 The Future of Board Diversity: Relativity to Deal with a Dynamic Reality

Corporate governance is affected by an ongoing institutionalization process (Ocasio and Joseph, 2005). As a result, board diversity is not static. It changes over time under strategic and institutional pressures (Blair, 1995). Because boards are important for firm performance and integrity, society is concerned and institutions are constantly affecting board composition and operations. Influenced by the normative requirements of agency theory, laws or governance codes require more independence, less leadership duality, and the like.

From a fiduciary perspective, the board's main responsibility is to control managers' decisions and their effect on firm performance. This monitoring role is, as argued earlier, enhanced where independence and related statutory board characteristics, seen as the antidote to entrenched management, ensure a better representation and protection of small shareholders' interests (Fama and Jensen, 1983). This has been the focus of most governance research, and governance reforms (e.g., U.S.'s Sarbanes-Oxley act, Canada's Bill 198). The need for board diversity highlights the assumption that a variety of incentives among outsiders and insiders represented on the board should enhance their ability and willingness to meet their monitoring function (Hillman et al., 2008), and thus keep managerial discretion within proper limits. However, the results of empirical research on the relation between corporate performance and statutory independence are mixed (Bhagat and Black, 2002). This may not come as a surprise since the critical goal of structural or fiduciary governance is to minimize agency costs, and is related to the board's strategic function only indirectly.

More importantly, because board diversity is normatively mandated, the structure of the board is now getting more similar across firms and does not differentiate much among them. *Diversity of boards*' effects on corporate social performance is likely to be not significant, because there is a trend toward little board structure variance among firms. Faced with a similar situation, Porter (1996, p. 63) argued: "…organizational effectiveness competition shifts the productivity frontier outward, effectively raising the bar for everyone… it leads to relative improvement for no one." Accordingly, although important for control and agency purposes, *diversity of boards*, shared by most boards, is necessary but does not help distinguish among firms nor explain their performance differences. To get to the differentiating factor, I need to

capture nuances, which require using a relative measure of board diversity. For example, board size or independence should be relative to other firms. Even though the problem is less acute, the same can be said of board diversity in composition variables. I can expect that sooner rather than later, legal and professional norms will reduce differences among board and individual directors' attributes. In addition, in line with the resource dependence theory (see Hillman et al., 2009), director attributes are also affected by strategy and top management idiosyncratic choices, themselves subject to powerful isomorphic pressures (Ocasio, 1999). In order to deal with this isomorphism issue, I need to capture qualitative effects related to smaller differences. In agreement with relative measurement discussions put forward by Harrison and Klein (2007), my conclusion is that relative measures have to be developed to provide more convincing results about the board diversity-firm performance relationship.

2.6.2 Guidance for Future Board Diversity Research

Looking at the results of this systematic literature review, and the after-thought process that came out of its results, I believe that future board diversity research can benefit in mainly three dimensions. These include (a) definition of board diversity; (b) standardization of board diversity data sources; and (c) measuring board diversity. These are now discussed in detail.

2.6.2.1 Re-defining Board Diversity

Given the observations coming out of the systematic literature review conducted earlier, and in light of the concerns raised by some prominent researchers (e.g., Harrison and Klein, 2007; Jehn, Northcraft and Neale, 1999), diversity research appears to suffer from a definition problem. Different scholars use different definitions. Several researchers have even suggested ways of categorizing diversity in order to organize thinking about different types of it (Jackson, 1992; Milliken and Martins, 1996; Tsui, Egan, and O'Reilly, 1992). Unpacking the term 'diversity' is a stimulating task as it helps to understand the phenomenon better. Four reasons can be proposed for diversity definition differences:

(1) The term *diversity* is a different concept to researchers from different fields. A unified connotation of diversity research does not exist. As recommended by Williams and

O'Reilly (1998), on their review of forty years of diversity research, a more complex framework and a more complex conceptualization of the nature of diversity are needed to study the impact of diversity (Jehn, Northcraft, and Neale, 1999).

(2) No single theory covers all the relationships between diversity and its consequences. Rather, an array of theories contributes to diversity, including expectation states theory (Berger and Zelditch, 1985), the upper echelons perspective (Hambrick and Mason, 1984), organizational demography (Pfeffer, 1983), relational demography (Tsui and O'Reilly, 1989), and social identity theory (Turner et al., 1987). These literatures are not complementary and reflect the wide-ranging interests of researchers in different domains (e.g., psychology, sociology, strategy, etc.). Board diversity scholars are pointing towards the use of multi-theoretical perspectives (Chen and Roberts 2010). Future studies can combine theories to provide a richer explanation of board diversity consequences (Ntim and Soobaroyen, 2013a).

(3) Diversity, in organizations, can be seen not only at the individual level, but also at the dyad, group or organization levels. While a majority of diversity studies focus on the individual-team level, there are also studies in the literature that investigates organizational level diversity (Jackson, Joshi, and Erhardt, 2003). Unmatched levels of analysis for dependent and independent variables are common.

(4) Finally, the term diversity can refer to numerous different individual aspects of team composition. It can reflect readily-detected or underlying attributes; or task-related or relations-oriented aspects (Jackson, May and Whitney, 1995; Jackson, 1996). Readily detected attributes can be determined quickly and consensually with only brief exposure to a target person. Readily-detected attributes include gender, race and age. Underlying attributes are less obvious, more difficult to verify, and subject to more interpretation. Examples include physical skills, cognitive skills and job experience; or social status, attitudes, values and personality.

The abovementioned four-dimensional differences in the definition of diversity lead researchers to inaccurate measures, and therefore, to misleading conclusions (cf. Milliken and Martins, 1996). Researchers should clarify their own definition of diversity taking into account the specific contextual factors that frame the diversity in their research. Board of directors, however, hardly resembles any ordinary work group (Forbes and Milliken, 1999). Directors help to set and oversee firm's enterprise strategy, which is a highest organizational level task.

This requires definitions, which may differ from what is reported in the organizational diversity literature.

2.6.2.2 Standardization of Data Sources to Measure Board Diversity

As in any research, in board diversity research also, the results will point to more valid conclusions when comparing the studies that take their sample from the same data sources.

In this study, the majority of the studies use data only from a single country—the United States. Clearly, both corporate governance practices and corporate stakeholder approaches are different in the U.S. compared to many other countries. Therefore, caution in researchers' generalization of the results is necessary.

Furthermore, the majority of studies use data coming from mixed industries. While this may increase the generalizability of the results to overall business community, it masks the industry-specific effects (e.g., consider the amount of philanthropic donations in highly profitable industries versus poorly performing ones). Thus, industry effects must be controlled.

Additionally, while the majority of studies report findings about for-profit organizations, (i.e., firms), some studies report findings about not-for-profit organizations (e.g., hospitals). There must be a great difference in the research settings of both types of organizations, thus consolidating their results may lead to misleading interpretations. These two groups should be kept separate.

The nature of the sample may lead to differing conclusions. Large firms may behave differently from small firms. I can say the same for young versus old firms, or private versus public, or even family firms. These effects should also be controlled for.

Finally, sample size varies a lot among studies in this systematic literature review. The smaller sample size was 51 firms, and the larger was 4,438 firms. Among 26 firms, this yields to an average of 627 firms per study, with an alarming standard deviation of 966 firms. In other words, researchers seek validity from the existence of similar results from different studies, yet the generalizability of each of these studies ranges hugely, thus making them suspicious to validity of the common results they arrived to. In general, caution should be held in reporting the findings of small sample size studies and in generalizing.

The observation that the effects of board characteristics on firm performance is contingent upon several factors such as firm size, age industry, life cycle growth or decline phase, etc., has been raised before (Dalton et al., 1998; Dalton et al., 1999; Filatotchev, 2012). These point at a contingency approach in studying board diversity effects.

2.6.2.3 Measuring Board Diversity by Combining Variables with Indices

As discussed above, traditional research on the effect of board diversity has focused on the effect of either structural or compositional variables separately. However, as argued earlier, structural and compositional variables may interact and have conflicting effects in explaining firm's strategic behavior (Ray, Barney and Muhanna, 2004). Considering them together is a more valid research approach, especially where the grouping is theoretically grounded (see the discussion on diversity constructs in Harrison and Klein, 2007). In fact, the attempt to consider multiple dimensions simultaneously to measure board diversity is encouraged by governance scholars. For instance, Carpenter et al. (2004) hints at the need to study board diversity in a 'bundle' approach to study the interactions between the various board dimensions in order to understand their combined and cumulative effects on organizational outcomes. Nielsen goes one step further and points at dangers of employing board diversity constructs individually—"The possible interactions among different diversity dimensions has important implications for future research on board diversity, as ignoring such interactions provides incomplete and often misleading explanations for the organizational implications of upper echelons diversity" (Nielsen, 2012, p. 348).

The board diversity research has started with the great interest that gender balance has attracted. Boards were generally seen as balanced in terms of diversity when there were enough women sitting as directors. Numerous scholars reported that the results of research on the relationship between board and top management gender diversity, and corporate financial performance, are mixed and hard to understand (cf. Carter et al., 2003; Daily et al., 1999; Erhardt et al., 2003; Haslam et al., 2010; Shrader et al., 1997). However, exploring further this relationship, in addition to the works discussed earlier, Adams and Ferreira (2009) argue that the true relation between gender diversity and firm performance is complex. They found that the relation between gender diversity and firm performance is contingent upon the quality of

firm-level governance (i.e., board structural components): "I find that diversity has a positive impact on performance in firms that otherwise have weak governance, as measured by their abilities to resist takeovers. In firms with strong governance, however, enforcing gender quotas in the board could ultimately decrease shareholder value (Adams and Ferreira, 2009, p. 308)."

Two other and more elaborate studies are Francoeur, et al. (2008) and Ben-Amar et al. (2013). The former suggests that female directors' positive effect on corporate performance is clearer when the organizational complexity is high. The latter, studying strategic acquisition decisions, shows that female directors' effect on firm performance is non-linear. It is unclear when they are perceived as tokens. It becomes positive and significant when the number of female board members goes beyond a threshold and declines again when their number is very high. These examples show that individual variables lead to puzzles and complications that are not simply a matter of statistical sophistication, but of conceptual clarification about combined effects. In this respect, discussion and propositions put forward in Harrison and Klein (2007) distinguishing among such aspects as separation (i.e., values shared by members), variety (i.e., demographic differences), and disparity (i.e., power relationships), may prove useful, even if it leads to complex methodological issues.

The strategy configuration theory (Miller, 1986) suggests that to understand complex issues, it is better to consider a combination of variables rather than single ones. Miller (1986) has provided a good example of the procedure, which has been used essentially to identify strategies out of a set of variables. Extending this configuration perspective into board of directors' research, one can use taxonomies to categorize governance styles. Furthermore, I can relate each governance style to corporate performance. From earlier discussion, and using Hambrick's (1994) conceptualization as a guiding framework, I suggest that there are at least two different board diversity configurations to consider: (1) a structural (i.e., statutory) configuration (called earlier *diversity of boards,* or *DoB*), which is based on the monitoring and controlling roles of directors, and (2) a strategic (i.e., advisory) configuration (earlier labeled *diversity in boards,* or *DiB*) based on the resource provision role of directors.

The idea of configuration suggests that considering the use of indices, to at least capture the effect of *diversity of boards* or *diversity in boards* variables, is legitimate. The process may proceed in two steps: (1) identify the configurations of *diversity of boards* (DoB) and *diversity in boards* (DiB), hence building these two separate indices; (2) relating these indices to

corporate performance or in general to firm-level outcomes. Ben-Amar et al. (2013) have introduced two dimensions, similar to those mentioned earlier, statutory and demographic diversity, to explain acquisitions' performance. The effects of each on acquisition performance were strikingly distinct. Haynes and Hillman (2010) have emphasized director capital, as a diversity index, and offered experience, network and relations as measures of diversity. They suggested that one could think of two patterns called 'breadth' and 'depth' that provide different contributions to the board's ability to create value.

Most of the indices used by researchers follow the early stream of research, led by Molz (1988), which additively combined dichotomous or categorical variables. The effect of one variable is assumed to add to that of the next variable. Moreover, index scores are generally computed by adding unweighted variables, giving equal points for every attribute that enhances the level of board diversity. For instance, dichotomous variables are given values of 0 and 1. For continuous variables, the sample is split into terciles with values of 0, 1 and 2 (Black, Jang and Kim, 2006; Dittmar and Mahrt-Smith, 2007; Gompers, Ishii and Metrick, 2003).

The academic community has conventionally accepted these approaches, and these studies have been published in reputable journals. However, there are three problems with such approaches. (1) First, although to assess the multiple dimensions of board diversity, variables need to be combined and aggregated into indices, such combinations must take into account the nature of each variable's effect on the board. As discussed earlier, research on board diversity should distinguish between two types of indices, board structure-based indices measuring *diversity of boards* (*DoB*), and board composition-based indices measuring *diversity in boards* (*DiB*). (2) Next, the measurement of variables should be more elaborate to capture current trends. In the extant literature, independence is a measure of the percentage of independent directors; gender is measured as the percentage of women on the board. Although effective and reasonable in the early times of governance research, these measures are inadequate now, as quasi-legal and normative forces are making boards look more alike. (3) Lastly, the two diversity indices—structural and compositional—should be seen as interdependent and therefore, combined to study actual board behavior.

Furthermore, as suggested by Haynes and Hillman (2010), the board composition-based indices should be adapted to the research questions. Their board 'breadth' and 'depth' constructs are a promising option to combine directors' demographic characteristics to capture

the relevant effects on strategic behavior. However, the use of these compositional variables, without considering the structural variables, leaves out the framework within which the influence of boards on management takes places.

2.7 Contribution

Diversity research suffers from a definition problem due to its complexity. This point is, by far, the most critical issue in prominent governance scholars' previous calls for further work that can provide insight into the types and mechanisms of board diversity, and the contingent contexts they operate in (Nielsen, 2012). Additionally, this study also responds to many scholars' call for consistent terminology (see Hill, Kern and White, 2012; Pfeffer, 1993; Suddaby, 2010).

The contribution of this research is, therefore, four-fold. First, I have provided valuable insights by conducting a systematic literature review on the effects of board diversity and corporate social performance relationship. The results of this review created valuable knowledge as to how the literature portrays this relationship. By doing so, I have managed to map the field, inspected board diversity research that studies corporate social performance in detail, classified their independent and dependent variables, studied their data sources, and thus, provided valuable observations on gaps in the field. In fact, the results of the systematic literature review, and the further investigations on it, have led to more conclusive results that were reported as inconclusive before by numerous scholars. In other words, this study points that researchers can achieve more consistent results, if they filter research based on the conceptualization of constructs and operationalization of variables.

Second, I have theoretically clarified the often-used board diversity concept by building on Hambrick's (1994) conceptualization to distinguish between individual board members' attributes and overall board characteristics. This, as I have argued, is necessary to be able to assess the effect of the large number of variables affecting governance by the board. There is a rich set of relations between diversity among boards (i.e., *diversity of boards*), diversity within boards (i.e., *diversity in boards*) and firm-level outcomes. I propose that *diversity of boards* is a necessary ingredient in corporate governance. Yet, in itself it cannot explain corporate financial or social performance, for example. I argue that it is only in conjunction with *diversity*

in boards that researchers can find meaningful results. *Diversity in boards* determines corporate performance, social or financial, and where defined properly, firm-level outcomes or strategic behavior. Although not the focus of this study, I recognize that such a relation is probably moderated by leadership characteristics as suggested by Hambrick (1994).

Third, I contend that board diversity, whether based on structural or compositional variables, is a dynamic concept. It is changing under the double effect of legal changes and normative pressures. These changes present an isomorphic tendency. Boards are likely to look-alike in the future. The extant research is already providing a large body of evidence showing that *diversity of boards* has almost no effect on corporate performance. This isomorphic trend suggests that better measurement procedures should be adopted.

Fourth, I have proposed that scholarly research on board diversity also faces a measurement challenge. This challenge is not only technical, but also conceptual. Would board diversity be conceived to be relative or actual? For example, should the board's actual ratio of female directors, or the ratio relative to other boards, be considered as a measure of gender diversity? Today's research has favored the former. My suggestion is that the latter is probably more relevant, and would lead to more robust findings for future research. Most importantly, I need different ways of measuring relative values and more research on their effects.

Lastly, the results of this study point to timely issues in corporate governance research. The increasing importance of corporate social responsibility in corporate governance literature, the lack of an established theoretical foundation, its equivocal findings, the necessity for multilevel analysis and multidimensionality conceptualizations in board diversity research indicate that this is the right time to reconsider board diversity.

2.8 Conclusion

In this study, I argue that the research on board diversity and corporate social performance face multiple challenges. Using a systematic literature review, I have demonstrated the problems surrounding board diversity research, narrowed them down in terms of differences in definitions and measurements, and proposed recommendations to remedy them. This study, therefore, aims to influence future research by providing guidance using a clearer conceptualization, better definition, and more accurate assessment of board diversity and corporate social performance.

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Appendix 2.1 Directors' Views on the Ineffectiveness of Post-Sarbanes-Oxley Guidelines Targeting Board Structure

(from Leblanc and Gillies, 2005, pp. 27-28)

"It's foolish to think that good governance keeps you out of trouble. You will lessen the likelihood of trouble and maximize performance but with good governance you can still have judgmental errors by the board and errors of management, which tend to be errors of timing rather than errors of product or service. Good governance alone does not protect institutions from making mistakes and legitimate mistakes. It's one of the tools." (director)

"Corporate governance is the most difficult part of business to quantify. Although it has a great effect on the success of the venture, it does not have a measurement like EPS or cash flow. There is nothing in business that is so related to basic human nature as an independent outside board of directors." (CEO)

"The smartest boards can be caught off base to a certain degree, so good governance is not enough." (director)

"Good governance does not get you there and good governance does not grow a company." (director)

"It's a country club-you bring your friends in, not who is most effective. This exists because the board does not truly acknowledge what its role is and the needs and demands of shareholders are not highest... Rare is the case when people are brought on to the board based on what they can contribute. It's payback for a favor, throwing a bone, a good name, not competence or value." (director)

Appendix 2.2 Verbatim Quotes from Some Prominent Governance Scholars on the Board Structure-Firm Performance Relationship

"Although a host of theory-driven rationales suggest a relationship between board of directors size and firm peformance, the literature provides no consensus about the direction of that relationship" (Dalton, Daily, Johnson, & Ellstrand, 1999, p. 674).

"Great inferential leaps are made from input variables such as board composition to output variables such as board performance with no direct evidence on the processes and mechanisms which presumably link the inputs to the outputs" (Pettigrew, 1992, p. 171).

"Board size is another issue for which there is no apparent consensus… This article has largely focused on board composition measures primarily because they represent the bulk of the empirical studies that have been conducted in the area of corporate governance" (Johnson, Daily, & Ellstrand, 1996, p. 431).

"Both researchers and practitioners have focused largely on the conflicts of interest between managers and shareholders and on the conclusion that more independent oversight of management is better than less. Independent governance structures (e.g., outsider-dominated boards, separation of the CEO and board chair positions) are both prescribed in agency theory and sought by shareholder activists. Were independent governance clearly of superior benefit to shareholders, we would expect to see these results reflected in the results of scholarly research. Such results, however, are not evident…" (Daily, Dalton, & Cannella, 2003, p. 374).

"Nearly two decades of research find little evidence that board independence enhances board effectiveness. Studies have, however, found a negative effect" (Westphal, 2002, p. 6).

"… evidence that board independence has neutral to negative effects on board effectiveness is not [new]. The first research casting doubt on the value of board independence appeared in the late 1980s. Since then, not only have advocates of governance reform in the U.S. continued to focus on this issue, but the board independence mantra has spread to other countries, including Canada, the U.K. and Germany" (Westphal, 2002, p. 10).

"Careful review of extant research addressing the relationships between board composition, board leadership structure, and firm financial performance demonstrates little consistency in results. In general, neither board composition nor board leadership structure has been consistently linked to firm financial performance… These provide little evidence of systemic governance structure/financial performance relationships" (Dalton, Daily, Ellstrand, & Johnson, 1998, p. 260).

"We question the need for such a policy [of separating the CEO and board chair positions]. This activity becomes even more questionable in light of the failure to consistently link the separate board leadership structure with enhanced firm performance" (Daily & Dalton, 1997: 19).

"So if following good-governance regulatory recipes doesn't produce good boards, what does? The key isn't structural, it's social. The most involved, diligent, value-added boards may or may not follow every recommendation in the good-governance handbook. What distinguishes exemplary boards is that they are robust, effective social systems"
(Sonnenfeld, 2002: 109).

3. First Empirical Study (Second Essay)

The Effects of Board Diversity on Corporate Social Performance: An Empirical Investigation

Abstract

In the first essay, I have argued that differing definitions of board diversity have caused numerous problems for researchers. To deal with these, I have proposed to distinguish between dissimilarities among boards ('*diversity of boards*'), and dissimilarities within boards of directors ('*diversity in boards*'). In other words, in the previous paper, I have clarified board diversity concept by distinguishing between its structural and demographic components. In this paper, I seek to answer whether there is a significant relationship between both structural and demographic diversity of boards and their firms' corporate social performance. I empirically investigate this probable link in a sample of S&P500 firms. After conducting several analyses, I have found significant relationships between both *diversity of boards* and social performance, and *diversity in boards* and social performance. Results also have revealed the effects of the specific variables that make up *diversity of boards* and *diversity in boards* constructs. In particular, board size, director gender, and director race have had significant effects on corporate social performance. Some important measurement issues are raised and discussed.

Keywords: Board of directors, diversity, OLS regression, diversity matrix, corporate social performance

3.1 Introduction

Boards of directors play an administrative role by being responsible for monitoring management and setting policy (Fama and Jensen, 1983; Johnson, Daily, and Ellstrand, 1996; Zald, 1969). In their monitoring role, boards effectively control and, if needed, discipline top managers by the separation of ownership and control (Jensen and Meckling, 1976). Researchers extensively studied the monitoring role from agency theory perspective (Hillman et al., 2008). In addition to monitoring, directors also fulfill a strategy role through advice and counsel to the management (Johnson et al., 1996; Zahra and Pearce, 1989). There, scholars mainly used resource dependence theory (Pfeffer and Salancik, 1978) as a dominant perspective to study the strategy function of boards.

Board diversity is one of the several remedies suggested by post-Enron era shareholder activism. It is assumed to improve the board's effectiveness and create value. A large number of empirical investigations on board diversity has brought both insights and disagreement. We seem to understand more about board dynamics, but at the same time the findings are puzzling. The relationship of board diversity to corporate performance is ambiguous, with findings suggesting all of a positive, negative, or no relationship. Moreover, numerous scholars reported that the results of research on the relationship between board diversity, and corporate performance, are mixed and hard to understand (e.g., Carter et al., 2003; Daily et al., 1999; Erhardt et al., 2003; Haslam et al., 2010). Therefore, as I tried to outline in the first essay, I believe that the concept of diversity used in the corporate governance literature is problematic.

The source of this problem can be traced back to the varying definitions employed by researchers (c.f., Harrison and Klein, 2007). Also, researchers use diversity variables indiscriminately. Sometimes, these variables are indeed related to demographic differences among company directors, sometimes the variables relate rather to disparities among corporate boards in terms of structure, processes and other board characteristics. Several of these variables, be they director-focused or board-focused, are often an indiscriminate blend (e.g., Post et al, 2011; Siciliano, 1996). I believe that the difference between structural and strictly demographic facets of diversity is essential, because, however related, they pertain to different governance phenomena. Separating these differing dimensions of board diversity from each other, and

studying them empirically may help researchers to better understand their relative impacts on firm performance.

As discussed in detail in the previous essay, boardroom scholarship, especially agency theory-based research, focuses largely on the relationship between board structure, control over management behavior and strategic decision making. In these studies, financial performance was conventionally used as the dependent variable. In recent years, social performance was seen as another measure of the firm's performance. Only few studies have tackled the relationships between diversity in boards' structural attributes and corporate social performance (e.g., Johnson and Greening, 1999; Hillman, Keim and Luce, 2001); or between diversity in director attributes and corporate social performance (Bear et al, 2010; Coffey and Wang, 1998; Siciliano, 1996; Post et al, 2011).

This study, then, is intended to fill a gap in the literature by building upon the conceptual separation of diversity among boards from diversity within boards (i.e., the subject of the previous essay) and then, empirically testing this relationship (i.e., the subject of this study) by taking into consideration their mutual effects on social performance. Empirically studying the effects of these two different types of variables may help to establish a much-needed language clarity in studying board diversity.

The main research question of the study *'does board diversity affect corporate social performance?'* is theoretically developed under three sub-research questions. These are (a) *'does* structure-related *board diversity affect corporate social performance?';* (b) *'does composition-related board diversity affect corporate social performance?'*; and, (c) *'does the mutual effects of structure and composition-related board diversity affect corporate social performance?'*. Several hypotheses are developed, and tested relevant relationships.

The structure of the paper includes the theoretical justifications and the development of the research model, a methodology and findings section, and a discussion section.

3.2 Theoretical Framework

3.2.1 Diversity of boards and corporate social performance

I use the term '*diversity of boards*' (abbreviated as *DoB*) in this study to refer to dissimilarities in board attributes. These organizational level characteristics are related to boards' formal structure. Boards can, for example, be differentiated by such variables as: size, leadership structure (i.e., leadership duality whereby chairman and CEO are the same person), founder leader as director, the presence and number of international directors, nature and operations of board committees, director independence, director ownership, director tenure and director compensation.

The Sarbanes-Oxley legislation and ensuing corporate governance guidelines, such as those of New York Stock Exchange, largely focus on changing the board structure to improve the board's effectiveness. Yet, the typical board structure variables, standing alone, do not explain the quality of board's performance-related decisions (Dalton, Daily, Ellstrand, and Johnson, 1998; Dalton, Daily, Johnson, and Ellstrand, 1999). In fact, considerable evidence indicates that the board structure have either no impact on the financial performance of corporations, or there is no consistency, as to positive or negative, in the results of those studies (e.g. Dalton, Daily, Certo, and Roengpitya, 2003; Larcker, Richardson and Tuna, 2007; Shleifer and Vishny, 1997).

While the literature shows that there is limited, if any, empirical evidence that links board structure to financial performance, the stream of research for the same relation with social performance is still embryonic. The interest in studying the impact of boards of directors on corporate social responsibility among researchers is not new (e.g., Coffey and Fryxell, 1991; Waddock and Graves, 1997). However, relative to financial performance and board scholarship, only a handful of empirical studies conducted on this relationship (for a review, see, Bear et al., 2010; Post et al, 2011), and the authors of these studies have reported mixed findings (Graves and Waddock, 1994; Johnson and Greening, 1999; Kassinis and Vafeas, 2002).

It has been reported that social performance is also affected by different types of organizational strategies and structures. For instance, Bhambri and Sonnenfeld (1988) studied firms' public-affairs management structures, and found that they are associated with high social performance in different industries; Holmes (1978) found that changes in firm structures to

create new centers for social responsibility drove higher social performance; and, Freeman and Gilbert (1988) found creating new strategies about morality leads to better social performance.

Since board of directors is a critical organizational structure of the firm, it is, then, logical to expect that different board structures, or configurations, may lead to better firm performance. It has been reported that different board configurations, for instance, those that are classified using corporate governance indices (e.g., Gompers, Ishi and Metrick, 2003), yield better financial performance (Bhagat and Bolton, 2008). I suspect that this is also true for social performance of the firm.

H1.1: *Dissimilarities in board structure, or diversity of boards, has a positive effect on corporate social performance.*

Institutional forces can shape business structures and practices in firms (DiMaggio and Powell, 1991). These institutions can be formal (e.g., laws and regulations) and/or informal (e.g., norms and conventions) (Scott, 2001). Firms use institutions for survival and prosperity. That is, firms not only compete for economic resources (i.e., economic efficiency) to maximize their interests, but also seek social approval for the right to exist (i.e., social legitimacy) (Zattoni and Cuomo, 2008). Thus, for economic or sociological reasons, firms adopt similar organizational structures that their competitors have (DiMaggio and Powell, 1983). This homogenization, or isomorphism, of organizational structures (Meyer and Rowan, 1977) also holds true for board structures (Certo, 2003). The unexpected collapse of Enron, and some other similar corporate scandals, created a flux of corporate governance practices—largely regarded as 'good governance' (Aguilera and Cuervo-Cazurra, 2009). Due to isomorphic pressures, numerous firms chose to follow these voluntary recommendations, and thus, mimic each other's board structures (Mallin, 2007).

Corporate governance, and its important dimension—the board structure—are regarded as important determinants of corporate social responsibility (Elkington, 2006). Purposely designed board structures lead to effective corporate governance, where not only a larger number of honest, transparent and accountable directors better serve shareholders, but also responsible behavior is ensured towards stakeholders at large (Jamali et al., 2008). In fact, it has been argued that well-structured, thus, better-governed firms more likely behave

responsibly in social issues in order to signal to the market their credibility in quality governance (Beekes and Brown, 2006). In that regard, it has been reported that diverse board structures, in terms of, for instance, board size (Ntim and Soobaroyen, 2013), or board dependence (Berrone, et al., 2010), are found to drive socially responsible behavior. While the signal of well-crafted board structures to the business community drive positive social performance, the poorly crafted ones may drive negative social performance. For instance, it has been reported that dysfunctional board structures, in terms of, for instance, board independence (Arora and Dharwadkar, 2011) or director compensation (Deutsch and Valente, 2013) led to negative social performance. For this reason, I argue that:

H1.2 *Dissimilarities in board structure, or diversity of boards, has a negative effect on corporate social performance.*

I study *diversity of boards* by taking into consideration four variables: *board size, director independence, director ownership,* and *leadership duality*. *Diversity of boards index* (i.e., I_{DoB}) will also be proposed later. Important measurement issues for both individual variable constructs and *diversity of boards index* are addressed in the methodology section.

As mentioned earlier, boards help to link the organization to its external environment. The need for effective external linkages was associated with relatively larger boards (Pfeffer and Salancik, 1978). Accordingly, larger boards (relative to others) serve a 'buffering' function by connecting the firm to its environment and providing protections from environmental disturbances (Alexander, et al, 1993). Pfeffer (1972, 1973) reported that organizational responsiveness to resource dependencies, and other regulatory demands paved the way for the establishment of larger boards along with the choice of directors from dissimilar occupations, which could ease the inclusion of an array of views into the firm's strategy (Pearce and Zahra, 1992). Similarly, pressures from the community for a wider representation (Provan, 1980) may force firms to acquire relatively larger boards. For many researchers, larger boards have been associated with better performing organizations (e.g., Pfeffer, 1972; 1973; Provan 1980, Siciliano, 1996). Relatively larger boards also appear to improve corporate social performance (Clarkson, 1995; Hillman, Keim, and Luce, 2001; Luoma and Goodstein, 1999). Therefore:

H1A: The larger the relative size of the board, the better the corporate social performance.

Outside, or independent, directors are important for the board's ability to perform its watchdog responsibility (Jensen and Meckling, 1976). For the last three decades, the ratio of outside to total number of directors in boards has increased drastically (Westphal and Zajac, 1997). Today, large company boards are generally comprised of a majority of independent directors (Westphal and Milton, 2000). Independent boards are regarded as effective tools to monitor, question and assess firm performance (Kesner and Johnson, 1990). Naturally, such monitoring covers socially impactful decisions of the management. Moreover, independent directors are believed to be more concerned about the socially responsible behavior of their firms then the management (Ibrahim and Angelidis, 1995). For instance, it has been reported that independent directors are more likely to press the management for taking more environmental-friendly decisions (de Villiers, Naiker and van Staden, 2011); have a stronger employee orientation (Wang and Dewhirst, 1992); and more likely to lean toward philanthropic activities (Ibrahim et al., 2003). Therefore, I propose that:

H1B: The higher the number of outside directors on the board, relative to other boards, the better the corporate social performance.

Directors' level of ownership is seen as having an important effect on their willingness to monitor managers and enhance shareholders' value (Shleifer and Vishny, 1997). In general, from an agency theory perspective, board members' ownership is seen as an incentive to monitor better the top management team decisions. From the social performance perspective, this seems to be less clear. It has been argued that owners tend to reduce social spending to what is absolutely necessary. Studying a large sample of firms, Barnea and Rubin (2010) have shown that ownership by managers, and large block holders (families, for example) is negatively related to corporate social responsibility ratings. On the other hand, inside directors may also see corporate social responsibility as desirable because improved relations with stakeholders have a positive long term effect (Johnson and Greening, 1999). It seems that this last argument is more speculative. Therefore, overall the effect of ownership by directors on corporate social performance is believed to be negative:

H1C: The higher the ownership by outside directors, relative to other boards, the lower the corporate social performance.

Keeping the roles of chairman of the board and the CEO on the same person creates agency problems (Jensen and Meckling, 1976). This problem arises mainly due to information asymmetry (Pettigrew, 1973), thus, divergence of interests between the CEO and the board (Jensen, 1986). Previous studies demonstrated that leadership duality can cause disadvantage for shareholders, such as exceedingly generous managerial compensation (Boyd, 1994), or adoption of poison pills (Mallette and Fowler, 1992). Controlling the board can give the CEO the opportunity to channel the board's activities towards his or her own interest (Finkelstein and D'Aveni, 1994). Therefore, should the CEO decides to pursue strategies that promise to yield short-term and immediate gains, then the existence of leadership duality can make long-term oriented, and not always guaranteed, corporate social responsibility investments less likely to be approved by the board (Berrone, et al. 2010). Thus:

H1D: Leadership duality decreases the corporate social performance.

3.2.2 Diversity in boards and corporate social performance

I employ the term '*diversity in boards*' (i.e., *DiB*) to refer to dissimilarities in directors' attributes. This concept highlights diversity within a given board. Although, research on board diversity distinguishes between demographic (e.g., Hillman, Shropshire, and Cannella, 2007) and cognitive (e.g., Forbes and Milliken, 1999) dimensions of diversity, much of the existing empirical literature focuses upon directors' readily measurable attributes, in particular, the demographic aspects of diversity, such as director gender, age and race.

Boards have conventionally been viewed as homogenous groups of elites, who have similar views about appropriate business practices (Useem, 1984). In the last decade, however, endorsing such an assumption, and trying to fight its believed stultifying decision-making consequences, corporate governance advice and emerging norms often advocated greater demographic diversity inside corporate boards (Daily, Certo, and Dalton, 1999; Westphal and

Milton, 2000). The representation of women and minority groups on boards has gradually, if slowly, increased; but company directors in North America, while ameliorated in the last decade, at least still remain largely Caucasian, male and of an older age range (Daily and Dalton 2003).

Diversity in boards is deep-rooted in the strategy literature and typically related to studies of executive/strategic leadership, better known as the upper echelons view of the firm (Hambrick and Mason 1984). Recent work brought the board of directors as an important decision making body along with the CEO and the top management team into the upper echelons model (Carpenter, Geletkanycz and Sanders, 2004; Finkelstein, Hambrick and Cannella, 2009; Hambrick, 2005).

This demographic *diversity in boards* puts the emphasis on directors' individual and idiosyncratic contributions to the firm's strategic management (Hillman and Dalziel, 2003). Variety and distinctiveness are expected to come from diversity, improving linkages with stakeholders, and sensitivity to differences and to the wider society's concerns. For example, women, minority or foreign-based directors have been shown to be more sensitive to the social performance of the firm (Bear et al., 2010; Post et al., 2011). Therefore, I expect *diversity in boards* to enhance corporate social performance:

H2: The higher the diversity in boards, the higher the corporate social performance.

In this paper, *diversity in boards* focuses on director gender, age, experience, tenure, and race. These are among the most important sources of differences and are often mentioned, though rarely together, in the literature (Bear et al., 2010; Hambrick et al., 2008). I shall introduce an index representing *diversity in boards* (i.e., I_{DiB}) in the methodology section.

With the rise of governance reforms, numerous stakeholders support within board diversity, especially the presence of female directors (Daily, Dalton and Cannella, 2003; Hillman et al, 2007). Researchers suggested that different genders respond to different norms, attitudes, beliefs, and perspectives (Pelled, Eisenhardt, and Xin, 1999). Female directors add experience sets and values that are dissimilar of those of their male colleagues. Internally, they inspire female employees for upper-echelon positions. They serve as role models, suggesting that women can achieve top-notch career opportunities (Milliken and Martins, 1996). Externally, they may link a firm to essential suppliers. Representation of female directors in

boards may have social consequences as well. Researchers found that women think more favorably of ethical matters than men (Luthar, Battista, and Gautschi, 1997), and tend to be more sensitive to corporate social performance (Burgess and Tharenou, 2002). Their presence on boards should, in particular, enhances corporate social performance (Bear, Rahman and Post, 2010), including philanthropic giving (Wang and Coffey, 1992; Williams, 2003). Therefore:

H2A: The higher the gender diversity on the board, the better the corporate social performance.

Age reflects directors' general business experience and is evidence of their maturity in directing the business. Previous research in industrial/organizational psychology has demonstrated significant relationships between age and a variety of work-related attitudes (Rhodes, 1983). In a corporate governance context, age is related to directors' behavior, and their likely openness to new ideas about board functioning (Zajac and Westphal, 1996b). Age has a clear influence on philanthropic decisions (Post et al., 2011). It has also been argued that, as directors mature, their generational behavior (Kets de Vries and Miller, 1984) increases, and they may be more sensitive to society at large and more willing to contribute to its welfare. Younger generations of directors are often seen as more sensitive to environmental and ethical issues as a matter of logic and principle. Such sensitivity leads to socially responsible and environmentally friendly behavior (Bekiroglu et al., 2011). I, therefore, propose that age diversity among directors is likely to lead to a more balanced decision making that takes into account the firm's responsibility to a larger array of stakeholders (Aguilera and Jackson, 2010). As a result:

H2B: The higher the age diversity of directors, the better the corporate social performance.

Two aspects of directors' experience are relevant to firms' social behavior: the firm/industry background diversity and the functional background diversity. Directors' industry background has an important effect on their sensitivity to social issues (Hitt and Tyler, 1991; Sutcliffe and Huber, 1998). Socialization within an industry brings with it exposure to more or less important social issues (Geletkanycz and Hambrick, 1997; McDonald and Westphal, 2003). This may lead to an inability to deal with new and important social problems and concerns.

Also, some directors may be outsiders to the firm, yet be cognizant and familiar with 'the industry recipes'. These directors' outlook is less narrow, but still confined to the industry history and experience with social issues. Finally, there is the inter-industry outlook. Hillman and Daziel (2003) suggested that such directors bring to the board information about practices that may be foreign or unfamiliar to the firm and within the industry. These outsiders are more willing to accept change and take into account the contributions and concerns of new stakeholders (Guthrie and Datta, 1997). In total, diversity of both firm/industry background and functional background in the board is likely to bring more attention to the firm's social performance. As a consequence:

H2C: The more (industry and functional) experience directors possess, the better the firm's corporate social performance.

Racially diverse boards may result in superior corporate performance (Kabongo, et al., 2013; Ntim and Soobaroyen, 2013). Minority directors' differing insights, and information flow, from sources not easily accessible to a racially-centered board, and their sensitivities may lead to innovative behavior and enhanced performance. The relational demography literature, in particular, suggests that racial diversity may be positively associated with higher-quality ideas (McLeod and Lobel, 1992; Milliken and Martins, 1996). There is also evidence that racially homogeneous (i.e., Caucasian) groups tend to be individualistic, while racially dissimilar (i.e., non-Caucasian) groups tend to be more collectivistic in their social orientations (Cox, Lobel, and McLeod, 1991). The similarity-attraction effect (Byrne, 1971)—that similarities can augment interpersonal attraction and produce bias in evaluation decisions—can be also observed in non-Caucasian directors' group behavior (Zajac and Westphal, 1996a).

Racially diverse directors may, then, influence boards' decision on better servicing stakeholders' needs that would normally be overlooked. This could, in turn, improve the firm's image and relationships with these stakeholders, and ultimately its social performance. For these reasons, I hypothesize that:

H2D: The higher the racial diversity on the board, the better the firm's corporate social performance.

Tenure is related to directors' length of experience as board members and also to their knowledge of the firm. Organization demography research (Kosnik, 1990) shows that tenure affects effect on strategy and performance. A longer tenure is also associated to familiarity with the firm's strategic issues, management team practices and better oversight (Kesner, 1988). It has been argued that long tenures lead to board members becoming captive of managers (Finkelstein and Hambrick, 1988; Vafeas, 2003). Shorter tenure managers are generally less cognizant of the firm and its managers, but may have difficulties articulating a sound critical position. A diversity of tenure is, thus, expected to generate a balance favorable to social performance. Also, it leads to a mix of sensitivities that could have the same effect, as a diversity of experiences. Therefore:

H2E: The higher the tenure diversity, the better the corporate social performance.

3.2.3 Moderation effect of diversity of boards and diversity in boards

To summarize my theoretical position, I should first mention that I have distinguished between dissimilarities among boards (i.e., *diversity of boards*), which refer to board structure, and dissimilarities within boards of directors (i.e., *diversity in boards*), which refer to demographic characteristics of board directors. Second, it is important to emphasize that the two streams of boardroom diversity research (i.e., *diversity of boards* and *diversity in boards*) are not mutually exclusive. They both have an influence on firm's financial and social performance. I have argued earlier that institutional isomorphism leads to little relative *diversity of board* differences. Thus, it should neither differentiate among firms, nor explain their differences, while demographic individual *diversity in boards*, which is not normatively defined, does. However, *diversity in boards* is generally believed to be affected by *diversity of boards*. Individual directors' actions are influenced by different board structure configurations. At the very least, this relationship needs to be investigated.

While many studies investigated either diversity in director attributes or *diversity in boards* attributes, only few studies married these two perspectives. More specifically, Kesner (1988), and Bilimoria and Piderit (1994) studied director gender and committee membership;

Daily and Dalton (2003) studied gender and race effects on director stock requirements; Peterson, Philpot and O'Shaughnessy (2007) studied gender and race relationship with board committee memberships; and Zelechowski and Bilimoria (2004) studied gender in relation to board tenure. More recently, Ben-Amar et al., (2013) have come close to the same distinction to explain the performance of strategic acquisitions.

Diversity of boards is the framework within which *diversity in boards*' influence is exerted. I believe that the ambiguity of the extant literature findings comes from their neglected interactions. Even though I expect a trend toward homogeneity of structural diversity among boards (i.e., *diversity of boards*), I believe that such diversity, even when mandated by law, will remain a source of strategic differentiation. On these premises, I propose that:

H3: Diversity in boards' effects on corporate social performance is positively moderated by diversity of boards characteristics.

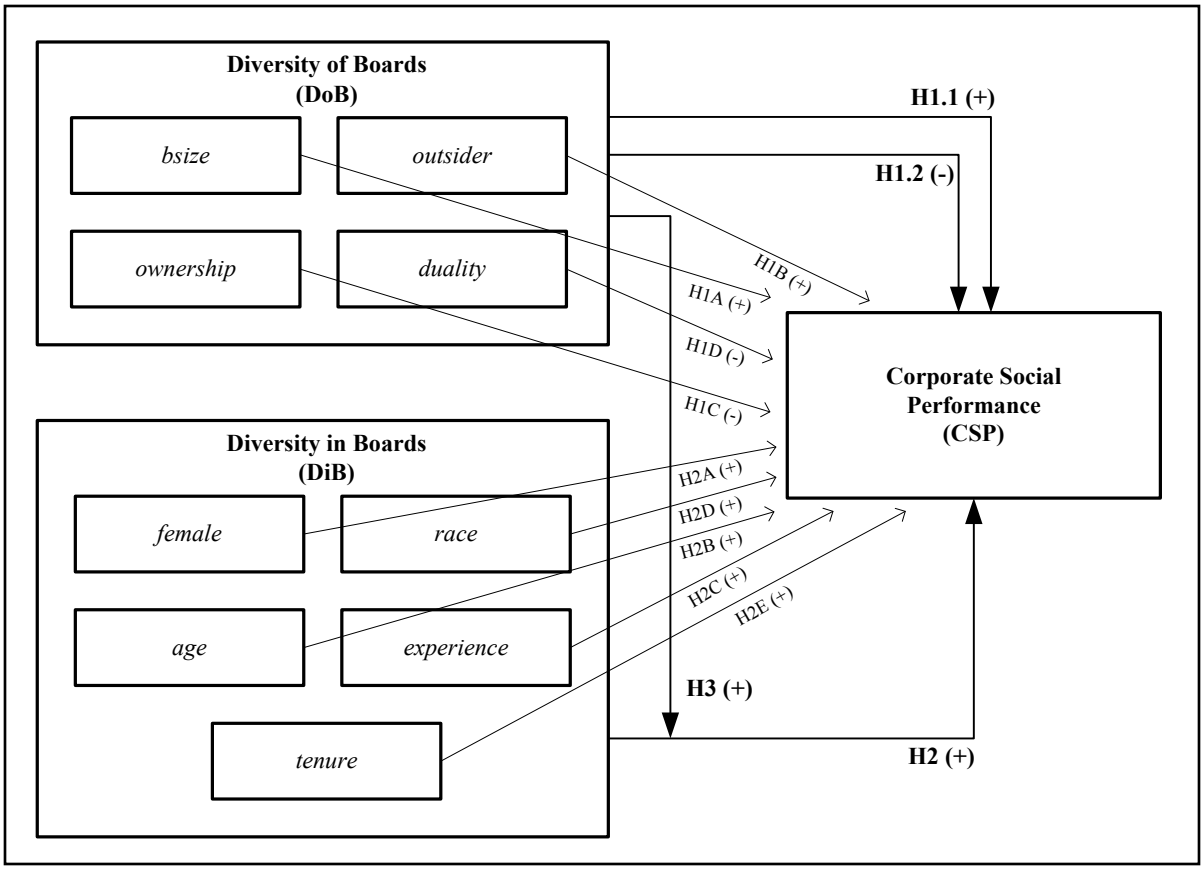
3.2.4 Research model

Table 3.1 summarizes and Figure 3.1 visualizes the model that I now undertake to test.

Table 3.1 Summary of Study Hypotheses

Hypothesis Designation	Hypothesis Relation	Hypothesis Direction
H1.1	*Diversity of boards* (i.e., DoB)	+
H1.2	*Diversity of boards* (i.e., DoB)	-
H1A	*Board size*	+
H1B	*Director independence*	+
H1C	*Director stock ownership*	-
H1D	*Board leadership duality*	-
H2	*Diversity in boards* (DiB)	+
H2A	*Director gender*	+
H2B	*Director age*	+
H2C	*Director experience*	+
H2D	*Director race*	+
H2E	*Director tenure*	+
H3	*Moderation effect of DoB & DiB*	+

Figure 3.1 Research Model: Board Diversity and Social Performance
(data year 2005)



3.3 Research Methodology

3.3.1 Sample and data sources

3.3.1.1 Sample

The data used in this study are cross-sectional and come from multiple sources. 2005 was chosen as the year of observation. An initial random sample of 200 companies listed in the S&P500 Index was selected. To minimize the effect of industry-specific board practices, I chose randomly half of my sample as companies operating in the service industries and the other half in the manufacturing industries. This sampling procedure is consistent with what was done in previous boardroom research (e.g., Bilimoria and Piderit, 1994; Ellstrand, Tihanyi, and Johnson, 2002; Johnson, Hoskisson, and Hitt, 1993). Due to inexistence of data for the same company in different data sources, I had to eliminate some firms from my sample. What's more, in order the study the same phenomenon in different years (i.e., the study in the next essay covering 2000 and 2010) with the same firms, I further eliminated some firms that did not exist in all data sources. In the end, I had to leave out 86 companies due to inconsistent information in different databases. The final sample includes 114 companies, of which 83 companies in service (72%) and 31 companies in manufacturing (28%) industries. The final sample of this study reflects the inequality in the industry division in the lists of firms with large market capitalization (e.g., S&P 500, Fortune 500, etc.), where the majority of these firms are operating in service industries. Moreover, taking a sample that skews toward service firms is commonplace in board diversity literature that focuses on large firms (e.g., Kabongo, Chang, and Li, 2013; Mallin, Michelon, and Raggi, 2013; Marquis and Lee, 2013). Finally, among the 1,304 directors in my sample, 964 were outsiders (74%), 192 were female (15%), and 132 were non-Caucasian (10%).

3.3.1.2 Data

I formed the data set using four different data sources. Information about *director age, race* and *gender* comes from IRRC-Directors database. Information about *board size, director tenure, director independence, director experience,* and *leadership duality* comes from Board Analyst database. Company-related industry information, including *financial data* and *director*

stock ownership data comes from Compustat. These databases are among the primary choice of data in empirical board-related strategy research using secondary data. Data *regarding corporate social performance* are obtained from KLD database. KLD has been widely used, particularly in studying the relationship between *corporate social performance* and a variety of explanatory variables, and specifically in board of directors' research (Hillman, Keim, and Luce, 2001; Johnson and Greening, 1999). Chatterji, Levine and Toffel (2009) contended that KLD provides a fair assessment of social performance. It is generally regarded as the most appropriate measure of *corporate social performance* available (Hillman and Keim, 2001; Johnson and Greening, 1999; Sharfman, 1996). Highlighting the importance of measurement validity of *corporate social performance*, Rahman and Post (2012) discusses in depth KLD data sets and considers that they provide arguably one of the best measures of corporate social performance. Waddock (2003) concurred that: "it is still true that the data are the best currently available to scholars… KLD's database has proven itself to be factual, reliable, broad ranging, and maintained with consistency and transparency over the past decade" (p. 371).

I assembled three different types of information from these databases. The first is company-related data, including financial and social performance results for each company in the sample. The second is board-related data, including *director independence and ownership, leadership duality* and *board size*. The third set covers director-related data, including *age, gender, race, director tenure* and *experience*.

3.3.2 Measures

3.3.2.1 Dependent variable

Corporate social performance is a prominent concept in the literature (Gond and Crane, 2010). It is generally based on a partially qualitative, and thus, subjective assessment. Therefore, it is more open to bias. Admittedly, corporate social performance is notoriously difficult to measure consistently. To overcome such a challenge, it has been suggested that social performance should be measured across a wide range of companies and for a consistent range of important social issues (Graves and Waddock, 1994). My social performance measurement protocol agrees, and complies, with such a call. As in numerous previous studies (e.g., Post, Rahman and Rubow 2011), I operationalize my measurement as an aggregation of various

performance indicators of KLD data sets. Furthermore, given the concerns, discussed by McGuire, Dow and Argheyd (2003), and Mattingly and Berman (2006), of including weaknesses and strengths into a single social performance measure, I followed their lead and left out the data on social weaknesses, using those on strengths only.

Following Hillman and Keim (2001), I initially developed a unified corporate social performance criterion, by accumulating thirty two different social performance indicators drawn from six categories. These categories include: community, corporate governance, diversity, employee relations, environment, human rights and product-related social issues. Appendix 3.1 provides details for each category.

Then, I have constructed the corporate social performance (CSP) criterion by summing all thirty two criteria. This is the conventional method, and numerous researchers used the CSP data by taking each KLD criterion giving equal (i.e., same) weights (e.g., Post, Rahman and Rubow 2011; McGuire, Dow and Argheyd, 2003). This approach, however acceptable, makes the assumption that each criterion has equal relative importance, and thus, contributes to the CSP criterion equally. I found this as a weak criteria, and decided it to be adjusted. So, to mitigate this, I have conducted factor analysis on the KLD data. As an initial step, I have aggregated the data in each KLD category, and then run the principal component analysis (PCA) with varimax rotation as the extraction procedure to learn about the eigenvector loads for each of these KLD categories.

Principal component analysis is a statistical method generally used to reduce data items. However, in addition to data reduction, the eigenvectors from a principal component analysis can be used to inquire about the underlying structure of the data at hand. So, rather than running the analysis to reduce the number of variables, I run the analysis for six components (representing six KLD categories). The principal component analysis calculated the explained variance of each of the six social performance categories, and its results are given in Table 3.2.

Table 3.2 Factor Analysis Results for KLD Categories
(data year 2006)

	Corporate Governance	Community	Diversity	Employee Relations	Environment	Product
PCA factor loads	0.078	0.151	0.168	0.366	0.110	0.125
Equal weight factor loads	0.166	0.166	0.166	0.166	0.166	0.166
% change	-112%	-10%	1%	55%	-51%	-33%

In addition, inter-item correlation matrix reports that no component is correlated. Among the highest values, only two components were correlated at 0.4 level, which is within acceptable limits. The Cronbach alpha—the coefficient of internal consistency or inter-correlations among test items that is commonly used as an estimate of the reliability of a test—was 0.6. This is an acceptable level. Kaiser-Meyer-Olkin measure of sampling adequacy—which tests whether the correlations and the partial correlations among variables are small, or in other terms, if data are likely to factor well—was 0.7. This is also an acceptable level. Bartlett's test of sphericity—which indicates that all the variables are uncorrelated—was significant at less than 1% level. Using this information coming from the factor analysis that indicates how much each KLD category contributes to the CSP, I have constructed a *corporate social performance* index that is used as the dependent variable. The details of the *corporate social performance* index (i.e., I_{CSP}) is given in Appendix 3.2.

3.3.2.2 Independent variables

The independent variables employed in this study include two indices: An index for *diversity of boards* (I_{DoB}), and one for *diversity in boards* (I_{DiB}). I constructed these two indices using nine variables: *outside directors, board size, ownership, leadership duality, gender, age, race, experience* and *tenure*. Table 3.3 illustrates the composition of each index.

Table 3.3 Diversity Indices Composition

Index	Description	Index Composition	Variable
I_{DoB}	*Diversity of boards*	*Board size* *Director independence* *Director stock ownership* *Board leadership duality*	*bsize* *outsider* *ownership* *duality*
I_{DiB}	*Diversity in boards*	*Director gender* *Director age* *Director race* *Director experience* *Director tenure*	*female* *age* *race* *experience* *tenure*

Conventionally, studies in strategy literature employ either frequency-split or category-split methods for their diversity indices. While I have initially employed these methods, I have decided to employ a different method, which encompasses multiple diversity variables together in my operationalization. I have discussed the details of the need for this unique method in Appendix 3.3.

Diversity of boards index (I_{DoB}), which measures the dissimilarity among company boards, helps me to gauge how each firm's board differs from other firms' boards in my sample. To do this, I have used the inter-sample distance measurement method (Deza and Deza, 2009). This method assesses how dissimilar—in terms of all four *diversity of boards* constructs—a firm is from all other firms in the sample. Technically, in a matrix, I first measure the distance between a firm and another firm (i.e., a pair of companies) considering all variables at the same time. I do that for the distance with all other companies. Then I take the average. As a result, I assess how distant (or diverse) a company is from the rest of the sample. Detailed information about this index-building procedure is provided in Appendix 3.4.

For *diversity in boards index* (I_{DiB}), which measures the dissimilarity among directors, this inter-sample mechanism helps to gauge how each director in a firm board differs from other directors of the same board in my sample. Again, using the inter-sample distance measurement method (Deza and Deza, 2009), I assess how dissimilar—in terms of all five *diversity in boards* constructs—a firm is from all other firms in the sample. Appendix 3.5 discusses the details of *diversity in boards index* (I_{DiB}).

Diversity of boards and *diversity in boards* indices are made up of nine constructs (see Table 3.3 for a summary of their composition). The operationalization of these constructs is as follows. *Board size* is the number of directors sitting on the board of the company (except emeritus or advisory members). *Director independence* was measured as the percentage of directors who are not employees of the company. Here, the data set I used distinguished between outside directors and related-outside directors (i.e., retired employees, relatives of chairman, etc.). To increase the construct validity, I chose to use only the former. *Director stock ownership* was determined as the percentage of total common stock owned by all outside directors, as suggested by Hoskisson, et al. (1994) and used in later governance research (e.g. Westphal and Fredrickson, 2001). *Board leadership duality* is a dichotomous variable, marked 1 if the chairman also serves as the CEO and 0 otherwise. *Director tenure* was calculated using mean outside director tenure (in years). Note that insider and affiliated directors are excluded from this operationalization as their tenure data skew toward significantly longer periods. *Director gender* was computed as the percentage of female directors on a given board. *Director age* was computed as the mean age for all directors in a board. *Director race* was quantified as the percentage of non-Caucasian directors on a given board. *Director experience* represents an index value of average accumulated director committee experience, used here as a proxy for director experience. Directors bring either previously acquired experiences to the board (e.g., acquisition experience (Kroll, Walters and Wright, 2008)), or gain experience during their tenure serving in the board (e.g., committee experience (Kesner, 1988)). Committee membership has previously been regarded as an important aspect of directorship experience (e.g., Bilimoria and Piderit, 1994). Three years of continuous experience in board's main committees (Leblanc and Gillies, 2005) are the basis of the director experience. I calculated director experience as whether, or not, a given director served continuously through three consecutive years in one or more of the four common board committees (i.e., nomination, compensation, audit and governance). The details of the operationalization of director experience is given in Appendix 3.6.

It is important here to note that conventionally in the literature the continuous variables such as director age and tenure are calculated using a coefficient of variation $(\sigma \div \mu)$, and ratio variables are calculated using Blau index $(1 - \sum p_i^2)$. This is an acceptable approach to measure diversity, where one can only use absolute values. However, in this study, diversity is measured

based on relative terms using inter-sample distance metric, which is a more precise diversity measurement method. In this method, director age and tenure are calculated using arithmetic means rather than the conventional coefficient of variation. This allows the inter-sample distance metric to assess the average range of the data set using minimum and maximum data points. With the coefficient of variation, the range of the data set would be curtailed by the standard deviation use.

3.3.2.3 Control variables

To increase the accuracy of my predictions, I controlled for two variables, which have been shown to affect firm social performance in the previous board of directors-related governance studies. The first control variable is the type of industry. The rationale is that different industries are affected by a different set of stakeholders, with different agendas and interests (Griffin and Mahon, 1997). Type of industry is a dichotomous variable, with 1 for service and 0 for manufacturing. Here, I have used two-digit SIC codes, and marked all the firms between 11 and 33 as manufacturing, and from 34 to 92 as service. *Corporate financial performance* (*CFP*) is the other control variable. Previous studies argued that social performance is related to financial performance (see Brown and Perry, 1994; Simpson and Kohers, 2002; Waddock and Graves, 1997). I measured *corporate financial performance* using the return on equity (ROE), or the ratio of profit to the outstanding shareholder value. I calculated ROE as net income divided by total common shares outstanding.

3.3.3 Analyses and Findings

3.3.3.1 Descriptive analyses

Tables 3.4 and 3.5 present the descriptive statistics of data set and the correlation matrix.

Table 3.4 Descriptive Statistics
(data year 2005)

	Min	**Max**	**Mean**	***S.D.***
I_{CSP}	5.51	7.66	6.14	.50
bsize	7	17	11	2.02
outsider	.29	.93	.74	.13
ownership	.00	.24	.02	.03
duality	0	1	.82	.38
female	.00	.50	.14	.08
age	53	67	60	2.94
race	.00	.44	.09	.09
experience	.65	2.48	1.46	.37
tenure	2.14	16.00	8.77	2.70
industry	.00	1.00	.27	.44
CFP	-1.54	8.27	2.59	1.70
I_{DoB}	.15	.35	.20	.05
I_{DiB}	.16	.40	.22	.04

N = 114 firms

Table 3.5 Correlation Matrix
(data year 2005)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	I_{CSP}	1.00													
2.	*bsize*	0.19**	1.00												
3.	*outsider*	0.13	-0.15*	1.00											
4.	*ownership*	-0.17**	0.10	-0.16**	1.00										
5.	*duality*	0.15*	0.07	0.24**	-0.07	1.00									
6.	*female*	0.29***	-0.03	0.24***	-0.08	0.08	1.00								
7.	*age*	-0.02	0.08	0.07	-0.01	0.09	-0.13*	1.00							
8.	*race*	0.33***	0.27***	0.21**	-0.14*	0.02	0.32***	-0.04	1.00						
9.	*experience*	0.12	-0.41***	0.44***	-0.15*	0.23***	0.14*	-0.02	0.04	1.00					
10.	*tenure*	0.13	0.12	-0.06	-0.07	0.14*	-0.02	0.26***	0.02	-0.08	1.00				
11.	*industry*	0.19**	0.03	0.08	-0.10	0.17**	0.07	0.10	0.15*	0.16*	0.02	1.00			
12.	*CFP*	-0.09	0.17**	0.05	0.07	0.06	-0.08	0.14*	0.15*	0.00	0.10	0.00	1.00		
13.	I_{DoB}	-0.09	0.09	-0.44***	0.20**	-0.75***	-0.07	-0.13	-0.06	-0.22***	-0.12	-0.12	-0.06	1.00	
14.	I_{DiB}	0.20***	-0.16*	-0.08	0.01	-0.13	0.23***	-0.10	0.34***	0.20***	0.00	0.13	-0.04	0.13*	1.00
15.	$I_{DoB} \times I_{DiB}$	0.03	-0.04	-0.36***	0.15*	-0.63***	0.02	-0.18**	0.10	-0.02	-0.11	-0.05	-0.07	0.82***	0.64***

(***) significance at 1% level
(**) significance at 5% level
(*) significance at 10% level
2-tailed tests
N = 114 firms

3.3.3.2 Inferential analyses

I tested the three main hypotheses regarding the effects of board diversity on corporate social performance, using an OLS estimator. The details of the regression function, along with the VIF values to inform the regression diagnostics, such as tests for multicollinearity, are given in Appendix 3.7.

Apart from regression models that comprise two independent variables, I also ran several regression analyses to study the individual effects of each of the nine variable constructs composing the independent variable indices.

Table 3.6 reports the results of the regression analyses. The different models show the effects of the indices and of individual variables over the dependent variable.

Table 3.6 OLS Results for Regressand I_{CSP}
(data year 2005)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	6.28***	5.69***	5.83***	6. 09***	5.17***	5.68***	5.15***
	(0.19)	(0.25)	(0.28)	(0.15)	(0.38)	(0.94)	(0.98)
bsize					0.06***		0.05**
					(0.02)		(0.02)
outsider					0.43		-0.06
					(0.35)		(0.38)
ownership					-1.90*		-1.25
					(1.19)		(1.15)
duality					0.11		0.08
					(0.12)		(0.12)
female						1.02**	1.07**
						(0.52)	(0.53)
age						-0.00	-0.00
						(0.01)	(0.01)
race						1.40***	1.04**
						(0.48)	(0.52)
experience						0.09	0.19
						(0.12)	(0.14)
tenure						0.02*	0.02
						(0.01)	(0.01)
I_{DoB}	-0.61*		-0.87*				
	(0.80)		(0.80)				
I_{DiB}		2.08**	2.26**				
		(1.06)	(1.07)				
$I_{DoB} \times I_{DiB}$				1.21			
				(2.65)			
industry	0.21**	0.19**	0.18*	0.22*	0.17*	0.14	0.11
	(0.10)	(0.10)	(0.10)	(0.15)	(0.10)	(0.10)	(0.10)
CFP	-0.02	-0.02	-0.02	-0.02	-0.04	0.02	-0.04*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.10)
R^2	0.05	0.08	0.09	0.05	0.14	0.21	0.25
Adj. R^2	0.02	0.05	0.06	0.02	0.09	0.16	0.18
F statistic	2.06*	3.20**	2.70***	1.93*	2.95***	4.04***	3.22***

$N = 114$ firms
(*)(**)(***) denotes significance at (10%)(5%)(1%) levels respectively.
Standard errors are presented in parentheses.
OLS regressions adjusted for heteroskedasticity

3.3.3.3 Findings

In model 1, I introduced *diversity of boards index* (I_{DoB}) to the analysis. Both Model 1 and I_{DoB} were found statistically significant at .10 level, indicating that I_{DoB} has a negative (however small) effect on *CSP*—thus rejecting the hypothesis H1.1, and accepting the hypothesis H1.2.

In model 2, I introduced *diversity in boards index* (I_{DiB}) to the regression. I can see on Table 3.6 that it is significantly related to *CSP* ($p < .05$), confirmed with a significant regression model, thus leaving hypothesis H2 confirmed.

In model 3, I introduced both I_{DoB} and I_{DiB} into the analysis to observe whether their mutual existence has an impact on social performance. Both I_{DoB} and I_{DiB} showed stronger relationships with social performance than they do alone in model 1 and model 2. Results show that when introduced together, both significantly affect CSP at .01 and at .10 level. In fact, the overall model significance is increased in model 3 than that of in previous models, confirming the hypothesis H3.

I, then, ran the regression for the interaction of I_{DoB} and I_{DiB} in Model 4. The interaction term did not show a significant relationship on social performance. However, overall model was still significant at .10 level, thus only partially supporting the confirmation of the hypothesis H3.

Next, I ran separate regression analyses to check the effects of the individual constructs that form each diversity index. In model 5, I introduced all four constructs composing the variable I_{DoB} and observe that only one of them, *board size*, has a significant impact on corporate social performance ($\beta = 0.60$, $p < .01$; and model $F = 2.95$, $p < .01$), thus I accept the hypothesis H1A. I found that director ownership has a negative significant effect ($\beta = -1.90$, $p < .10$), therefore hypothesis H1C was confirmed. Thus, with the remaining insignificant relationships, I reject the hypotheses H1B and H1D.

In Model 6, I introduced all five constructs composing the variable $I_{DiB.}$ *Female directors* ($\beta = 1.02$, $p < .05$) and *director race* ($\beta = 1.40$, $p < .01$) showed significant effects on social performance (model $p < .01$), but the effects of other variables were not significant. As a result, only hypothesis H2A and H2D were confirmed, while hypotheses H2B, and H2C were

rejected. In addition, I cautiously accept H2E as it represents a very weak relationship between *director tenure* and social performance ($\beta = 0.02$, $p < .10$).

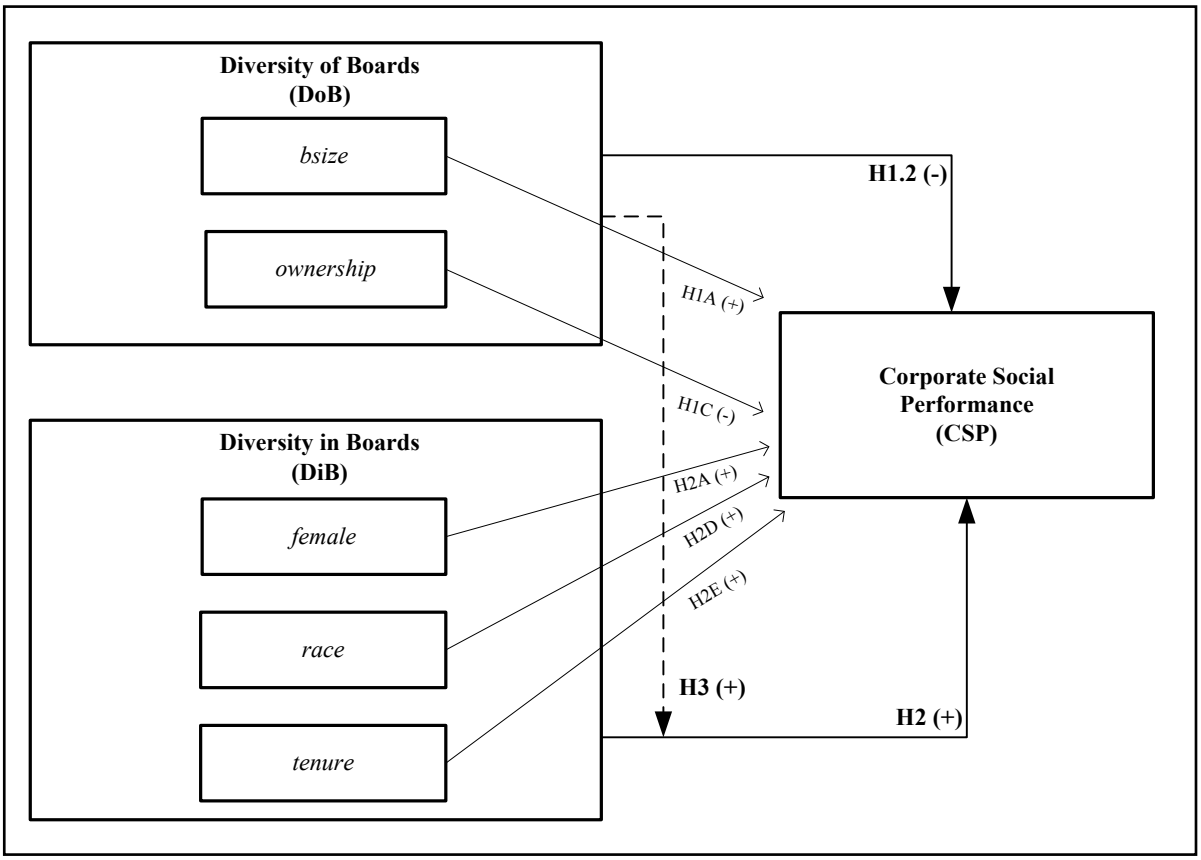
Finally, in model 7, I introduced all nine constructs composing the variables of two diversity indices together, and observed that *board size* ($\beta = 0.05$, $p < .05$), *director gender* ($\beta = 1.07$, $p < .05$) and *director race* ($\beta = 1.04$, $p < .05$) continued to have significant relationships with corporate social performance (model $p < .01$), thus confirming the acceptance of H1A, H2A and H2D.

Note that in running all seven models above, I have controlled for *industry* and *CFP* as an indicator of *corporate financial performance*. Table 3.7 summarizes and Figure 3.2 visualizes the results of the regression analyses on board diversity and social performance.

Table 3.7 Summary of Study Results

Hypothesis Designation	Hypothesis Relation	Hypothesis Direction
H1.2	*Diversity of boards* (DoB)	-
H1A	*Board Size*	+
H1C	*Director Ownership*	-
H2	*Diversity in boards* (DiB)	+
H2A	*Director Gender*	+
H2D	*Director Race*	+
H2E	*Director Tenure*	+
H3	DoB & DiB	+

Figure 3.2 Portrayal of Study Results
(data year 2005)



3.3.3.4 Post-hoc analyses

In order to further elaborate on the results of the regression analyses, I have conducted several post-hoc tests. These analyses represent my further investigation of the study data in order to find any pattern that was not specified *a priori*. The results of the following post-hoc tests, or *posteriori* tests, may present additional relationships among each of six criteria (or subgroups) of corporate social performance used, and the independent variables, and their variable constructs, which would otherwise remain undetected with the original research design of the study.

To remind, the main research model of this study considers the social performance an amalgamation of six performance criterion. In contrast, the post-hoc analyses are composed of six distinct regression analyses (i.e., disaggregated measures), where the social performance is measured based on a separate performance criterion per test. The subgroups of corporate social

performance used in post-hoc analyses include: *Corporate Governance, Community, Diversity, Employee Relations, Environment,* and *Product.*

Overall, the results of the post-hoc analyses, where the social performance is made up of six separate criterion, are consistent with the results of the main analysis of the study, where the social performance is an amalgamation of six criteria. The results of these post-hoc analyses are discussed in the discussion, and their details are given in Appendix 3.8.

3.4 Discussion

3.4.1 Research questions

The main research question of this study *'is there a statistically significant relationship between board diversity and corporate social performance, especially when board diversity is measured as a single-unit construct?'* is an important one. While numerous studies focus on examining the effects of compositional variables on social performance, rarely researchers bring the structure of the board as an influential element to board diversity. This study tries to bring both of these elements in board diversity and social performance relationship. I have tackled this main research question by theoretically classifying, and empirically testing, in three major hypotheses.

About the first hypothesis, dissimilarities in board attributes or structure, (or *diversity of boards)*, and their effect on firm performance has been the subject of much debate, especially following the governance scandals in 2002. Logically, different board configurations, like any other critical resource, yield different firm outcomes, which, in turn, help shape the competitive and the strategy of that firm (Porter, 1996). The results of this study (H1.2) point that structural differences of the boards, or *diversity of boards*, has a negative impact on the social performance of the firms. This confirms the agency theory view that structurally similar boards will more likely invest in social performance programs that can help achieve future success, and even minimize adverse market and regulatory reactions (Neubaum and Zahra, 2006).

About the second hypothesis, this study's results pertaining to the dissimilarities in board composition, or in director attributes, or *diversity in boards* (H2), fits into the pattern set in the literature as board diversity brings better firm performance (e.g., Useem, 1993; Westphal and Milton, 2000); in particular, corporate social performance (e.g., Bear et al. 2010; Post et al. 2011; Wang and Coffey 1992; Williams 2003). Well-functioning boards bring fruitful advice and counsel to the management. The directors facilitate the communication with external organizations and help to gain access to their support (Pfeffer and Salancik, 1978). Relatedly, directors are instrumental in safely navigating the business challenges (Boyd, 1990), and can provide unparalleled assistance to the management in firm's strategic direction (Hillman and Dalziel, 2003), and even foster better ties with external organizations (Pfeffer, 1972) for gains in various forms. The human capital resources directors are bringing to the firm are not only

limited to firm's strategy, but also include precious knowledge on regulations, on community relations and on other external stakeholders (Hillman et al., 2000). Since these resources are very useful for the firm, the greater diversity of obtaining them can bring a better understanding of challenges about the external stakeholders. Therefore, a diverse board, where the directors bring different types of human capital may foster problem solving in social matters (Bear et al., 2010).

About the third hypothesis (i.e., combined effects of *diversity of boards* and *diversity in boards*), the dominant logic in studying the boards among researchers has traditionally been the agency perspective. However, more researchers have been calling for employing both agency and resource perspectives together to better understand board effectiveness. These theories have been used because they explain the underlying rationale of two key functions of the board-monitoring and advising. However, while theoretically distinct, these two roles overlap at times. To effectively monitor the management, the board needs a set of resources, such as, knowledge, skills, expertise and experience (Hillman et al., 2000; Hillman and Dalziel, 2003). For instance, Carpenter and Westphal (2001) reported that directors' functional background and their previous job experience were crucial for effective monitoring. Diversity in director resources can provide these skills, which can increase the effectiveness of monitoring. This study signals a moderation effect, but fails to demonstrate it in a statistically significant relation between diversities of board structure and composition (H3). However, this finding does not necessarily signal that such a relationship does not exist, and that *diversity of boards* and *diversity in boards* do not interact. A possible explanation may be that the board diversity constructs may serve for different board functions. For instance, keeping a large number of inside directors on a board may be harmful for monitoring purposes, but at the same time, it can be very beneficial for advising purposes (Hillman and Dalziel, 2003; Westphal, 1999). Consider directors that are immediate stakeholders of the firm. These parties may include suppliers, customers, or employees. These directors have more reasons to provide resources, as they will more likely benefit more when the firm performs. That is, a larger number of inside directors may be very desirable.

In any way, the relationship between the structure and the composition of the board is complex (Rediker and Seth, 1995). This complexity begs for further understanding of it, as these two perspectives are not only complementary to each another (Hillman and Dalziel, 2003),

but also, as argued by numerous prominent scholars, is a requisite for effective board functioning (e.g. Carpenter and Westphal, 2001; Dalton et al., 1998; Johnson et al., 1996; and, Zahra and Pearce, 1989).

3.4.2 Results

In terms of the results, this study highlights a few important points. First, the results confirm that board diversity is a context-dependent phenomenon. That is, when combining the variable constructs into diversity indices, I have observed that both *diversity of boards* (i.e., I_{DoB}) and *diversity in boards* (i.e., I_{DiB}) indices have significant impacts on *corporate social performance* index (i.e., I_{CSP}) (see Table 3.6). However, results became more potent when combining two independent variables together, where each variable is increased in its significance level, including the model significance, suggesting that director demographic attributes (i.e., *diversity in boards)* have a more powerful impact on corporate social performance when taking into consideration the board structure (i.e., *diversity of boards).* This is confirmed with the fact that there is an increase in the model's R^2. A regression analysis' R^2 result shows the overall predictive capability of the model. It is true that simply adding new variables to the model results in the inflation of the model variance, or R^2, even if the new variables have no real predictive capability. That is why it is recommended to use adjusted R^2 over R^2 in interpreting the model variance as it is not affected by the artificial inflation of this value. In this study, adjusted R^2 confirms that when taking together diversity *of boards* and *diversity in boards*, the model becomes more powerful.

Examining the constructs of diversity *of boards*, board size (H1A) was found significantly (and positively) related to the corporate social performance (see model 5 in Table 3.6). This result is confirmed by a strong model significance. It has been argued earlier that social pressures from the community for a wider representation may force firms to acquire relatively larger boards for a wider representation (e.g., Hillman and Keim, 2001), and larger boards seem to improve corporate social performance (e.g., Hillman, Keim, and Luce, 2001). Previous studies found similar results (e.g., de Villiers et al., 2011). The results of this study, then, reinforce this observation, by adding that larger boards contribute more to the social performance of the firm when measured with the KLD data with using *corporate governance*, *community* and *diversity* data categories therein.

Examining the constructs of *diversity in boards*, director gender (H2A) and race (H2D) were found significantly (and both positively) related to the social performance. *Director gender* has a positive significant impact on the corporate social performance (see model 6 in table 3.6). This result is confirmed by a strong model significance. This is consistent with the often visited view that director gender is one of the most important signals of diversity in corporate boards (Hillman, Shropshire, and Cannella, 2007). In the literature, director gender is conventionally found positively related to firm's social performance (e.g., Siciliano, 1996). For instance, using the same data, where the United States is chosen as a sampling setting with firms coming from a mixture of industries, Boulouta (2013), Mallin et al. (2013), Marquis and Lee (2013), and Kabongo et al. (2013) have found that director gender has a positive impact on corporate social performance. This positive outlook of directors gender is also found in studies that used data from particular industries, such as health care (Bear et al., 2010), or in studies that used data from other countries, such as China (Jia and Zhang, 2013), or South Africa (Ntim and Soobaroyen, 2013). In sum, the results of this study on director gender reinforce this pattern reported in the literature.

Moreover, *director race* also has a strong positive significant impact on the corporate social performance (see model 6 in Table 3.6). This result is confirmed by a strong model significance. Here, it is important to note that the *director race* variable construct employed in this study is a conservative measure. I have assumed all directors, which does not have a racial information reported by KLD, as Caucasian (note that these directors, who had incomplete racial information made less than 15% of overall directors in my sample). Since it is likely that there may be racially-diverse directors among these all-Caucasians group, then, it is fair to assume that the impact of *director race* may be even stronger than what this study detects.

In studying director race, it has been previously hypothesized that racially diverse directors influence boards' decision on better servicing stakeholders' needs (Zajac and Westphal, 1996a), and this could, in turn, improve the firm's image and relationships with these stakeholders, and ultimately, its performance. Previous studies confirmed this hypothesis (e.g., Kabongo et al., 2013; Ntim and Soobaroyen, 2013). The results of this study provide additional evidence to this line of thinking that racially diverse boards have a better corporate social performance, especially when measured with the KLD data coming from *community*, *diversity*, *environment* and *product* data categories therein.

3.4.3 Methodology

The dependent variable of this study is a relatively more fine-grained *corporate social responsibility* measure. For instance, previous researchers conventionally measure corporate social responsibility by giving each KLD criterion giving equal (i.e., the same) weights in constructing their CSP metric. (e.g., McGuire, Dow and Argheyd, 2003; Post, Rahman and Rubow, 2011). Contrary to this approach, I went one step further and have used variance-based factor loads in *corporate social responsibility* index (i.e., I_{CSP}). Using principal component analysis, I have generated eigenvector values and multiplied them, as constants, with each CSP component (or KLD criterion). This is a better way to detect the relative contribution of the CSP factors.

The independent variables of this study were formed with taking actions against possible endogeneity issues raising among the independent variables, their variable constructs, and the dependent variable of the study. In particular, first, I have dropped the criterion *board of directors* in *diversity* category of the KLD data set when constructing the *corporate social performance* index (i.e., I_{CSP}). This is due to the fact that, in this criterion, KLD reports "whether women, minorities, and/or the disabled hold four seats or more [in the company's board of directors]". Although this information is different and indirect from what my constructs are measuring, due to this criterion's close proximity to *director gender* and *director race* constructs of this study, I have decided to exclude it, thereby minimizing the risk of endogeneity within the research design. Moreover, there is no direct endogeneity problem between *diversity* category of the KLD data, which, along with other categories, forms dependent variable, and either of diversity indices (i.e., the independent variables) of this study. That is because, *diversity* category of the KLD data measures, whether the firm is doing contract-based business with firms that are owned by women or people of minority races; whereas the independent variables (i.e., *diversity of boards* = board size + director independence + director ownership + leadership duality; *diversity in boards* = director gender + director race + director age + director experience + director tenure) measure the amalgamation of numerous diversity constructs together.

Second, I have included the criterion *ownership* (in *corporate governance* category) to *corporate social performance* index. This action does not create endogeneity problems as the *ownership* reported by the KLD data set, which measures ownership of the firm assets, is entirely different from the *ownership* that I am measuring, which pertains to director *ownership.*

Third, I have also included the criterion *women and minorities' contracts* (in *diversity* category of the KLD data set) to *corporate social performance* index. This criterion (i.e., *diversity* category of the KLD data) reports a firm-level diversity phenomenon, specifically assessing whether the firm is doing contract-based business with firms that are owned by women or people of minority races. Again, this information is entirely different from *director gender* or *director race* constructs I am measuring, which belong to a board-level diversity phenomenon.

Furthermore, about the independent variables, I have made the assumption that each variable constructs of *diversity of boards* and *diversity in boards* has equal contribution to board diversity. Therefore, I have given equal weights to the relative contributions of each variable to the distance function when constructing *diversity of boards* (i.e., I_{DoB}) and *diversity in boards* (i.e., I_{DiB}) indices. It is unlikely, in any phenomena in social sciences, that the contracts a researcher is studying have exactly equal theoretical contribution to the research model at hand. However, due to the complexity of the board diversity measures of this study, I have decided to construct both I_{DoB} and I_{DiB} with equal contribution assumption first, and then, observe their impact in a relatively less complex setting. This would let me to detect any faults in both board diversity indices much quickly. After confirming that the board diversity indices are functioning properly using this approach in this study, I can further design the same study by taking into account the variance-based factor loads that can be obtained from principal component analyses in the future steps of this study.

3.4.4 Post-hoc analyses

I have conducted several post-hoc tests, whose details are given in Appendix 3.8. In these analyses, I have observed that the KLD criteria *community*, *diversity* and *environment* have yielded more statistically significant results than the other KLD criteria (i.e., *corporate governance, employee relations* and *product*).

The descriptions of these criteria are given in Appendix 3.1. To remind, briefly, *community* criterion informs to what extent the firm is giving back to its stakeholders in terms of charitable giving and other forms of support; *diversity* criterion informs to what extent the firm is taking care of its human resources in terms of their work-related quality of life; and. *environment* criterion informs to what extent the firm is taking care of its surrounding in terms of preserving, not polluting, recycling, etc.

The results of the post-hoc analyses have yielded that the results of this study generally overlap with the evidence provided in previous research examining these corporate social responsibility subgroups either using KLD or other data sources. For instance, regarding *community* subgroup of KLD, I have found that board size and director race are positively related to *community*. Similarly, Kabongo et al (2013) also found that director race is positively related to *community* using the KLD dataset. Using non-KLD data, Marquis and Lee (2013) also found that board size is positively related to philanthropic activities of the firm. In addition, regarding *diversity* subgroup of KLD, I have found that director gender and race are positively related to *diversity*. Similarly, using data from American firms, Mallin et al (2013) found gender, and using data from South African firms, Ntim and Soobaroyen (2013) found director gender and race are positively related to diversity-related disclosure. Moreover, regarding *environment* subgroup of KLD, I have found that director independence is positively related to *environment*. Similarly, de Villiers et al (2011) and Walls et al (2012), using the KLD dataset, and Kock et al (2012), using non-KLD data, also found that director independence is positively related to environment.

These examples provide evidence that the results of this study show similar patterns with the previous research studying the same constructs of the larger umbrella-term concept of a unified corporate social responsibility measure.

3.5 Contribution of the study

I have tried to contribute to the corporate governance and corporate social responsibility literature in numerous ways. The contributions that have been achieved through this study can be summarized in a few points.

3.5.1 Research questions and results

I have conducted this study with the understanding that at the center of some of the problems of board scholarship in relation to firm performance (e.g., Daily, Certo, and Dalton, 1999; Dalton, Daily, Ellstrand, and Johnson, 1998; Finkelstein et al., 2009) lies how researchers perceive the concepts that they are using, and relatedly, how they understand them (Nielsen, 2012). Scholars pointed out earlier that measurement errors occurred as a result of construct definitions and, instead of generating new knowledge and adding to our understanding of organizational phenomena, and further, they could lead to more confusion (Churchill, 1979). This paper aims at proposing clearer definitions and measurements of board diversity, and responds to many scholars' call for consistent terminology (Pfeffer, 1993).

The main research question of the study (i.e., whether board diversity affects corporate social performance) is important (Withers, Hillman and Cannella, 2012), timely (Adams, Haan, Terjesen and Ees, 2015; Hillman, 2015;) and previously called for attention (Bear et al. 2010; Milliken and Martins 1996; Post, Rahman and Rubow, 2011), especially by prominent researchers of the board of directors scholarship in strategy (e.g., Daily and Dalton, 2003; Finkelstein et al., 2009; Hambrick, 2007; Hambrick, Werder and Zajac, 2008) and in financial economics (e.g., Carter, Simkins and Simpson, 2003; Hermalin and Weisbach, 2001; Shleifer and Vishny, 1997) disciplines. This study tackles this research problem, and reports findings related to its understanding. To that end, theoretical contribution of this paper is multiple.

In terms of board diversity, I have tried to theoretically clarify the often-used board diversity concept by distinguishing between the individual board members and the overall board characteristics. This, I have argued, is necessary to be able to assess the effect of the large number of variables affecting governance by the board. There is a rich set of relations between diversity among boards (i.e., *diversity of boards*), diversity within boards (i.e., *diversity in*

boards) and firms' performance. I believe that diversity between boards (i.e., *DoB*) is a necessary ingredient in corporate governance. Yet, in itself it is insufficient to explain corporate social performance. I further argue that it is only in conjunction with diversity within boards (i.e., *DiB*) that we can find meaningful results. In other words, *diversity in boards* determines corporate performance, social or financial, and where defined properly, strategic behavior. Such a relation is expected to be moderated by *diversity of boards*.

Earlier, strategy scholars have raised the importance of studying board's structure (e.g., Johnson, Hoskisson and Hitt, 1993) and composition (e.g., Baysinger and Butler, 1985) and taking these two perspectives together (e.g., Kosnik, 1990) for a better understanding of board-related managerial decision making. Traditionally, board diversity researchers took the board composition lens to empirically study firms' performance. More recently, some prominent board scholarship researchers have recommended marrying the structure and composition perspectives, and studied them together (Hillman and Dalziel, 2003). This study is intended to be a step toward these calls.

In terms of corporate social responsibility, the social performance of firms has garnered much less attention than financial performance of the firms from board diversity researchers (Ferreira, 2010). Several authors have called for an in-depth understanding of corporate social performance on firm's strategy (e.g., Bear, et al., 2010; McGuire, et al., 2012), and raise the importance of empirical evidence to guide future research (e.g., Walls, et al., 2012). Relatedly, previous research studying structural (e.g., Deutsch and Valente, 2013) and compositional (e.g., Boulouta, 2013) elements of the board and firm social performance have provided some guidance on the subject. However, most of these studies have only taken a holistic perspective on corporate social performance, and measured it with a metric that measures the corporate social performance in a unified manner, and as a single construct (e.g., Hafsi and Turgut, 2013; Harrison and Coombs, 2012; Mallin, et al., 2013;). This study reports empirical findings of social performance both as a unified measure (i.e., the dependent variable—corporate social performance), and as separate elements that comprise the overall corporate social performance (i.e., data used in post-hoc analyses—sub-elements of corporate social performance. Therefore, the results of this study not only provide evidence to the understanding of the effects of these board variables on corporate social responsibility, but also shed light to what kind of social performance is affected by these board variables.

Scholars have previously argued the abstractness of the corporate social responsibility concept (Carroll, 1991), and called for a better understanding of the subject (Carroll, 1999; Dahlsrud, 2008), especially in relation to board of directors' context (Post, et al., 2011). This study also aims to answer these calls.

3.5.2 Methodology

After theoretically clarifying the often-used board diversity concept in detail in the previous theoretical paper by distinguishing between individual board members and overall board characteristics, I have empirically tested this relationship on corporate social performance in this empirical study paper. Thus, the methodological contributions of this study are several.

First, I have empirically studied board diversity with two different theoretical perspectives together. Therefore, the multiple theoretical lenses and its related research design of this study represent different dimensions of board diversity. Theses dimensions, or constructs, are used to make up two separate independent variables. These independent variables are operationalized through diversity indices, which measure the structural diversity and the demographical diversity of the board.

Second, I have used nine board diversity constructs, and I have tried to operationalize them as accurately as possible. For instance, I have taken a lag year in measuring the corporate social performance; or, I have constructed director experience by measuring the average year of director tenure in the firm's board, thus, calculating the accumulated committee serving experience within these previous years. These operationalizations represent some of the best practices conducted by prominent researchers in the board-related management literature.

Third, I have conducted extensive post-hoc tests over the dependent variable by separating it into different parts, and running regressions on each of them using the same independent and control variables I have used in the main research model.

Fourth, I have introduced a novel approach to construct diversity indices. Conventionally, diversity indices are built based on tercile-split (or quartile-split) method for continuous variables, and entropy based methods, such as Blau Index, for categorical variables in the strategy literature. Among these methods, especially the tercile-split method, however relatively easy to calculate, lacks precision in determining the data's minimum and maximum weight loads within the same data tercile. The method I am introducing (i.e., inter-sample

distance metric) is not only more precise in distinguishing the relative contributing weight of each data point to the diversity matrix, but also is a standardized measure, and thus, can be used for binary, continuous, and categorical data all at once within the same metric.

Last, I have put the diversity matrix method that I proposed in this paper into usage with real business world data (i.e., S&P500 firms). I have demonstrated that the diversity matrix method that I have conceptually introduced yields meaningful results. As such, the method I am proposing may help researchers, who use diversity metric-methodologies, to more accurately measure their data by aggregating their numerous diversity-related variables into a single diversity matrix.

3.6 Conclusion

In the previous paper, I have clarified the board diversity concept by distinguishing between a structural diversity and a demographic diversity of the boards. In this paper, I have sought to answer whether there is a significant relationship between both structural and demographic diversity of the boards and their firms' corporate social performance. By introducing diversity indices, I have empirically investigated this probable link in a sample of S&P500 firms.

Among independent variables, I have found that *diversity of boards* (negatively) and *diversity in boards* (positively) have significant effects on corporate social performance. Among separate constructs, I have found that board size (positively), director ownership (negatively), director gender (positively), director race (positively) and director tenure (positively) have significant effects on corporate social performance. Using the post-hoc analyses, I have also found that the independent variables *diversity of boards* and *diversity in boards* have the highest effect on the KLD criterion *diversity* as a source of corporate social performance. I have also found that firms with larger boards have a better corporate social performance, where the source of this performance is measured by *corporate governance*, *community* and *diversity* categories of the KLD data; and firms with racially diverse boards have a better corporate social performance, where the source of this performance is measured by *community, diversity*, *environment* and *product* categories of the KLD data.

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Appendix 3.1 KLD Category Criteria

Below, I present the unified corporate social performance criterion, which is accumulated by thirty two different social performance indicators drawn from six categories.

KLD's Corporate Social Performance Criteria Used in and Excluded from the Study

#	CSP Category	Criteria Used	Criteria Dismissed
1	Corporate Governance	1. Limited Compensation 2. Ownership Strength 3. Transparency Strength 4. Other Strength	Political Accountability (data not available for 2005)
2	Community	5. Charitable Giving 6. Innovative Giving 7. Support for Housing 8. Support for Education 9. Non-US Charitable Giving 10. Other Strength	Volunteer Programs (data not available for 2005)
3	Diversity	11. CEO 12. Promotion 13. Work/Life Benefits 14. Women & Minority Contracting 15. Employment of the Disabled 16. Gay & Lesbian Policies 17. Other Strength	Board of Directors (dropped for endogeneity reasons)
4	Employee Relations	18. Union Relations 19. Cash Profit Sharing 20. Employee Involvement 21. Retirement Benefits Strength 22. Health and Safety Strength 23. Other Strength	No-Layoff Policy (data inconsistencies)
5	Environment	24. Beneficial Products and Services 25. Pollution Prevention 26. Recycling 27. Clean Energy 28. Other Strength	Communications (data not available for 2005) Property, Plant, and Equipment (data not available for 2005)
6	Product	29. Quality 30. R&D/Innovation 31. Benefits to Economically Disadvantaged 32. Other Strength	*none*

Note: There are originally seven "Qualitative Issue Areas" reported by the KLD dataset. However, I have dismissed the *Human Rights* category from my CSP criterion. The reasons include: (1) data in its two criteria (i.e., *Positive Record in South Africa* and *Labor Rights Strength*) are not available for 2005; and (2), after conducting a

principal component analysis, I have found that the data in the remaining two criteria (i.e., *Indigenous Peoples Relations Strength* and *Other Strength*) were not yielding adequate variance.

Moreover, in the following section, I present the detailed information about each category criteria as collected by the KLD that I used in constructing *corporate social performance* index (i.e., I_{CSP_z}). The data are reported in binary form—1 represents criterion fulfilled, 0 represents criterion not fulfilled.

Corporate Governance

Limited Compensation	The company has recently awarded notably low levels of compensation to its top management or its board members. The limit for a rating is total compensation of less than $500,000 per year for a CEO or $30,000 per year for outside directors.
Ownership Strength	The company owns between 20% and 50% of another company KLD has cited as having an area of social strength, or is more than 20% owned by a firm that KLD has rated as having social strengths. When a company owns more than 50% of another firm, it has a controlling interest, and KLD treats the second firm as if it is a division of the first.
Transparency Strength	The company is particularly effective in reporting on a wide range of social and environmental performance measures, or is exceptional in reporting on one particular measure.
Other Strength	The company has a unique and positive corporate culture, or has undertaken a noteworthy initiative not covered by KLD's other corporate governance ratings.

Community

Charitable Giving	The company has consistently given over 1.5% of trailing three year net earnings before taxes to charity, or has otherwise been notably generous in its giving.
Innovative Giving	The company has a notably innovative giving program that supports nonprofit organizations, particularly those promoting self-sufficiency among the economically disadvantaged.
Support for Housing	The company is a prominent participant in public/private partnerships that support housing initiatives for the economically disadvantaged, e.g., the National Equity Fund or the Enterprise Foundation.
Support for Education	The company has either been notably innovative in its support for primary or secondary school education, particularly for those programs that benefit the economically disadvantaged, or the company has prominently supported job-training programs for youth.
Non-US Charitable Giving	The company has made a substantial effort to make charitable contributions abroad, as well as in the U.S. To qualify, a company must make at least 20% of its giving, or have taken notably innovative initiatives in its giving program, outside the U.S.
Other Strength	The company has either an exceptionally strong in-kind giving program or engages in other notably positive community activities.

Diversity

CEO	The company's chief executive officer is a woman or a member of a minority group.
Promotion	The company has made notable progress in the promotion of women and minorities, particularly to line positions with profit-and-loss responsibilities in the corporation.
Work/Life Benefits	The company has outstanding employee benefits or other programs addressing work/life concerns, e.g., childcare, elder care, or flextime.
Women & Minority Contracting	The company does at least 5% of its subcontracting, or otherwise has a demonstrably strong record on purchasing or contracting, with women and/or minority-owned businesses.
Employment of the Disabled	The company has implemented innovative hiring programs; other innovative human resource programs for the disabled, or otherwise has a superior reputation as an employer of the disabled.
Gay & Lesbian Policies	The company has implemented notably progressive policies toward its gay and lesbian employees. In particular, it provides benefits to the domestic partners of its employees.
Other Strength	The company has made a notable commitment to diversity that is not covered by other KLD ratings.

Employee Relations

Union Relations	The company has taken exceptional steps to treat its unionized workforce fairly.
Cash Profit Sharing	The company has a cash profit-sharing program through which it has recently made distributions to a majority of its workforce.
Employee Involvement	The company strongly encourages worker involvement and/or ownership through stock options available to a majority of its employees; gain sharing, stock ownership, sharing of financial information, or participation in management decision making.
Retirement Benefits Strength	The company has a notably strong retirement benefits program.
Health and Safety Strength	The company has strong health and safety programs.
Other Strength	The company has strong employee relations initiatives not covered by other KLD ratings.

Environment

Beneficial Products and Services	The company derives substantial revenues from innovative remediation products, environmental services, or products that promote the efficient use of energy, or it has developed innovative products with environmental benefits. (The term "environmental service" does not include services with questionable environmental effects, such as landfills, incinerators, waste-to-energy plants, and deep injection wells.)
Pollution Prevention	The company has notably strong pollution prevention programs including both emissions reductions and toxic-use reduction programs.
Recycling	The company either is a substantial user of recycled materials as raw materials in its manufacturing processes, or a major factor in the recycling industry.
Clean Energy	The company has taken significant measures to reduce its impact on climate change and air pollution through use of renewable energy and clean fuels or through energy efficiency. The company has demonstrated a commitment to promoting climate-friendly policies and practices outside its own operations.

Other Strength	The company has demonstrated a superior commitment to management systems, voluntary programs, or other environmentally proactive activities.

Product

Quality	The company has a long-term, well-developed, company-wide quality program, or it has a quality program recognized as exceptional in U.S. industry.
R&D/Innovation	The company is a leader in its industry for research and development (R&D), particularly by bringing notably innovative products to market.
Benefits to Economically Disadvantaged	The company has as part of its basic mission the provision of products or services for the economically disadvantaged.
Other Strength	The company's products have notable social benefits that are highly unusual or unique for its industry.

Appendix 3.2 Details of the Corporate Social Performance Index (I_{CSP})

Using the information coming from the factor analysis that indicates how much each KLD category contributes to the CSP, I have constructed a *corporate social performance* index that is used as the dependent variable. In doing so, I have multiplied the percentage of total variance explained (based on eigenvalue) of each component that corresponds to each KLD category (i.e., PCA factor loads) with the aggregate data for that KLD category. In mathematical terms, the *corporate social performance* index (i.e., I_{CSP}) I am using can be expressed as:

$$(I_{CSP})_{z,t} = \sum_{1}^{n} \left(C_n \times V_{n_{z,t}}\right)$$

and,

z = 1, 2, 3, …, 114
n = 1, 2, 3, …, 6
t = 2006;

where,

z is sampled firm
n is KLD category
t is sample year;

and,

$I_{CSP_{z,t}}$ is *corporate social performance* index value (or criterion) for firm z, in year t;
C_n is percentage of explained variance (from principal component analysis) for component n;
$V_{n_{z,t}}$ is sub-total of the performance loading (or aggregate data) of firm z, in year t, in a given KLD category corresponding to component n (from principal component analysis).

Appendix 3.3 The Need for a Multiple-Variable Diversity Index

The use of indices is an oft-employed practice in governance research (e.g., Bebchuk, Cohen and Ferrell, 2009; Gompers, Ishii and Metrick, 2003). More specifically, pluralism indices were previously used to measure diversity in various aspects of board of directors (e.g., Molz, 1995). In this research, I measure different board diversity phenomena. While *diversity in boards index* (I_{DiB}) measures differences in director demographics within a given board, *diversity of boards index* (I_{DoB}) measures differences in board structure among different company boards.

First, I have constructed *diversity in boards index* (I_{DiB}) using terciles split method as it is the most common method in the literature. The construction of this index is straightforward. As employed in Dittmar and Mahrt-Smith (2007) and Francoeur et al. (2008), the index is composed of amalgamation of discrete values for each variable. For continuous variables, I divided the sample into terciles. The values for these variables are 0, 1 and 2 (representing below average, average and above-average values). I give values of 0 and 1 for dichotomous variables. In addition, for validity purposes I have cross-checked the results by splitting the sample into quartiles. The results of the quartiles method did not change from that of terciles.

Although frequency-split or category-split methods, such as terciles- or quartiles-split are accepted methods for creating diversity indices, their usage is rather limited. There are three major problems in employing this method. (1) First, in terciles-split method, the weights for each construct is chosen in a rank order, which is highly susceptible to extreme values (Fiedler and Armbruster, 1994). To illustrate this in an example, the elements of the set A, where A = {1, 3, 5, 12}, receives the 1st, 2nd, 3rd and 4th rankings respectively, although the difference between 5 and 12 is 7, while the difference is 2 for the rest of the elements of the set. That is to say, 12, as an extreme value in this set, is not affected in ranking order. In layman's terms, one cannot judge the true distance between elements of a number string if they are expressed in ranking order. The dataset I am using in this study has extreme values, and since this method uses ranking order, the terciles-split method becomes less effective for this type of study. (2) The second reason is the terciles-split method may be a better choice in small sample size studies. As the researcher divides his or her sample into three equal groups based on the weights of the index constructs, the difference becomes less prone to the measurement error in small sample size studies (Seidler, 1974). On the other hand, in a study, such as this one, where there

are 114 firms and 1,304 directors, dividing the sample in three equal groups creates a larger measurement error. For instance, the difference between the last element of the second tercile and the first element of the third tercile of the data is much smaller in a larger sample study than that of in a smaller sample size study. (3) Measurement in different dimensions causes errors in measurement procedures (Carron and Brawley, 2000). In this study, *diversity in boards* and diversity *of boards*, in fact, represent a diversity phenomenon in different dimensions. *Diversity in boards* shows differences within a firm's board. Diversity *of boards* shows the differences among a group of firms' boards. While the unit of observation in *diversity in boards* is individual (i.e., director); the unit of observation in diversity *of boards* is group (i.e., boards of directors). For this reason, I have eliminated the need for a multi-level research design by unifying the unit of analysis as being the firm in both *diversity in boards* and in diversity *of boards* indices. However, the terciles-split method is not a data standardization method, as such it does not take into consideration the different dimensions of the data.

For these reasons, I have searched for a better method that can provide more accurate results given my research design. I have constructed my diversity indices in a way that they can both better measure the dissimilarity among their constructs.

Appendix 3.4 Procedure for *diversity of boards* Index (I_{DiB})

Recall that, in this data set, each data point (i.e., company board), is represented with four variable constructs, or features, in terms of *diversity of boards.* I have discussed my operationalization of these constructs in detail in the measures section. My calculation of *diversity of boards index* is as follows: the first variable is the number of directors sitting in a given board; the second and third variables are the percentage of outside directors of a given board and the percentage of company shares owned by all directors of a given board, respectively; the fourth variable represents whether CEO also acts as chairman or not. As such, my data set is composed of heterogeneous variables, in which the first variable is discrete, the second and third variables are continuous, and the fourth variable is of a dichotomous nature.

Physically, distance is a numerical description of how far apart objects are. In mathematics, distance is a reflection of physical distance. Using a dissimilarity matrix, a collection of proximities that are available for all pairs of *n* objects can be stored. In measuring inter-sample distances, the distance-measurement tool compares data samples in a matrix and provides a metric to assess how (dis)similar they are. Measured difference, or dissimilarity between two objects, or $d(i, j)$, is a non-negative number that is close to 0 when objects *i* and *j* are highly similar or 'near' each other, and becomes larger as they differ more. Several measures of inter-sample distances are formulated depending on the types of variables (i.e., binary, nominal, interval-scaled, and ratio-scaled). For instance, the Euclidean distance metric previously used in management studies (e.g., Roth & O'Donnell, 1996; Thatcher, Jehn, & Zanutto, 2003) measures paired distances only in interval-scaled variables.

However, as discussed earlier, since my data set is made of different types of variables, I use an aggregated distance function that enables us to combine all types of variables in a single dissimilarity matrix, and, hence, assess them together (Han, Kamber, & Pei, 2011). That is, the dissimilarity between data points can be computed even when the variables describing these data points are of different types. This function is defined by Han et al. as:

$$d(i,j) = \frac{\sum_{f=1}^{p} \delta_{ij}^{(f)} d_{ij}^{(f)}}{\sum_{f=1}^{p} \delta_{ij}^{(f)}} \quad (1)$$

where i and j are two p-dimensional data points represented as $(x_{i1}, x_{i2}, ..., x_{ip})$ and $(x_{j1}, x_{j2}, ..., x_{jp})$ respectively, and $d(i,j)$ is a distance function (metric) used to express the (dis)similarity between two data points (i.e., i and j in this case). Then, the contribution of variable f to the dissimilarity between i and j (i.e., $d_{ij}^{(f)}$) is computed dependent on its type:

1. If f is binary or nominal: $d_{ij}^{(f)} = 0$ if $x_{if} = x_{ij}$, or otherwise $d_{ij}^{(f)} = 1$
2. If f is interval-scaled: $d_{ij}^{(f)} = \frac{|x_{if} - x_{jf}|}{\max_h x_{hf} - \min_h x_{hf}}$
3. If f is ordinal or ratio-scaled: compute ranks r_{if} and $z_{if} = \frac{r_{if} - 1}{M_f - 1}$, and treat z_{if} as interval-scaled $(r_{if} \in \{1, ..., M_f\})$

In this function, the contribution of all different types of variables to the dissimilarity (i.e., $d_{ij}^{(f)}$) are normalized, and hence expressed on a common scale of (0, 1).

In my analysis, I individually compute the distance of each data point (i.e., company board) to all other data points in my data set using the above mentioned metric. Here, I have given equal weights to the relative contributions of each variable to the distance function (i.e., $\delta_{ij}^{(f)} = 1$). Then, I average the computed distances of each data point to all other data points using the formula below:

$$d(i,j) = \frac{\sum_{f=1}^{p} d_{ij}^{(f)}}{s} \quad (2)$$

And for the average distance to all the other boards I use:

$$D(i) = \frac{\sum_{z=1}^{k} d(i,z)}{k-1} \tag{3}$$

where,

x_{i1}	:	number of directors sitting in company board *i*
x_{i2}	:	percentage of outside (non executive) directors of company board *i*
x_{i3}	:	percentage of company shares owned by all directors of company board *i*
x_{i4}	:	fact that whether CEO of company board *i* also acts as chairman or not
s	:	number of features representing *diversity of boards* (i.e., *board size, outsiders, ownership and duality*)
k	:	number of company boards
$d_{ij}^{(f)}$	:	distance of company board *i* to company board *j* with respect to the variable *f*
$\delta_{ij}^{(f)}$	:	relative contribution of the variable *f* to the distance between the company board *i* and the company board *j*
$d(i,j)$	:	distance of company board *i* to company board *j*
$D(i)$	:	average distance of company board *i* to all other boards

The output of this distance-measurement metric (i.e., *D(i)*) provides information on how (dis)similar a given board, taken into consideration four variables at the same time, from all other boards in my sample This information represents the value of *diversity of boards index* (i.e., (I_{DoB})) for company board *i*. That is,

$$D(i) = (I_{DoB})_{(i)} \tag{4}$$

Appendix 3.5 Procedure for *diversity in boards* Index (I_{DiB})

Recall that, in this data set, each data point (i.e., company board), is represented with five variable constructs, or features, in terms of *diversity in boards.* I discussed my operationalization of these constructs in detail in the measures section. My calculation of *diversity in boards index* is as follows: the first variable is the mean age of directors sitting in a given board; the second and third variables are the percentage of female directors of a given board and the percentage of non-Caucasian directors in a given board, respectively; the fourth variable, a product of a formula, represents director experience of a given board; and the last variable is the mean tenure, time in years, of a given board. As such, my data set is composed of heterogeneous variables, in which the first and the last variables are discrete, the second, the third and the fourth variables are continuous. Here, no variable is of dichotomous nature.

Physically, distance is a numerical description of how far apart objects are. In mathematics, distance is a reflection of physical distance. Using a dissimilarity matrix, a collection of proximities that are available for all pairs of *n* objects can be stored. In measuring inter-sample distances, the distance-measurement tool compares data samples in a matrix and provides a metric to assess how (dis)similar they are. Measured difference, or dissimilarity between two objects, or $d(i, j)$, is a non-negative number that is close to 0 when objects *i* and *j* are highly similar or 'near' each other, and becomes larger as they differ more. Several measures of inter-sample distances are formulated depending on the types of variables (i.e., binary, nominal, interval-scaled, and ratio-scaled). For instance, the Euclidean distance metric previously used in management studies (e.g., Roth & O'Donnell, 1996; Thatcher, Jehn, & Zanutto, 2003) measures paired distances only in interval-scaled variables.

However, as discussed earlier, since my data set is made of different types of variables, I use an aggregated distance function that enables us to combine all types of variables in a single dissimilarity matrix, and, hence, assess them together (Han, Kamber, & Pei, 2011). That is, the dissimilarity between data points can be computed even when the variables describing these data points are of different types. This function is defined by Han et al. as:

$$d(i,j) = \frac{\sum_{f=1}^{p} \delta_{ij}^{(f)} d_{ij}^{(f)}}{\sum_{f=1}^{p} \delta_{ij}^{(f)}} \qquad (1)$$

where i and j are two p-dimensional data points represented as $(x_{i1}, x_{i2}, \ldots, x_{ip})$ and $(x_{j1}, x_{j2}, \ldots, x_{jp})$ respectively, and $d(i,j)$ is a distance function (metric) used to express the (dis)similarity between two data points (i.e., i and j in this case). Then, the contribution of variable f to the dissimilarity between i and j (i.e., $d_{ij}^{(f)}$) is computed dependent on its type:

1. If f is binary or nominal: $d_{ij}^{(f)} = 0$ if $x_{if} = x_{if}$, or otherwise $d_{ij}^{(f)} = 1$
2. If f is interval-scaled: $d_{ij}^{(f)} = \frac{|x_{if} - x_{jf}|}{\max_h x_{hf} - \min_h x_{hf}}$
3. If f is ordinal or ratio-scaled: compute ranks r_{if} and $z_{if} = \frac{r_{if} - 1}{M_f - 1}$, and treat z_{if} as interval-scaled $(r_{if} \in \{1, \ldots, M_f\})$

In this function, the contribution of all different types of variables to the dissimilarity (i.e., $d_{ij}^{(f)}$) are normalized, and hence expressed on a common scale of (0, 1).

In my analysis, I individually compute the distance of each data point (i.e., company board) to all other data points in my data set using the above mentioned metric. Here, I have given equal weights to the relative contributions of each variable to the distance function (i.e., $\delta_{ij}^{(f)} = 1$). Then, I average the computed distances of each data point to all other data points using the formula below:

$$d(i,j) = \frac{\sum_{f=1}^{p} d_{ij}^{(f)}}{s} \qquad (2)$$

And for the average distance to all the other boards I use:

$$D(i) = \frac{\sum_{z=1}^{k} d(i,z)}{k-1} \tag{3}$$

where,

x_{i1} : average age, in arithmetic mean and in years, of all directors sitting in company board *i*

x_{i2} : percentage of female directors of company board *i*

x_{i3} : percentage of non-Caucasian directors of company board *i*

x_{i4} : percentage of directors that serves at least three years in four committees in company board *i*

x_{i5} : average tenure, in arithmetic mean and in years, of all directors sitting in company board *i*

s : number of features representing *diversity in boards* (i.e., director age, gender, race, experience and tenure)

k : number of company boards

$d_{ij}^{(f)}$: distance of company board *i* to company board *j* with respect to the variable *f*

$\delta_{ij}^{(f)}$: relative contribution of the variable *f* to the distance between the company board *i* and the company board *j*

$d(i,j)$: distance of company board *i* to company board *j*

$D(i)$: average distance of company board *i* to all other boards

The output of this distance-measurement metric (i.e., *D(i)*) provides information on how (dis)similar a given board, taken into consideration five variables at the same time, from all other boards in my sample. This information represents the value of *diversity in boards index* (i.e., (I_{DiB})) for company board *i*. That is,

$$D(i) = (I_{DoB})_{(i)} \tag{4}$$

Appendix 3.6 Operationalization of *director experience*

I used committee experience as a proxy for director experience, and calculated whether, or not, a given director served continuously through three consecutive years in one or more of the four common board committees (i.e., nomination, compensation, audit and governance).

I calculated director experience using the following formula:

$$E_k = \frac{1}{\sum_{j=1}^{3} n_{jk}} \sum_{j=1}^{3} \sum_{i=1}^{n_{jk}} \left(x_{jik} + y_{jik} + z_{jik} + t_{jik} \right)$$

where,

n_{jk} : number of directors in company board k in year j

x_{jik} : nomination committee membership of director i in company board k in year j (0: No, 1: Yes)

y_{jik} : compensation committee membership of director i in company board k in year j (0: No, 1: Yes)

z_{jik} : audit committee membership of director i in company board k in year j (0: No, 1: Yes)

t_{jik} : governance committee membership of director i in company board k in year j (0: No, 1: Yes)

j : a given year (i.e., 2005, 2004 and 2003)

i : a given director (i.e., of all 1,304 directors in my sample)

k : a given company board (i.e., of all 114 company boards in my sample)

E_k : overall director experience of company board k

Appendix 3.7 Regression Function and VIF Loadings

The main regression function used in this study is:

$$(I_{CSP})_i = \alpha_i + \beta_1(I_{DiB})_i + \beta_2(I_{DoB})_i + \beta_3((I_{DiB})_i \times (I_{DoB})_i) + \varepsilon_i$$

where, i = 1, …, 114.

Note that I have used 2006 KLD data to assess the impact of *diversity in boards* and *diversity of boards* that reflect 2005 data. Taking $t + 1$ as the year of observation in dependent variable with respect to t as the year of observation in independent and control variables is a well-established practice in strategy scholarship that focuses board diversity with corporate social performance (e.g., Post et al, 2011). This method is regarded as a way to both increase the face validity of the research model at hand and to reduce any possible endogeneity biases. In other terms, the effects of diversity in director independence or directors' gender, etc. in a given year is expected to reflect a more truthful representation on that firm's social performance in the following year. This is due to the fact that there are numerous directors who have been selected for the board only at the second or even third quarter of that fiscal year. Thus, observing the board diversity and measuring its impact on the social performance of the same year will yield only a partial picture of the reality.

The variance inflation factor (VIF) provides information about multicollinearity among variables in an ordinary least squares regression analysis. Thus, to control for the existence of multicollinearity in each model VIF values are reported (Kutner, et al., 2004). The highest VIF was less than two, and the mean VIF was not significantly greater than one in all models, suggesting that multicollinearity was not a problem (Chatterjee, Hadi, and Price, 2000). Following table reports the variance inflation factor for each variable.

Variance Inflation Factor (VIF) Loadings for Regressand I_{CSP}
(data year 2005)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
bsize					1.080		1.464
outsider					1.129		1.425
ownership					1.047		1.081
duality					1.108		1.195
female						1.179	1.217
age						1.125	1.148
race						1.190	1.380
experience						1.057	1.606
tenure						1.086	1.131
I_{DoB}	1.019		1.044				
I_{DiB}		1.018	1.043				
$I_{DoB} \times I_{DiB}$				1.009			
industry	1.016	1.016	1.037	1.061	1.043	1.068	1.099
CFP	1.004	1.002	1.005	1.007	1.044	1.073	1.103

When conducting an OLS, researchers usually make the assumption that the error term has a constant variance. If this is not the case, we encounter heteroscedasticity, and we may be overstating the goodness of fit. The White test is suggested to check the existence of heteroscedasticity. The test showed that, indeed, heteroscedasticity was present. To correct for it, I used White's suggested procedure (White, 1980). The Schwartz criterion and the Akaiki information criterion, then, confirmed that I have finally obtained a reasonably good fit.

Appendix 3.8 Post-hoc Analyses (Detailed Effects)

In this section, I report the findings of my further investigation of the study data in order to find any pattern that was not specified *a priori*. The results of the following post-hoc tests, or *posteriori* tests, may present additional relationships among each of six criteria (or subgroup) of *corporate social performance* used, and the independent variables, and their variable constructs, which would otherwise remain undetected with the original research design of the study. Therefore, I call this attempt to further drawing conclusions from my data as *KLD subgroup analyses*.

Note that for each of the ensuing six regression analysis, the sample size is 114 firms; the (*), (**), and (***) denote significance at 10%, 5%, and 1% levels respectively; and, standard errors are presented in parentheses.

Subgroup analysis for *corporate governance*

Among independent variables in this analysis, neither I_{DoB}, nor I_{DiB}, nor I_{DoB} and I_{DiB} together have not yielded any significant relationships. Among control variables, only *industry* has yielded significant relationships. Among variable constructs, only *board size* has yielded significant relationship at 10% level. However, all models were significant at 1% level. Table 3.8 provides details of these relationships.

Table 3.8 OLS Regression Results for KLD Criterion *Corporate Governance*
(data year 2005)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	4.28***	4.21***	4.26***	4.26***	3.50***	3.96***	3.64***
	(0.15)	(0.20)	(0.23)	(0.12)	(0.31)	(0.80)	(0.84)
bsize					0.03*		0.02*
					(0.01)		(0.02)
outsider					0.38		0.29
					(0.29)		(0.33)
ownership					0.47		0.71
					(0.98)		(1.00)
duality					0.13		0.13
					(0.10)		(0.10)
female						0.63	0.55
						(0.45)	(0.45)
age						0.00	-0.00
						(0.01)	(0.01)
race						0.51	0.39
						(0.41)	(0.44)
experience						-0.03	-0.05
						(0.10)	(0.12)
tenure						0.01	0.01
						(0.01)	(0.01)
I_{DoB}	-0.28		-0.29				
	(0.64)		(0.66)				
I_{DiB}		0.04	0.10				
		(0.87)	(0.88)				
$I_{DoB} \times I_{DiB}$				-0.93			
				(2.13)			
industry	0.33***	0.33***	0.33***	0.33***	0.31***	0.31***	0.30***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
CFP	-0.03	-0.03	-0.03	-0.03	-0.04**	-0.03	-0.04**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
R^2	0.14	0.14	0.14	0.14	0.19	0.19	0.22
F statistic	6.05***	5.98***	4.50***	6.05***	4.25***	3.50***	2.69***

Subgroup analysis for *community*

Among independent variables in this analysis, neither I_{DoB}, nor I_{DiB}, nor I_{DoB} and I_{DiB} together have not yielded any significant relationships. Among control variables, only *industry* has yielded significant relationships. Among variable constructs, *board size*, *director ownership* ($p < .1$), race, and tenure have yielded significant relationships. These models were significant at 1% level. Table 3.9 provides details of these relationships.

Table 3.9 OLS Regression Results for KLD Criterion *Community*
(data year 2005)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	6.43***	6.00***	5.99***	6.38***	5.09***	7.25***	6.07***
	(0.35)	(0.46)	(0.53)	(1.42)	(0.71)	(1.75)	(1.81)
bsize					0.12***		0.12***
					(0.04)		(0.04)
outsider					0.17		-0.53
					(0.66)		(0.71)
ownership					-3.26*		-2.04*
					(2.20)		(2.13)
duality					0.04		-0.04
					(0.23)		(0.22)
female						1.21	1.47*
						(0.98)	(0.98)
age						-0.03	-0.03
						(0.02)	(0.02)
race						2.32***	1.59*
						(0.90)	(0.96)
experience						0.03	0.38*
						(0.22)	(0.27)
tenure						0.07***	0.06***
						(0.03)	(0.03)
I_{DoB}	0.33		0.07				
	(1.48)		(1.50)				
I_{DiB}		2.26	2.25				
		(1.98)	(2.00)				
$I_{DoB} \times I_{DiB}$				2.52			
				(4.87)			
industry	0.39	0.36*	0.36**	0.39*	0.33**	0.30*	0.26*
	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.18)	(0.18)
CFP	-0.02	-0.02	-0.02	-0.02	-0.02	-0.04	-0.05
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)
R^2	0.03	0.05	0.05	0.04	0.12	0.18	0.24
F statistic	1.48	1.91*	1.42	1.55*	2.55***	3.36***	2.94***

Subgroup analysis for *diversity*

Among independent variables in this analysis, only I_{DiB}, and I_{DoB} and I_{DiB} together have yielded significant relationships. Control variables have not yielded significant relationships in a sustainable way. Among variable constructs, *board size, director gender, race,* and *tenure* have yielded significant relationships. These models were significant at 1% and 5% levels. Table 3.10 provides details of these relationships.

Table 3.10 OLS Regression Results for KLD Criterion *Diversity*
(data year 2005)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	9.06***	7.23***	7.72***	8.47***	6.09***	5.45***	3.91*
	(0.51)	(0.67)	(0.75)	(0.40)	(1.05)	(2.36)	(2.42)
bsize					0.16***		0.15***
					(0.06)		(0.06)
outsider					0.76		-1.32*
					(0.97)		(0.94)
ownership					-1.86		0.64
					(3.22)		(2.85)
duality					0.37		0.24
					(0.33)		(0.30)
female						3.80***	4.20***
						(1.32)	(1.30)
age						0.01	0.01
						(0.03)	(0.03)
race						4.47***	3.93***
						(1.22)	(1.28)
experience						0.37	0.89***
						(0.30)	(0.36)
tenure						0.09***	0.07**
						(0.04)	(0.04)
I_{DoB}	-2.14		-2.92*				
	(2.15)		(2.13)				
I_{DiB}		6.26***	6.83***				
		(2.83)	(2.86)				
$I_{DoB} \times I_{DiB}$				2.87			
				(7.09)			
industry	0.27	0.23	0.18	0.31	0.20	0.03	-0.04
	(0.28)	(0.27)	(0.27)	(0.28)	(0.2)	(0.25)	(0.24)
CFP	-0.08	-0.07	-0.08	-0.07	-0.12*	-0.12*	-0.14***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)	(0.06)
R^2	0.03	0.06	0.07	0.02	0.10	0.29	0.35
F statistic	1.15	2.45**	2.32**	0.87*	2.01**	6.21***	5.02**

Subgroup analysis for *employee*

Among independent variables in this analysis, neither I_{DoB}, nor I_{DiB}, nor I_{DoB} and I_{DiB} together have not yielded any significant relationships. This was also true for the control variables. Among variable constructs, only director ownership ($p < .5$) has yielded significant relationship. However, none of these models was statistically significant. Table 3.11 provides details of these relationships.

Table 3.11 OLS Regression Results for KLD Criterion *Employee*
(data year 2005)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	6.81***	6.31***	6.41***	6.62***	6.24***	7.16***	6.96***
	(0.33)	(0.43)	(0.49)	(0.26)	(0.68)	(1.75)	(1.85)
bsize					0.02		0.04
					(0.04)		(0.04)
outsider					0.33		0.21
					(0.63)		(0.72)
ownership					-3.66**		-3.74**
					(2.11)		(2.18)
duality					0.03		0.03
					(0.22)		(0.23)
female						0.90	0.87
						(0.98)	(1.00)
age						-0.01	-0.01
						(0.02)	(0.03)
race						0.19	0.25
						(0.90)	(0.98)
experience						0.03	0.01
						(0.22)	(0.27)
tenure						-0.00	-0.01
						(0.03)	(0.03)
I_{DoB}	-0.35		-0.59				
	(1.38)		(1.39)				
I_{DiB}		1.91	2.04				
		(1.84)	(1.87)				
$I_{DoB} \times I_{DiB}$				2.30			
				(4.52)			
industry	0.11	0.10	0.08	0.12	0.07	0.10	0.07
	(0.18)	(0.18)	(0.18)	(0.17)	(0.18)	(0.18)	(0.19)
CFP	-0.03	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)
R^2	0.00	0.01	0.02	0.01	0.04	0.02	0.05
F statistic	3.44	0.68	0.55	0.40	0.82	0.35	0.54

Subgroup analysis for *environment*

Among independent variables in this analysis, neither I_{DoB}, nor I_{DiB}, nor I_{DoB} and I_{DiB} together have not yielded any significant relationships. Among control variables, only industry has yielded significant relationships. Among variable constructs, director independence, race, experience and tenure have yielded significant relationships. These models were significant at 1% level. Table 3.12 provides details of these relationships.

Table 3.12 OLS Regression Results for KLD Criterion *Environment*
(data year 2005)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	5.43***	5.26***	5.39***	5.39***	4.13***	3.94***	3.62***
	(0.25)	(0.33)	(0.37)	(0.20)	(0.51)	(1.24)	(1.32)
bsize					0.03		0.02
					(0.03)		(0.03)
outsider					0.99***		0.73*
					(0.47)		(0.51)
ownership					-1.37		-1.50
					(1.57)		(1.55)
duality					0.08		0.05
					(0.16)		(0.16)
female						-0.75	-0.92
						(0.69)	(0.71)
age						0.00	0.00
						(0.02)	(0.02)
race						2.02***	1.73***
						(0.64)	(0.69)
experience						0.27**	0.19
						(0.15)	(0.19)
tenure						0.04**	0.04**
						(0.02)	(0.02)
I_{DoB}	-0.74		-0.77				
	(1.04)		(1.06)				
I_{DiB}		0.05	0.21				
		(1.40)	(1.42)				
$I_{DoB} \times I_{DiB}$				-2.49			
				(3.43)			
industry	0.44***	0.45***	0.44***	0.45***	0.40***	0.34***	0.34***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
CFP	-0.01	-0.01	-0.01	-0.01	-0.02	-0.04	-0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
R^2	0.09	0.09	0.09	0.09	0.15	0.21	0.24
F statistic	3.96***	3.77***	3.77***	3.96***	3.25***	4.22***	2.93***

Subgroup analysis for *product*

Among independent variables in this analysis, only I_{DiB} has yielded significant relationship. Among control variables, only CFP has yielded significant relationships in a sustainable manner. Among variable constructs, only director independence (i.e., outsider), and race have yielded significant relationships. However, these models were significant at 10% level. Table 3.13 provides details of these relationships.

Table 3.13 OLS Regression Results for KLD Criterion *Product*
(data year 2005)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	4.07***	3.78***	3.83***	3.99***	3.75***	4.25***	4.11***
	(0.14)	(0.18)	(0.20)	(0.11)	(0.29)	(0.73)	(0.77)
bsize					0.02		0.00
					(0.01)		(0.02)
outsider					-0.01*		-0.01*
					(0.27)		(0.30)
ownership					0.74		0.97
					(0.89)		(0.91)
duality					0.03		0.06
					(0.09)		(0.09)
female						-0.44	-0.45
						(0.40)	(0.42)
age						0.00	-0.00
						(0.01)	(0.01)
race						0.77**	0.79**
						(0.37)	(0.41)
experience						-0.08	-0.06
						(0.09)	(0.11)
tenure						0.00	0.00
						(0.01)	(0.01)
I_{DoB}	-0.19		-0.33				
	(0.58)		(0.58)				
I_{DiB}		1.15*	1.22*				
		(0.77)	(0.79)				
$I_{DoB} \times I_{DiB}$				0.81			
				(1.92)			
industry	-0.05	-0.06	-0.06	-0.04	-0.05	-0.05	-0.06
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)
CFP	0.04***	0.04***	0.04***	0.04***	0.03**	0.03*	0.03*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
R^2	0.04	0.06	0.06	0.04	0.07	0.09	0.10
F statistic	1.66*	2.39*	1.86*	1.69*	1.34	1.53*	1.13

Summary of subgroup analyses

In this section, I have provided the results of each regression analysis that I conducted for six subgroups of my *corporate social performance* measure. Table 3.14 shows a summary of the results.

Table 3.14 Summary of KLD Criteria Regression Results
(data year 2005)

Variable	*Corporate Governance*	*Community*	*Diversity*	*Employee Relations*	*Environment*	*Product*	#
I_{DoB}							0
I_{DiB}			+			+	2
$I_{DoB\ \&\ DiB}$			×				0
bsize	+	+	+				3
outsider					+	×	1
ownership		+		×			1
duality							0
female			+				1
age							0
race		+	+		+	+	4
experience					+		1
tenure		+	+		+		3
Σ	1	4	5	0	4	2	

× denotes variable with statistically significant relationship, yet without model achieving significance.
# denotes total number of statistically significant relationships (*x*-axis) per independent variable and variable constructs (excluding statistically significant relationships without achieving model significance).
Σ denotes total number of statistically significant relationships (*y*-axis) per variable construct (excluding statistically significant relationships without achieving model significance).

Here, I discuss the results of the subgroup analyses that I conducted in this section. I first discuss the results of each KLD criterion, then I discuss the results of independent variables. After that, I discuss the results of control variables, and finally I discuss the results of variable constructs.

First, about the social performance criteria, throughout the analyses in this section, I have observed that (refer to Table 3.14 for a summary) the criteria *community*, *diversity* and *environment* have yielded more statistically significant results than the criteria *corporate governance, employee relations* and *product.* This means that the source of the significant relationships on the *corporate social performance* (I_{CSP}) of this study is centered on these three KLD criteria. The fact that the models of the criteria *community*, *diversity* and *environment* are

statistically significant, along with relatively high β values of these models, reinforce this observation. In other words, the criteria *corporate governance, employee relations* and *product* have provided much less contribution for the significant relationships in I_{CSP}. The criteria *employee relations* did not provide significant models, thereby nullify the significant relationships of the variable constructs therein. For instance, although director independence (i.e., outsiders) is found significant in that criterion, its input have been rejected due to the insignificant models. This information is also visible in Σ row of the Table 3.14 above.

Second, about the independent variables, I have observed that I_{DiB} is the only one that has created significant relationships with the social performance criteria. I_{DiB}, and I_{DoB} and I_{DiB} together have yielded significant relationships on the criterion *diversity*. In addition, I_{DiB} was also found significant on the criteria *product;* however, that relationship, and its model, was significant only at 10% level. Thus, this result led me to rationalize that I_{DoB} and I_{DiB} are associated with the criterion *diversity*, whose notion promotes the inclusion of women and minorities in the firm. Here, it is important to stress that, neither these criteria, nor its results, create any endogeneity problems (thus, I have also introduced a lag year in the data as the defensive procedure to avoid any endogeneity). The criteria *diversity* measures diversity at the firm-level. An example can be inclusion of more female employees to work in the operations of the firm. Clearly, this does not include board members. However, these results align with the idea that the effects of diversity, when promoted as a corporate climate, or part of the organization's culture, can be seen throughout the organization (Hicks-Clarke and Iles, 2000).

Third, about the control variables, I have observed that *industry* has yielded significant relationships on the criteria *corporate governance* and *environment.* Interpreting the regression coefficients of the results on the criterion corporate governance, I see that *for each inclusion of a service firm in the sample, the criterion corporate governance will increase by 0.33 units*. This result led me to rationalize that service firms are generally younger firms, in terms of years of operation, than the manufacturing firms. Also, the fact that technology firms dominate the service firm category of this study's sample, supports this younger firm notion. Judging these results, I suspect that older firms are less performant in corporate governance activities of their corporate social performance. This may be due to the fact that manufacturing firms may have deeper and older established norms, habits, and routines (Laursen and Salter, 2006), and this may be true about their corporate governance activities. Thus these older manufacturing firms

might be less slow, than younger service firms, to challenge these norms. In terms of the criterion *environment,* I interpret the regression coefficient that *for each inclusion of a service firm in the sample, the criterion environment will increase by 0.45 units*. This may be due to the fact that service firms have much less environment-challenging operations than manufacturing firms, and thus may result in being more performant in environmental activities of their corporate social performance (Kassinis and Soteriou, 2003). Furthermore, I have also observed that *corporate financial performance*, however slightly, has a significant effect on the criterion *product*.

Fourth, in terms of variable constructs, board size, race and tenure have created more significant relationships than others. Director race is the source of one of the highest numbers of significant relationships. Director race yields strong positive significant relationships with the criteria *diversity* and *environment*. Director tenure has also yielded significant relationships with the criteria *community*, *diversity* and *environment*. *Board size* is the source of another highest number of significant relationships. It yields positive significant relationships with the criteria *corporate governance* and *diversity*.

Overall, these post-hoc analyses results, where the social performance is made up of six separate criterion, are consistent with the results of main analysis of the study, where the social performance is an amalgamation of six criteria.

4. Second Empirical Study (Third Essay)

The Effects of Board Diversity on Corporate Social Performance: An Empirical Investigation on Stability

Abstract

In the previous study (i.e., the second essay), I have found positive association between board diversity and social performance using cross-sectional data (i.e., for the year 2000). In this study, I try to verify the previous study's results using data from different time periods. Studying, here, board diversity-and corporate social performance relationship can help validate the previous study's results by confirming that the initially found positive association was not achieved by chance. Empirically, I am seeking to answer whether there is a significant relationship between changes in board diversity, again both structural (i.e., *changes in diversity of boards*) and compositional (i.e., *changes in diversity in boards*), and changes in firms' social performance (i.e., *changes in corporate social performance*) in the same sample of S&P500 firms, but using the data for years 2000 and 2010. The results of the study show that *changes in diversity of boards* has a negative significant effect on *changes in corporate social performance,* but I fail to observe the same for *changes in diversity in boards*. In other words, the context of board diversity has changed in this 10-year period, but the nature of board diversity has not. Among separate constructs, I have found that *changes in director independence* has a positive significant impact on *changes in corporate social performance*. These results, to a certain extent, confirm the validity of the previous study's results by demonstrating that the association between the board diversity and the social performance holds true over time in ten-year period. Lastly, using the supporting post-hoc analyses, I discuss other implications of the study's results.

Keywords: Board of directors, diversity, OLS regression, diversity matrix, corporate social performance

4.1 Introduction

Board diversity is assumed to improve the board's effectiveness. For instance, increasing the number of female directors for a better gender diversity within boards has been one of the most common post-Enron practices for corporate boards. Consequently, board diversity is seen as a critical dimension of board effectiveness.

The problem is that board diversity and its relationship to firm performance, financial or otherwise, although widely studied; has yielded mostly inconclusive and ambiguous results (see Carter et al. 2003; Daily et al, 1999; Erhardt et al., 2003; Haslam et al., 2010). Findings are generally inconsistent, some showing a positive relationship, others a negative relationship, and still others showing no relationship. The inconsistencies among the results of the previous board diversity studies, naturally, raise doubts on the validity of the results that I have found in the first empirical study in this dissertation.

In other words, in this study, I try to justify the validity of the results that I have found in the previous study in order to argue, with relatively more certainty, that board diversity significantly affects corporate social performance.

Good science is related to good observation (Shapere, 1982); where, good observation begs for the validity of the measurement tools used (Cooper & Schindler, 2006). Here, establishing the validity helps to eliminate the contribution of coincidence in the study's findings (Carmines & Zeller, 1979). From the perspective of philosophy of science, the term coincidence denotes randomness, which is a set of unique and rare events. Standing alone, they do not fit any patterns. However, only when they occur repeatedly, do they present meaningful patterns. They start showing probabilistic properties, where the likelihood of the occurrence of each event, in a random process, is dependent upon that of the preceding event. Thus, it is critical for a social scientist to recognize the pattern-forming social phenomenon and distinguish it from the once-occurring incident (Bunge, 1996). That is to say, I believe that it is important, here, in this second empirical study, to use a procedure, which helps to minimize the possibility that the results of the previous study happened by chance.

In sum, I aim to demonstrate that the effects of board diversity on corporate social performance do not take place only in the period examined in the first empirical study, but the same relationship holds true over several periods. Technically, I try to achieve this using the

same measurement method, with the same variables, and the same data sample used in the first empirical study, and then, assess the same board diversity phenomenon, though for a different time span.

The outline of the paper is as follows. In this introduction section, I try to elucidate the need for a confirmation of the previous study's results. In the next section, I describe the method that I chose for the justification of the existence of significant relationship between board diversity and corporate social performance. Next, I construct hypotheses that I am going to test. Then, I discuss the research model, followed by a methodology section. Lastly, in a discussion section, I argue how this research provides meaning to important relationships between board diversity and corporate social performance.

4.2 Theoretical Framework

4.2.1 Justifying the board diversity and corporate social performance relation

Validity of a research signals whether a particular conclusion of that study represents a good approximation to the true conclusion of the phenomenon the researcher is studying (Kothari, 2004). While the internal validity indicates the ability of a researcher to argue that observed correlations are causal, the external validity indicates the ability to generalize the relationships found in a study to other persons, times and settings (Roe & Just, 2009).

In strategy research, the conventional method to add external validity to empirical research results is through providing repetitive reporting to the observed relationships (Mitchell, 1985). That is, rather than collecting data on variables at a single point in time (i.e., cross-sectional data), researchers can collect longitudinal data, where only the values of the variables change over time, but the same variables are observed (i.e., panel data). Accordingly, in board diversity scholarship, several researchers justify the findings of their empirical studies by constructing research models that use longitudinal data. This method helps to demonstrate that the significant relationships among the dependent and the independent variables of their studies exist at multiple points in time (e.g., years). In doing so, they inherently claim that their results have not been achieved circumstantially. This approach is often utilized by researchers, as it not only adds validity to their statistical results, but also highlights the directionality of the relationships they report. To illustrate, Table 4.1 provides a summary of a set of empirical board diversity and CSP research using longitudinal data as examples.

Table 4.1 Examples of CSP-Driven Board Diversity Research Using Longitudinal Data

Empirical Study	Sampling Period	Research Question	Performance Criteria	Results (Directions)
Boulouta (2013)	5 years (1999–2003)	Do female directors affect CSP?	KLD composite index	Board gender diversity positively affects CSP
Bai (2013)	6 years (2000–2005)	Do board size and occupational background of directors influence CSP?	Net community benefits (in dollars)	Board size is negatively; director expertise is positively associated with social performance
de Villiers, Naiker, and van Staden (2011)	2 years (2003 and 2004)	Do board characteristics affect firm environmental performance?	Total environmental strengths (index) in KLD	Board independence; board size; and director expertise positively affect environmental performance
Marquis and Lee (2013)	6 years (1996, 1998, 2000, 2002, 2004, and 2006)	Do corporate governance mechanisms affect corporate philanthropic contributions?	Total monetary amount of corporate philanthropy	Board size and female directors positively affect corporate philanthropy

However, in this study, I have chosen a different approach. I employed a design based on multiple cross-sectional data. In this method, the data is presented per period, and the analysis of this data arrangement focuses on a single period in time. From the perspective of justifying the results, the two approaches pose a clear distinction. The researchers, who are undertaking the longitudinal data approach for validation purposes, are inherently interested in assessing the changes in the values of the variables in each period, no matter how small those changes are. I call these variations the quanta changes of data in time. To the contrary, the researchers using the multiple cross-sectional data approach for validation purposes are not interested in examining the quanta changes in time.

I borrow this approach from mathematics—to be precise, from the discipline of calculus, or the mathematical study of change. The methodological choice of this study, considering the quanta changes of data, lies on the fundamental theorem of calculus (Stewart,

2008). This theorem links the mathematical concept of the derivative of a function to that function's integral (Hazewinkel, 2001).

In mathematical terms, consider a continuous function, which plots a curve on a graph. Let's call this function:

$$y = f(x)$$

In a Cartesian coordinate system, by giving values on x and y axis, this function yields a curve. Underneath this curve, between 0 and x, lies the area symbolized by this function. Thus, each value of x has a corresponding area function $A(x)$, representing the area under the curve. The theorem states that the original function $f(x)$ is a derivative of the area function $A(x)$. That is to say, the area function is simply an antiderivative of the original function, or:

$$f(x) = A'(x)$$

This means that computing the derivative of a function, and finding the area under its curve (i.e., computing the integral) are opposite operations. Roughly speaking, the operation of integration is the reverse of differentiation. For this reason, the term *integral* may also be called the *antiderivative*. In mathematical terms, this is expressed as any indefinite integral (i.e., assigned area) of a function f is also an antiderivative of f (Wikipedia, 2016).

Here, the mathematical tool that is used in the operation of differentiation is called the *differential*. This term is used in calculus to refer to an infinitesimal (i.e., infinitely small, or quantum) change in some varying quantity. For example, if x is a variable, then a change in the value of x is often denoted Δx (pronounced *delta x*). The differential dx, then, represents an infinitely small change in the variable x.

In sum, and, without using further technical lexica, I consider that these mathematical notions point out the following statement—the fundamental theorem of calculus indicates that the sum of quanta changes (i.e., in very small increments) in a quantity over time will add up to the net change in the quantity (Spivak, 1980).

This statement is significant as it can be useful in verifying the existence of any phenomena that is spanning over a period of time, and is measured at different points in time

without being overwhelmed by the details of the data representing each period. That is, individually assessing the quanta changes (i.e., increase or decrease) on the value of the variables per period, and then, summing them up (i.e., the longitudinal data approach) may be a sensible approach, to validate the existence of the phenomenon. However, to validate a relationship in a more economical (time and effort saving) approach would be to simply aggregate changes over a period of time (i.e., computing the integral) using the multiple cross-sectional data approach.

To sum, since the aim of this study is to justify the empirical results of the previous study, using the multiple cross-sectional data approach will be a sufficient result validation approach.

Note that, I use the term *change* in reference to the overall changes in the values of variables, which cover all sampling points in time (denoting to multiple cross-sectional data). In other words, my usage of the term *change* in this study does not refer to quanta changes occurring at each sampling point in time (indicating the longitudinal data).

While using the multiple cross-sectional data approach is not conventional in board scholarship, it has been used by researchers in other disciplines, such as organizational behavior or industrial/organizational psychology, as a form of quasi-research design in psychometric studies (Shadish, Cook & Campbell, 2002). In other sciences, this method is better known under the broad name of (econometric) uncertainty or sensitivity analyses (see, for example, Kennedy, 2007; Leamer, 1978).

4.2.2 Changes in diversity of boards and changes in corporate social performance

I use the term '*changes in diversity of boards*' (abbreviated as ΔDoB) in this study to refer to fluctuations in the dissimilarities in board attributes over time. To remind, these organizational level characteristics are related to boards' formal structure. Boards can, for example, be differentiated by such variables as (but not limited to): board size, leadership structure (i.e., duality of being chairman and CEO), founder leader as director, the presence and number of international directors, nature and operations of board committees, board independence, director ownership, and director compensation. Naturally, each of these attributes in a given firm's board can change over time.

There is empirical evidence indicating that financial performance is not affected by diversity of boards (e.g., Bhagat and Black, 2002; Dalton et al., 1998), but it is generally assumed that diversity brings at least differentiated sensitivity to social issues, and more likely enhances social performance (Siciliano, 1996). Yet, only a handful of empirical studies have addressed the relationship and provided some support (see, in particular, Bear et al., 2010; Coffee and Wang, 1998; Post et al, 2011).

It has been reported that social performance is also affected by different types of organizational strategies and structures (e.g., Bhambri and Sonnenfeld, 1988; Holmes, 1978). Since board of directors is a critical part of organizational structure of the firm, it is, then, logical to expect that different board structures, or configurations, may lead to different firm performances.

In the previous study, I hypothesized that diversity of boards has a positive significant effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H1.1: Over time, changes in diversity of boards has a positive effect on changes in corporate social performance.

It has been argued that well-structured, thus, better-governed firms more likely behave responsibly in social issues in order to signal to the market their credibility in quality governance (Beekes & Brown, 2006). Similarly, it has been reported that board structure variables, such as board size (Ntim & Soobaroyen, 2013), or board dependence (Berrone, et al., 2010), drive socially responsible behavior.

In the previous study, I hypothesized that diversity of boards has a negative significant effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H1.2: Over time, changes in diversity of boards has a negative effect on changes in corporate social performance.

I study *changes in diversity of boards* by considering four variables: *changes in board size, changes in director independence, changes in director ownership* and *changes in leadership duality*. A *changes in diversity of boards* index (i.e., ΔI_{DoB}) will also be proposed later. Important measurement issues for both individual variable constructs and *changes in diversity of board* index are addressed in the methodology section.

The literature on board of directors informs that board size may be instrumental in a firm's performance. Many researchers found that, for instance, larger boards have been associated with better performing organizations (e.g., Pfeffer, 1972; 1973; Provan 1980, Siciliano, 1996). Relatively larger boards also appear to improve corporate social performance (Clarkson, 1995; Hillman, Keim, and Luce, 2001; Luoma and Goodstein, 1999). In the previous study, I hypothesized that the size of the board has a positive significant effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H1A: Over time, changes in board size has a positive effect on changes in corporate social performance.

Board independence is important for the board's ability to perform its watchdog responsibility (Jensen and Meckling, 1976). Independent directors are believed to be more concerned about the socially responsible behavior of their firms then the management (Ibrahim and Angelidis, 1995). For instance, they press the management for more environmentally sound investments (de Villiers, Naiker and van Staden, 2011). In the previous study, I hypothesized that independent directors have a positive effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H1B: Over time, changes in board independence has a positive effect on changes in corporate social performance.

Directors' level of ownership is seen as having an important effect on their willingness to monitor managers and enhance shareholders' value (Shleifer and Vishny, 1997). It has been argued that owners tend to reduce social spending to what is absolutely necessary (Barnea and

Rubin, 2010). In the previous study, I hypothesized that share ownership by directors has a negative effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H1C: Over time, changes in director ownership has a negative effect on changes in corporate social performance.

The aggregation of chairman of the board and the CEO roles helps limit the problems created by the divergence of interests between two parties (Jensen, 1986), which is also true for social responsibility activities (Berrone, et al. 2010). In the previous study, I hypothesized that holding dual leader roles has a negative significant effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H1D: Over time, changes in leadership duality has a negative effect on changes in corporate social performance.

4.2.3 Changes in diversity in boards and changes in corporate social performance

I employ the term '*changes in diversity in boards*' (i.e., ΔDiB) to refer to fluctuations in the dissimilarities in directors' attributes over time. This concept highlights the diversity among directors within a given board. Although, research on board diversity distinguishes between demographic (e.g., Hillman, Shropshire, and Cannella, 2007) and cognitive (e.g., Forbes and Milliken, 1999) dimensions of diversity, much of the existing empirical literature focuses upon directors' readily measurable attributes, in particular, demographic aspects of diversity, such as director gender, age and race. Naturally, each of these attributes in a given board's directors can change over time.

Diversity in boards puts the emphasis on directors' individual and idiosyncratic contributions to the firm's strategic management (Hillman and Dalziel, 2003). Variety and distinctiveness are expected to come from diversity, improving linkages with stakeholders, and sensitivity to differences and to the wider society's concerns. In the previous study, I hypothesized that diversity in boards has a positive significant effect on corporate social

performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H2: Over time, changes in diversity in boards has a positive effect on changes in corporate social performance.

In this paper, '*changes in diversity in boards'* focuses on *changes in director gender, changes in director age, changes in director experience, changes in director tenure,* and *changes in director race.* These are among the most important sources of differences and are often mentioned, though rarely together, in the literature (Bear et al., 2010; Hambrick et al., 2008). I shall introduce an index representing '*changes in diversity in boards'* (i.e., ΔI_{DiB}) in the methodology section.

Representation of female directors in boards may have social consequences. For instance, researchers found that women think more favorably of ethical matters than men (Luthar, Battista, and Gautschi, 1997), and, thus, tend to be more sensitive to firm's social issues (Burgess and Tharenou, 2002). Their presence on boards can, in particular, enhance corporate social performance (Bear, Rahman and Post, 2010), including philanthropic giving (Wang and Coffey, 1992; Williams, 2003). In the previous study, I hypothesized that diverse boards in terms of gender have a positive significant effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H2A: Over time, changes in director gender has a positive effect on changes in corporate social performance.

Age reflects directors' general business experience and is evidence of their maturity in directing the business. Previous research has demonstrated that director age has a clear influence on philanthropic decisions (Post et al., 2011). Younger directors are often more sensitive to socially responsible activities (Bekiroglu et al., 2011). In the previous study, I hypothesized that diverse boards in terms of age have a positive significant effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H2B: Over time, changes in director age has a positive effect on changes in corporate social performance.

Director experience is relevant to firms' social behavior. Socialization within an industry brings with it exposure to more or less important social issues (Geletkanycz and Hambrick, 1997; McDonald and Westphal, 2003). This may lead to an inability to deal with new and important social problems and concerns. In the previous study, I hypothesized that diverse boards in terms of experience have a positive significant effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H2C: Over time, changes in director experience has a positive effect on changes in corporate social performance.

Racially diverse directors may influence boards' decision on better servicing stakeholders' needs that would otherwise be overlooked (Zajac and Westphal, 1996). This could, in turn, improve the firm's image and relationships with these stakeholders, and ultimately its social performance. In the previous study, I hypothesized that diverse boards in terms of race have a positive significant effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H2D: Over time, changes in director race has a positive effect on changes in corporate social performance.

Tenure is related to directors' experience as board members and also to their knowledge of the firm. Research shows that tenure affects strategy and performance (Kosnik, 1990). Diversity in director tenure is expected to generate a balance favorable to social performance. In the previous study, I hypothesized that diverse boards in terms of tenure have a positive significant effect on corporate social performance. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H2E: Over time, changes in director tenure has a positive effect on changes in corporate social performance.

4.2.4 Moderation effect of changes in diversity of boards and changes in diversity in boards

I have argued earlier (in the theoretical and the first empirical studies) that relative *diversity of boards* should neither differentiate among firms, nor explain their differences, while demographic individual diversity in boards does. To sum, it seems that *diversity in boards* is affected by *diversity of boards*. In other words, individual directors' actions are influenced by different board structure configurations. At the very least, this relationship needs to be investigated.

In the previous study, I hypothesized that *diversity of boards* is the framework within which *diversity in boards*' influence takes place. There, I believe that the ambiguity of the extant literature findings comes from their neglected interactions. If this is true, then I need to observe that this relationship holds true in time. Therefore,

H3: Over time, the relationship between changes in diversity in boards and changes in corporate social performance is positively moderated by changes in diversity of boards.

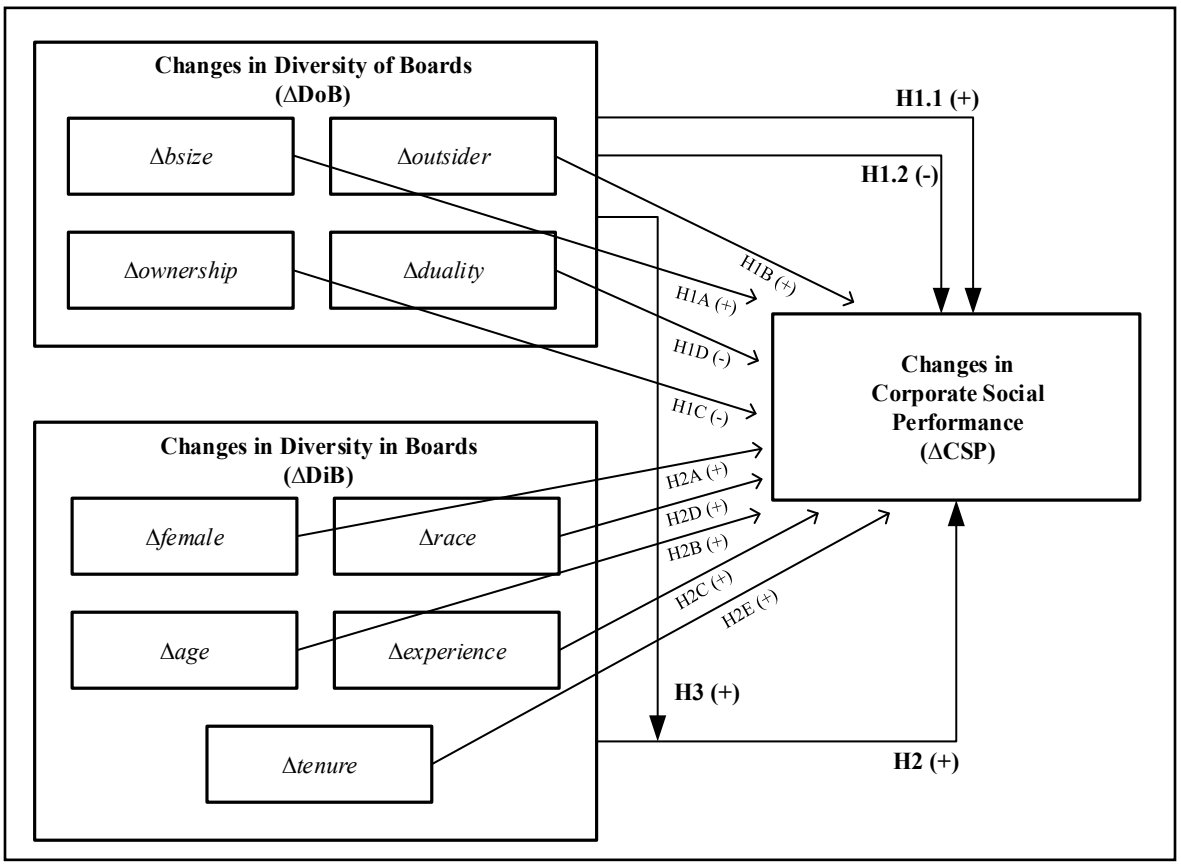
4.2.5 Research model

Table 4.2 summarizes and Figure 4.1 visualizes the model that I now undertake to test.

Table 4.2 Summary of Study Hypotheses

Hypothesis Designation	Hypothesis Relation	Hypothesis Direction
H1.1	*Changes in diversity of boards* (i.e., ΔDoB)	+
H1.2	*Changes in diversity in boards* (i.e., ΔDiB)	-
H1A	*Changes in board size*	+
H1B	*Changes in director independence*	+
H1C	*Changes in director stock ownership*	-
H1D	*Changes in board leadership duality*	-
H2	*Changes in diversity in boards* (i.e., ΔDiB)	+
H2A	*Changes in director gender*	+
H2B	*Changes in director age*	+
H2C	*Changes in director experience*	+
H2D	*Changes in director race*	+
H2E	*Changes in director tenure*	+
H3	*Changes in moderation effect of ΔDoB & ΔDiB*	+

Figure 4.1 Research Model: Changes in Board Diversity and Changes in Social Performance
(data years 2000 & 2010)



4.3 Research Methodology

4.3.1 Sample and Data Sources

The data used in this study come from multiple sources. 2000 and 2010 were chosen as the years of observation. An initial random sample of 200 companies listed in the S&P500 Index was selected. To minimize the effect of industry-specific board practices, I chose randomly half of my sample as companies operating in the service industries and the other half in the manufacturing industries. This sampling procedure is consistent with what was done in previous board of directors research (e.g., Bilimoria and Piderit, 1994; Ellstrand, Tihanyi, and Johnson, 2002; Johnson, Hoskisson, and Hitt, 1993). Due to inexistence of data for the same company in different data sources, I had to eliminate some firms from my sample. In the end, I had to leave out 86 companies due to inconsistent information in different databases. The final sample includes 114 companies, which include 83 companies in service (72%) and 31 companies in manufacturing (28%) industries. The final sample of this study reflects the inequality in the industry division in the lists of firms with large market capitalization (e.g., S&P 500, Fortune 500, etc.), where the majority of these firms are operating in service industries. Moreover, taking a sample that skews toward service firms is commonplace in board diversity literature that focuses on large firms (e.g., Kabongo, Chang, and Li, 2013; Mallin, Michelon, and Raggi, 2013; Marquis and Lee, 2013).

I formed the data set using four different data sources. Information about *director age, race* and *gender* comes from IRRC-Directors database. Information about *board size, director tenure, director independence, director experience,* and *leadership duality* comes from Board Analyst database. Company-related industry information, including *financial data* and *director stock ownership* data comes from Compustat. These databases are among the primary choice of data in empirical board-related strategy research using secondary data. Data *regarding corporate social performance* are obtained from KLD database. KLD has been widely used, particularly in studying the relationship between *corporate social performance* and a variety of explanatory variables, and specifically in board of directors' research (Hillman, Keim, and Luce, 2001; Johnson and Greening, 1999). Chatterji, Levine and Toffel (2009) have contended that KLD provides a fair assessment of social performance. It is generally regarded as the most appropriate measure of *corporate social performance* available (Hillman and Keim, 2001;

Johnson and Greening, 1999; Sharfman, 1996). Highlighting the importance of measurement validity of *corporate social performance*, Rahman and Post (2012) discusses in depth KLD data sets and considers that they provide arguably one of the best measures of corporate social performance. Waddock (2003) concurred that: "it is still true that the data are the best currently available to scholars… KLD's database has proven itself to be factual, reliable, broad ranging, and maintained with consistency and transparency over the past decade" (p. 371).

I assembled three different types of information from these databases. The first is company-related data (e.g., *industry*), including financial (i.e., *ROE*) and social performance (i.e., *CSP*) results for each company in the sample. The second is board-related data, including *director independence and ownership, leadership duality* and *board size*. The third set covers director-related data, including *age, gender, race, director tenure* and *experience*.

4.3.2 Measures

4.3.2.1 Dependent variable

Corporate social performance is a prominent concept in the literature (Gond and Crane, 2010). It is generally based on a partially qualitative, and thus, subjective assessment. Therefore, it is more open to bias. Admittedly, corporate social performance is notoriously difficult to measure consistently. To overcome such a challenge, it has been suggested that social performance should be measured across a wide range of companies and for a consistent range of important social issues (Graves and Waddock, 1994). My social performance measurement protocol agrees, and complies, with such a call. As in numerous previous studies (e.g., Post, Rahman and Rubow 2011), I operationalize my measurement as an aggregation of various performance indicators of KLD data sets. Furthermore, given the concerns, discussed by McGuire, Dow and Argheyd (2003), and Mattingly and Berman (2006), of including weaknesses and strengths into a single social performance measure, I followed their lead and left out the data on social weaknesses, using those on strengths only.

Following Hillman and Keim (2001), I initially developed a unified corporate social performance criterion, by accumulating thirty two different social performance indicators drawn from six categories. These categories include: *community, corporate governance,*

diversity, employee relations, environment, human rights and *product*-related social issues. Appendix 4.1 provides details of each category.

Then, I have constructed the corporate social performance criterion by summing all thirty two criteria. This is the conventional method, and numerous researchers measured corporate social performance data by taking each KLD criterion giving equal (i.e., same) weights (e.g., McGuire, Dow and Argheyd, 2003; Post, Rahman and Rubow 2011). This approach, however acceptable, makes the assumption that each criterion has equal relative importance, and thus contributes to the corporate social performance criterion equally. Next, to mitigate this, I have conducted factor analysis on the KLD data. As an initial step, I have aggregated the data in each KLD category, and then run principal component analysis (PCA) with varimax rotation as the extraction procedure to learn about the eigenvector loads for each of these KLD categories.

Principal component analysis is a statistical method generally used to reduce data items. However, in addition to data reduction, the eigenvectors from a principal component analysis can be used to inquire about the underlying structure of the data at hand. So, rather than running the analysis to reduce the number of variables, I run the analysis for six components (in representing six KLD categories). The principal component analysis calculated the explained variance of each of the six social performance categories, and its results are given in Table 4.3.

Table 4.3 Factor Analysis Results for KLD Categories
(data years 2001 & 2011)

	Corporate Governance	Community	Diversity	Employee Relations	Environment	Product
PCA factor loads (2001)	0.103	0.154	0.068	0.250	0.286	0.137
PCA factor loads (2011)	0.089	0.113	0.180	0.121	0.327	0.167
Equal weight factor loads	0.166	0.166	0.166	0.166	0.166	0.166
% change (2001)	-62%	-8%	-143%	33%	42%	-22%
% change (2011)	-86%	-47%	8%	-37%	49%	0%

In addition, inter-item correlation matrix reports that no component is correlated. Among the highest values, only two components were correlated at 0.4 level, which is within acceptable limits. The Cronbach alpha—the coefficient of internal consistency or inter-correlations among test items that is commonly used as an estimate of the reliability of a test—was 0.6. This is an acceptable level. Kaiser-Meyer-Olkin measure of sampling adequacy—which tests whether the correlations and the partial correlations among variables are small, or in other terms, if data are likely to factor well—was 0.7. This is also an acceptable level. Bartlett's test of sphericity—which indicates that all the variables are uncorrelated—was significant at less than 1% level.

Using this information coming from the factor analysis that indicates how much each KLD category contributes to the CSP, I have constructed a *changes in corporate social performance* index that is used as the dependent variable. The details of the *changes in corporate social performance* index (i.e., ΔI_{CSP}) is given in Appendix 4.2.

In sum, the *changes in corporate social performance* index that is presented above, and discussed in detail in the appendices, was used as the dependent variable of this study.

Conducting factor analysis over KLD data to better measure corporate social performance is a legitimate method, and previously employed in corporate social responsibility literature (e.g., Goss and Roberts, 2011; Waldman, Siegel and Javidan, 2006). Nevertheless, it is still a relatively unemployed technique in board of directors research (with a recent exception, Ferrero-Ferrero, Fernández-Izquierdo, and Muñoz-Torres, 2013).

4.3.2.2 Independent variables

The independent variables employed in this study include two indices: an index for the *changes in diversity of boards* ($\Delta(I_{DoB})$), and one for the *changes in diversity in boards* ($\Delta(I_{DiB})$). I constructed these two indices using nine variables: *changes in director independence, changes in board size, changes in director ownership, changes in leadership duality, changes in director gender, changes in director age, changes in director race, changes in director experience* and *changes in director tenure*. Table 4.4 illustrates the composition of each index.

Table 4.4 Diversity Change Indices Composition

Index	Description	Index Composition	Variable
$\Delta(I_{DoB})$	*Changes in diversity of boards*	*Changes in board size*	$\Delta bsize$
		Changes in director independence	$\Delta outsider$
		Changes in director stock ownership	$\Delta ownership$
		Changes in board leadership duality	$\Delta duality$
$\Delta(I_{DiB})$	*Changes in diversity in boards*	*Changes in director gender*	$\Delta female$
		Changes in director age	Δage
		Changes in director race	$\Delta race$
		Changes in director experience	$\Delta experience$
		Changes in director tenure	$\Delta tenure$

Conventionally, studies in strategy literature employ either frequency-split or category-split methods for their diversity indices. While I have initially employed these methods, I have decided to employ a different method, which encompasses multiple diversity variables together in my operationalization. I have discussed the details of the need for this unique method in Appendix 4.3.

The *changes in diversity of boards* index (*i.e.,* $\Delta(I_{DoB})$), which measures the dissimilarity among company boards, helps me to gauge how each firm's board differs from other firms' boards over time in my sample. To do this, I have used the inter-sample distance measurement method (Deza & Deza, 2009). This method assesses how dissimilar—in terms of all four *changes in diversity of boards* constructs—a firm is from all other firms in a span of time in the sample. Technically, in a matrix, I first measure the distance between a firm and another firm (i.e., a pair of companies) considering all variables at the same time. I do that for the distance with all other companies. Then I take the average. As a result, I assess how distant (or diverse) a company is from the rest of the sample. I repeat this process for the data of each reference year. Then, I subtract the values of each indices in order to observe the relative change in time. Detailed information about this index-building procedure is provided in Appendix 4.4.

The *changes in diversity in boards* index (*i.e.,* $\Delta(I_{DiB})$), which measures the dissimilarity among directors, helps me to gauge how each director in a firm board differs from other directors of the same board over time in my sample. Again, using the inter-sample

distance measurement method (Deza & Deza, 2009), I assess how dissimilar—in terms of all five *changes in diversity in boards* constructs—a firm is from all other firms in a span of time in the sample. Appendix 4.5 discusses the details of the *changes in diversity in boards* index (*i.e.,* $\Delta(I_{DiB})$).

The *changes in diversity of boards* and the *changes in diversity in boards* indices are made up of nine constructs (see Table 4.4 for a summary of their composition). The operationalization of these constructs are as follows. *Changes in board size* is calculated by the subtraction of the number of directors sitting on the board of the company (except emeritus or advisory members) in one reference year from that of another. *Changes in director independence* was measured as the subtraction of percentage of directors who are not employees of the company) in one reference year from that of another. Here, the data set I used distinguished between outside directors and related-outside directors (i.e., retired employees, relatives of chairman, etc.). To increase the construct validity, I chose to use only the former. *Changes in director stock ownership* was determined by the subtraction of the percentage of total common stock owned by all outside directors in one reference year from that of another. This method is used by Hoskisson, et al. (1994) and employed in later governance research (e.g. Westphal & Fredrickson, 2001). *Changes in board leadership duality* is calculated through the subtraction of the value of duality in one reference year from that of another; where it is a dichotomous variable, marked 1 if the chairman also serves as the CEO and 0 otherwise. *Changes in director tenure* was calculated using the subtraction of the mean outside director tenure (in years) in one reference year from that of another. Note that insider and affiliated directors are excluded from this operationalization as their tenure data skew toward significantly longer periods. *Changes in director gender* was computed as the subtraction of the percentage of female directors on a given board in one reference year from that of another. *Changes in director age* was computed as a difference of the mean age for all directors in a board in the two reference years. *Changes in director race* was quantified as the subtraction of the percentage of non-Caucasian directors on a given board in one reference year from that of another. *Changes in director experience* is measured by the subtraction of the index value of an average accumulated director committee experience in one reference year from that of another. Note that, committee experience used here as a proxy for director experience. Committee membership has previously been regarded as an important aspect of directorship

experience (e.g., Bilimoria & Piderit, 1994; Kesner, 1988). Three years of continuous experience in board's main committees (Leblanc & Gillies, 2005) are the basis of the director experience. In other terms, since I did not have a direct measure that represents director experience, I calculated whether, or not, a given director served continuously through three consecutive years in one or more of the four common board committees (i.e., nomination, compensation, audit and governance). The details of the operationalization of changes in director experience is given in Appendix 4.6.

It is important here to note that conventionally in the literature the continuous variables such as director age and tenure are calculated using a coefficient of variation $(\sigma \div \mu)$, and ratio variables are calculated using Blau index $(1 - \sum p_i^2)$. This is an acceptable approach to measure diversity, where no further diversity measurement is taking place. However, in this study, diversity is measured based on relative terms using inter-sample distance metric, which is a more detailed diversity measurement method. For this reason, changes in director age and changes in tenure are calculated here with arithmetic mean. This allows inter-sample distance metric to assess the average range of the data set using minimum and maximum data points. In the case of coefficient of variation, however, the range of the data set is curtailed by taking into consideration the standard deviation.

4.3.2.3 Control variables

To increase the accuracy of my predictions, I controlled for one variable—firm financial performance—which has been shown to affect firm social performance in the previous board of directors-related governance studies. Previous studies argued that financial performance is related to social performance (see Brown and Perry, 1994; Simpson and Kohers, 2002;Waddock and Graves, 1997). I measured *changes in corporate financial performance* (i.e., ΔCFP) by subtracting the value of the return on equity (ROE), or the ratio of profit to the outstanding shareholder value, in one reference year from that of another. I calculated ROE as net income divided by total common shares outstanding.

Note that while I have used a second control variable in the first empirical study—the type of industry, I did not incorporate it into my analysis in this study. The rationale here is that I have consistently used the same firm in the analyses of different periods. Since the

sampled firms did not change, their industries remained the same. Thus, adding industry type as a control variable will not control for any changes in the regression analyses. Therefore, the type of industry has been omitted.

4.3.3 Analyses and Findings

4.3.3.1 Descriptive Analysis

Tables 4.5 and 4.6 present the descriptive statistics and the correlation matrix of my data set.

Table 4.5 Descriptive Statistics (*)
(data years 2000 & 2010)

	Min	Max	Mean	*S.D.*
$\Delta(I_{CSP})$	0.49	1.68	0.18	1.41
Δ*bsize*	2.00	-2.00	-0.62	-0.03
Δ*outsider*	0.35	0.01	-0.07	0.16
Δ*ownership*	0.00	0.21	0.01	0.00
Δ*duality*	0.00	0.00	0.10	-0.12
Δ*female*	0.00	0.05	0.01	0.06
Δ*age*	5.40	4.07	-0.35	3.28
Δ*race*	0.00	0.04	0.01	0.04
Δ*experience*	0.34	-0.34	-0.07	0.31
Δ*tenure*	3.00	-11.36	-1.07	0.53
Δ*CFP*	-0.10	2.54	0.42	0.79
$\Delta(I_{DoB})$	0.04	0.12	0.01	0.04
$\Delta(I_{DiB})$	0.01	0.02	0.00	0.01

N = 114 firms

(*) The table represents ten-year differences in the values of measures of dispersion (i.e., minimum, maximum, and standard deviation) and measure of central tendency (i.e., mean) for each variable. For that reason, positive values represent an increase, negative values represent a decrease from 2000 to 2010.

Table 4.6 Correlation Matrix
(data years 2000 & 2010)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	$\Delta(I_{CSP})$	1													
2.	$\Delta bsize$	0.092	1												
3.	$\Delta outsider$	.324***	-0.117	1											
4.	$\Delta ownership$	-0.076	0.108	-0.075	1										
5.	$\Delta duality$	0.145	0.03	-0.026	-0.14	1									
6.	$\Delta female$	0.007	-0.13	0.154*	-0.047	-0.038	1								
7.	Δage	0.02	0.103	-0.025	0.015	-0.094	-.276***	1							
8.	$\Delta race$	0.055	0.051	0.103	0.09	0.065	0.065	-0.152*	1						
9.	$\Delta experience$	0.089	-0.171*	.318***	0.032	-0.154*	0.046	-0.005	0.126	1					
10.	$\Delta tenure$	-0.001	-0.124	-.197**	-0.088	-0.044	-0.021	.451***	-0.137	-0.013	1				
11.	ΔCFP	0.048	-0.032	0.051	0.052	0.136	0.076	0.145	-0.028	-0.144	0.078	1			
12.	$\Delta(I_{DoB})$	-.195**	0.023	-0.179*	.365***	-.803***	0.06	0.092	-0.087	0.118	0.139	-0.133	1		
13.	$\Delta(I_{DiB})$	0.066	-0.049	0.086	-0.018	0.068	.195**	-0.098	.239**	-0.046	-0.015	0.082	-0.013	1	
14.	$\Delta(I_{DoB} x I_{DiB})$	-0.11	0.028	-0.054	.279***	-.255***	.212**	-0.005	0.111	0.069	-0.002	-0.139	.435***	.326***	1

(***) significance at 1% level
(**) significance at 5% level
(*) significance at 10% level
2-tailed tests
N = 114 firms

4.3.3.2 Inferential Analysis

I tested the three main hypotheses regarding the effects of changes in board diversity on corporate social performance, using an OLS estimator. The details of the regression function, along with the VIF values, are given in Appendix 4.7.

Apart from regression models that comprise two independent variables, I also ran several regression analyses to study the individual effects of each of the nine variable construct composing the indices.

Table 4.7 reports the results of the regression analyses. The different models show the effects of the indices and of individual variables over the dependent variable.

Table 4.7 OLS Results for Regressand $\Delta(I_{CSP})$
(data years 2000 & 2010)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	1.44***	1.39***	1.44***	1.40***	1.23***	1.34***	1.23***
	(0.05)	(0.04)	(0.05)	(0.04)	(0.06)	(0.08)	(0.08)
Δ*bsize*					0.02		0.03*
					(0.01)		(0.01)
Δ*outsider*					1.14***		1.20***
					(0.30)		(0.34)
Δ*ownership*					-0.43		-0.37
					(0.85)		(0.88)
Δ*duality*					0.13*		0.13*
					(0.08)		(0.08)
Δ*female*						0.00	-0.18
						(0.53)	(0.51)
Δ*age*						0.00	-0.00
						(0.01)	(0.01)
Δ*race*						0.21	0.06
						(0.44)	(0.42)
Δ*experience*						0.08	0.02
						(0.09)	(0.09)
Δ*tenure*						-0.00	0.00
						(0.01)	(0.01)
$\Delta(I_{DoB})$	-1.12**		-1.12**				
	(0.54)		(0.55)				
$\Delta(I_{DiB})$		0.57	0.56				
		(0.86)	(0.85)				
$\Delta(I_{DoB} \times I_{DiB})$				-11.95			
				(10.80)			
Δ*CFP*	0.00	0.00	0.00	0.00	0.00	0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
R^2	0.03	0.00	0.04	0.01	0.14	0.01	0.15
Adj. R^2	0.02	-0.01	0.01	-0.00	0.10	-0.04	0.07
F statistic	2.21*	0.34	1.61	0.74	3.71***	0.25	1.91**

$N = 114$ firms
(*)(**)(***) denotes significance at (10%)(5%)(1%) levels respectively.
Standard errors are presented in parentheses.
OLS regressions adjusted for heteroscedasticity

4.3.3.3 Findings

In model 1, I introduced the *changes in diversity of boards* index (i.e., $\Delta(I_{DoB})$) to the analysis. Both Model 1 (at .10 level) and $\Delta(I_{DoB})$ (at .05 level) were found statistically significant, indicating that $\Delta(I_{DoB})$ has an effect on $\Delta(I_{CSP})$—thus rejecting the hypothesis H1.1, and accepting the hypothesis H1.2.

In model 2, I introduced *changes in diversity in boards* index (i.e., $\Delta(I_{DiB})$) to the regression. $\Delta(I_{DiB})$ was not found significantly related to $\Delta(I_{CSP})$, resulting in rejecting the hypothesis H2.

In model 3, I introduced both $\Delta(I_{DoB})$ and $\Delta(I_{DiB})$ into the analysis to observe whether their mutual existence has an impact on changes in social performance. Only $\Delta(I_{DoB})$ showed significant relationship with social performance. However, the overall model was not found significant.

I, then, ran the regression for the interaction of $\Delta(I_{DoB})$ and $\Delta(I_{DiB})$ in Model 4. Again, I could not find any significant relationship, thus I rejected the hypothesis H3.

Next, I ran separate regression analyses to check the effects of the individual constructs that form each diversity index. In model 5, I introduced all four constructs composing the variable $\Delta(I_{DoB})$ and observe that Δ*outsider* has a significant impact on changes in corporate social performance ($\beta = 1.14$, $p < .01$; and model $F = 3.71$, $p < .01$), thus I accept the hypothesis H1B. In addition, I found that changes in leadership duality (i.e., Δ*duality*), however small, has a significant but positive effect as well ($F = 0.13$, $p < .10$); thus, I reject the hypothesis H1D. Consequently, with the remaining insignificant relationships, I reject the hypotheses H1A and H1C.

In Model 6, I introduced all five constructs composing the variable $\Delta(I_{DiB})$. None of the relationships were found statistically significant. Thereby, I reject the hypotheses H2A, H2B, H2C, H2D, and H2E.

Finally, in model 7, I introduced all nine constructs composing the variables of two diversity indices together, and observed that Δ*outsider* ($\beta = 1.20$, $p < .01$) and Δ*duality* ($F = 0.13$, $p < .10$) continued to have significant relationships with changes in corporate social performance (i.e., $\Delta(I_{CSP})$), thus confirming the acceptance of H1B only. Here, I also found Δ*bsize* contributes with a significant relationship to the model. However, due to its negligible

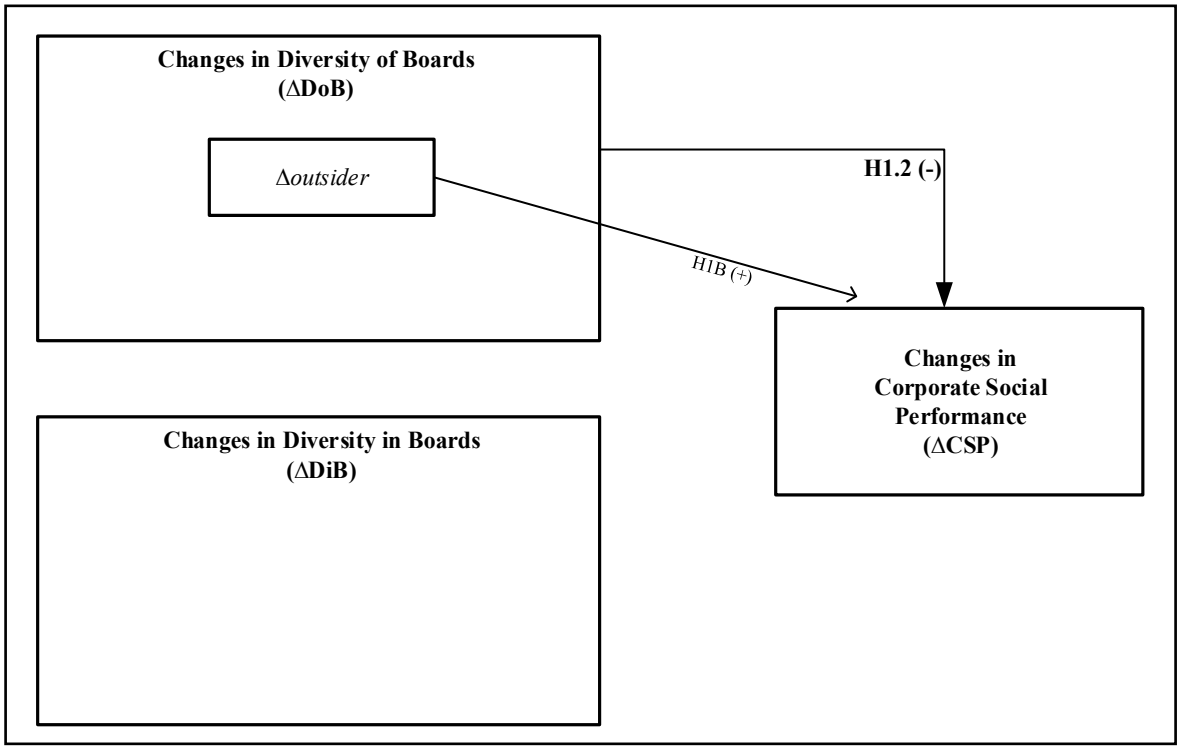
impact (β = 0.03) at only .10 significance level, forced me to continue to reject the hypothesis H1A.

Note that in running all seven models above, I have controlled for changes in Δ*CFP* as an indicator of *changes in corporate financial performance*. Table 4.8 summarizes and Figure 4.2 visualizes the results of the model on changes in board diversity and changes in social performance between 2000 and 2010.

Table 4.8 Summary of Study Results

Hypothesis Designation	Hypothesis Relation	Hypothesis Direction
H1.2	*Changes in diversity of boards*	-
H1B	*Changes in director independence*	+

Figure 4.2 Portrayal of Study Results
(data years 2000 & 2010)



4.3.3.4 Post-Hoc Analyses

In order to further elaborate on the results of the regression analyses, I have conducted several post-hoc tests. These analyses represent my further investigation of the study data in order to find any pattern that was not specified *a priori*. The results of the following post-hoc tests, or *posteriori* tests, may present additional relationships among each of six criteria (or subgroups) of corporate social performance used, and the independent variables, and their variable constructs, which would otherwise remain undetected with the original research design of the study.

To remind, the main research model of this study considers the social performance an amalgamation of six performance criterion. In contrast, the post-hoc analyses are composed of six distinct regression analyses (i.e., disaggregated measures), where the social performance is measured based on a separate performance criterion per test. The subgroups of corporate social performance used in post-hoc analyses include: Δ*Corporate Governance,* Δ*Community,* Δ*Diversity,* Δ*Employee Relations,* Δ*Environment,* and Δ*Product.*

Overall, the results of the post-hoc tests are consistent with the results of the main analysis of this study. The details of these post-hoc analyses are given in Appendix 4.8.

4.4 Discussion

4.4.1 Research questions

The main research question of this study *'is the relationship between board diversity and corporate social performance stable over time?'* is an important one for this dissertation. Studying this relationship pinpoints the sources of these changes in terms of structural variables and compositional variables.

More importantly, in this study, I aimed to demonstrate that the board diversity effects on corporate social performance do not take place only in the period used in the first empirical study, but the same relationship holds true over several periods. The results of this study, to a degree, increase the stability of the significant relationships found in the previous study by demonstrating that those results have not been achieved circumstantially or accidentally.

The sub-research questions, or the hypotheses, of this study are constructed with an eye on the gaps in the literature that focus the effects of boards on socially responsible firm behavior. Previous studies indicated that empirical relations between board elements and corporate social responsibility are inconclusive (e.g., Jamali et al. 2008; Margolis and Walsh 2003). In fact, the researchers (for a review, see, Bear et al., 2010; Post et al, 2011) inform that the studied relationships do not hold true at multiple points in time (Graves & Waddock, 1994; Johnson & Greening, 1999; Kassinis & Vafeas, 2002).

For this reason, this study, with its emphasis on providing validity to the results of the previous study, is meaningful in its attempt to provide much-needed evidence on a relatively small-sized empirical literature on board diversity and corporate social performance.

4.4.2 Results

This second empirical study's results provide a better understanding of board diversity. Using the data representing the time frame between 2000 and 2010, the results have shown that *changes in diversity of boards* significantly led to *changes in corporate social performance*. This is significant information, as it may indicate that the magnitude of *change in diversity of boards* was much more than that of *change in diversity in boards* between 2000 and 2010. My rationale behind this argument is that *diversity in boards* was found significant in the previous

study, but *changes in diversity in boards* was not found significant in this study. To the contrary, both *diversity of boards* and *changes in diversity of boards* were found significant in previous and in this study. In other words, during this period, the structure dimension of the board diversity might be, perhaps, much more pronounced than the demography dimension of board diversity. Unfortunately, the results of this study cannot directly demonstrate this conclusion, as they are based on the data representing the change in years from 2000 to 2010 (a more fine-tuned dataset, such as a panel data representing board diversity in each consecutive year from 2000 to 2010 can provide such evidence). However, the results of this study point at a similar conclusion. In other words, I found that in the course of ten years, the structural elements have changed more than the demographical elements within my data set. This indication, if true, may serve as a confirmation of the literature on board scholarship arguing that firms, indeed, considerably modified their boards' structures after Sarbanes Oxley legislation (Leblanc and Gillies, 2005).

To support this conclusion, two structural elements (or constructs) of this study, the Δ*outsiders* (or *changes in director independence*) and Δ*duality* (or *changes in board leadership duality*), though slightly, were also found significant. Not surprisingly, these constructs were among those that were listed as a recommendation to change in the post-Sarbanes Oxley endorsements (Aguilera & Cuervo-Cazurra, 2004).

In addition, the results revealed that *diversity of boards* affects social performance in periods other than 2005 (i.e., the sampling period of the previous study). This is also crucial as it is, in fact, the justification that I aimed to achieve at the beginning of this study. In other words, this means that the result found in the previous study—board diversity leads to social performance—was not achieved accidentally, and thus, since it repeated, this finding bears some degree of truth within.

Overall, the results of this study confirm my argument that board structure is instrumental in corporate social performance. That is, the regression results covering the period of 2000-2010 have revealed that only *diversity of boards* has a significant impact on the *corporate social performance*. This is a critical point. In this dissertation, I have found that board diversity significantly affects social performance in a single year (i.e., 2005), and the amount of changes in board diversity is significantly related to the amount of changes in social performance in a ten-year-period (i.e., 2000-2010).

I believe the reason behind this significant relationship is firms' eagerness to modify their boards immediately after the heydays of the corporate scandals in early 2000s. Here, I believe that Sarbanes-Oxley Act of 2002 has acted as a trigger point. In order to immediately respond to the calls of the regulators to change, to secure their standing before the eyes of the investment community in the aftermath of a series of corporate scandals, or, simply, to seek social legitimacy, many of the firms instantaneously modified their boards in the immediate years following the Sarbanes-Oxley Act.

I see this isomorphic board behavior as an act of inter-group imitation among a set of large public firms. As the institutional theorists envision, shared conceptions about what strengthens corporate boards drive firms to mimic each other, where they become more homogeneous, and thus, more similar in their board structures over time (Scott, 1995). Firms mimic each other's boards, because their survival is believed to be dependent on each firm's compliance with the shared boardroom norms of the post-Sarbanes-Oxley era, and thereby, it is through this compliance that the firm's board is determined to be socially fit or legitimate by the public at large (DiMaggio and Powell, 1983; Dowling and Pfeffer 1975). In sum, based upon the results of this study, I confirm the existence of the isomorphic board behavior that I discussed earlier in the theoretical study of this dissertation.

Moreover, the results of this study are in line with the previous research on the board diversity. For instance, in terms of board size, it has been reported that larger boards drive higher corporate social performance (Ntim and Soobaroyen, 2013), higher corporate philanthropic contributions (Marquis and Lee, 2013), and higher environmental performance (de Villiers, Naiker and van Staden, 2011). Furthermore, the results of this study also confirm previous research in terms of independence of boards. It has been reported that independent boards create better social performance (Zhang, Zhu and Ding, 2013), better environmental performance (Kock, Santalo and Diestre, 2012), more CSR disclosures (Khan, Muttakin and Siddiqui, 2013), and foster the creation of a corporate code of ethics (Ntim and Soobaroyen, 2013).

In addition, as discussed in the findings of the post-hoc analyses, *change in diversity of boards* was found significantly related to *change in corporate social performance*. The source of this change was the social performance criteria *employee relations*, and thus, the fact that all *diversity of boards* constructs (i.e., *board size, director independence, leadership duality*

and *director ownership*) were found in significant relation to the criteria *employee relations* support this finding. Moreover, among the KLD criteria only the *employee relations* experienced a significant change. While the literature on board of directors indicates the usefulness of the stakeholder perspective of boards (e.g., Freeman and Evan, 1990), empirical studies have failed to demonstrate that diverse boards increase the welfare of stakeholders. For instance, using data from 1995, Hillman, Keim and Luce (2001) reported that directors do not enhance stakeholder relations. However, post-Sarbanes Oxley structural mandates forced boards to reconsider their responsibilities. As such, it is meaningful that the results of this study have indicated that employee relations experienced the highest significant change. That is, among all the social performance criteria examined in this study in terms of their change between 2000 and 2010, the highest progress has been achieved in employee relations.

4.4.3 Methodology

I acknowledge the methodological challenges of this study. At the center of this challenge lies the temporality of the research data (i.e., cross sectional vs. longitudinal).

Strategy scholars argue that the strategy research is challenged by numerous methodological issues (Miller and Shamsie, 1996; Priem and Butler, 2001). Among them, one of the most critical ones is the time dimension of the data. Accessing, managing, analyzing and interpreting longitudinal data creates supplementary hurdles for the strategy researcher. This becomes especially critical for the works of junior researchers. As put forth by Barney, Wright, and Ketchen (2001): "A second methodological area concerns the time period of analysis. The notion of sustained competitive advantage strongly implies a need for longitudinal analysis, involving both quantitative and qualitative approaches. This poses formidable challenges for researchers in terms of financial and time costs. Indeed, graduate students mindful of graduating in a timely fashion and assistant professors facing tenure decisions may be reluctant to engage in such research. Thus, perhaps we must look to senior scholars to take the lead in addressing these crucial issues." (p. 637).

Along these lines, I accept that to assess and validate the strength of the relationship between board diversity and corporate social performance, there is a need to conduct longitudinal analyses. Earlier, I have suggested that one approach would be by transforming

the basic variables into their variations over time, and check the stability of their relationships (Shadish, Cook & Campbell, 2002). In other sciences, this is better known under the broad name of uncertainty or sensitivity analyses (see, for example, Kennedy, 2007; Leamer, 1978).

I call this method the multiple cross-sectional data approach. Employing this approach is sufficient for reaching the goals of this study. Finding even partial significant results have indicated that the sought-after relationships are stable, and thus, hold true in time. The significant results that I have found in this study point out that changes in the values of the variables that I have examined are meaningful.

4.5 Contribution of the study

I have tried to contribute to the corporate governance and corporate social responsibility literature in numerous ways. The contributions that have been achieved through this study can be summarized in a few points.

4.5.1 Research questions and results

First, I have succeeded in providing evidence to the validity of the previous study's results by establishing statistically significant relationships between changes in board diversity and changes in the corporate social performance in a 10-year-period. In doing so, I have confirmed that the results found in the previous study, in general, were not achieved accidentally, and the sought-after relationships are relatively stable, and thus, hold true between 2000 and 2010. This brings credibility to the arguments made in this dissertation.

Second, I have provided evidence to the literature focusing the effects of boards on socially responsible firm behavior. Numerous prominent scholars have previously indicated that empirical relations between board elements and corporate social responsibility are inconclusive. This study contributes to those efforts by demonstrating that some of the studied relationships hold true over time.

Third, this study contributes to the literature in confirming some of the previous studies. For instance, the results of this study are in line with earlier research reporting that firms, indeed, considerably modified their boards' structures after Sarbanes Oxley legislation.

Moreover, the results of this study are also consistent with, and confirmation of, the previous research on board diversity. Some of the independent variables that are found significant here have been formerly reported as related to better social performance.

Furthermore, not only the results relating to independent variables, but also that of dependent variable of this study also are also in line with the literature. For instance, the post-hoc analyses conducted in this study revealed that among the social performance criteria, the *employee relations* has experienced significant changes. With this finding, I contribute to the literature by providing evidence with respect to the stakeholder perspective of boards, which lacks empirical evidence regarding board diversity.

Lastly, I was able to suggest that the firms in my sample acted in accordance with the post-Sarbanes Oxley ramifications, and therefore, modified the diversity of their boards accordingly. In this study, finding evidence to this observation, which has been previously asserted by numerous corporate governance researchers, confirms that the data set I have used here is in line with the other well-known studies, and thus, logically, the results of this study bear some credibility in shedding light on post-Sarbanes Oxley era board diversity and social performance relationship. This observation that boards mimic each other, and as they become more similar in their board structures over time is important for board scholarship. This helps explain why the board structure variables have changed more than the board composition variables in the post-Sarbanes-Oxley era. In sum, based upon the results of this study, I confirm the existence of the isomorphic board behavior that I discussed earlier in the theoretical study.

4.5.2 Methodology

This study can be seen as an attempt to contribute to the strategy research with its several methodological uses. First, using the multiple cross-sectional data approach is rare in strategy research. By transforming the basic variables into their variations over time, I have been able to check the stability of these relationships without using a longitudinal data approach.

Second, by employing the same measurement method on the same variables, and on the same data sample that I have used in the first empirical study, and then, assess the same board diversity phenomenon in a different time span in this study. Rarely, researchers study exactly the same sample in different time spans.

Third, I have demonstrated the usability of the diversity matrix that I have introduced in the first study. Using the same measurement method, and finding similar and consistent significant relationships, have revealed that the board diversity index that I am proposing is a potent method to measure diversity using numerous variables of different scales at once.

Fourth, I have dug into the sources of the change in board behavior by conducting extensive post-hoc analyses using multiple inferential statistical methods. In so doing, I have pinpointed which aspects of corporate social performance have contributed more in the post-

Sarbanes Oxley era, and which aspects of it have changed in alignment with the change in the board diversity therein.

4.6 Conclusion

In this paper, I have sought to answer whether there is a significant relationship between changes in both structural and demographic diversity of boards and changes in their firms' corporate social performance. Using the diversity indices, which were introduced in the theoretical study of this dissertation, and the multiple cross-sectional data approach, I have empirically investigated this possible link in a sample of S&P500 firms over a 10-year-period.

Among the study's independent variables, I have found that only *changes in diversity of boards* had a negative significant effect on *changes in corporate social performance* between 2000 and 2010. Among separate constructs, I have found that only *changes in director independence,* has a positive significant effect on *changes in corporate social performance*. Furthermore, using the post-hoc analyses, I have found that among all the KLD criteria, the criterion *changes in employee relations* is predominantly affected by the changes in board diversity. Additionally, I have also found that *changes in director independence* was more pronounced than any of the other variable constructs between 2000 and 2010.

In sum, the results of this study have helped to validate, to a certain extent, the previous study's results by establishing statistically significant relationships between changes in board diversity and changes in corporate social performance that occurred in a 10-year-period.

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Appendix 4.1 KLD Category Criteria

Below, I present the unified corporate social performance criterion, which is accumulated by thirty two different social performance indicators drawn from six categories.

KLD's Corporate Social Performance Criteria Used in (and Excluded from) the Study

#	CSP Category	Criteria Used	Criteria Dismissed
1	Corporate Governance	1. Limited Compensation 2. Ownership Strength 3. Transparency Strength 4. Other Strength	Political Accountability (data not available for 2005)
2	Community	5. Charitable Giving 6. Innovative Giving 7. Support for Housing 8. Support for Education 9. Non-US Charitable Giving 10. Other Strength	Volunteer Programs (data not available for 2005)
3	Diversity	11. CEO 12. Promotion 13. Work/Life Benefits 14. Women & Minority Contracting 15. Employment of the Disabled 16. Gay & Lesbian Policies 17. Other Strength	Board of Directors (dropped for endogeneity reasons)
4	Employee Relations	18. Union Relations 19. Cash Profit Sharing 20. Employee Involvement 21. Retirement Benefits Strength 22. Health and Safety Strength 23. Other Strength	No-Layoff Policy (data inconsistencies)
5	Environment	24. Beneficial Products and Services 25. Pollution Prevention 26. Recycling 27. Clean Energy 28. Other Strength	Communications (data not available for 2005) Property, Plant, and Equipment (data not available for 2005)
6	Product	29. Quality 30. R&D/Innovation 31. Benefits to Economically Disadvantaged 32. Other Strength	*none*

Note: There are originally seven "Qualitative Issue Areas" reported by the KLD dataset. However, I have dismissed the *Human Rights* category from my CSP criterion. The reasons include: (1) data in its two criteria (i.e.,

Positive Record in South Africa and *Labor Rights Strength*) are not available for 2005; and (2), after conducting a principal component analysis, I have found that the data in the remaining two criteria (i.e., *Indigenous Peoples Relations Strength* and *Other Strength*) were not yielding adequate variance.

Moreover, in the following section, I present the detailed information about the detailed information about the each category criteria as collected by KLD that I used in constructing *changes in the corporate social performance* index (i.e., $\Delta(I_{CSP})$). The data are reported in binary form—1 represents criterion fulfilled, 0 represents criterion not fulfilled.

Corporate Governance

Limited Compensation	The company has recently awarded notably low levels of compensation to its top management or its board members. The limit for a rating is total compensation of less than $500,000 per year for a CEO or $30,000 per year for outside directors.
Ownership Strength	The company owns between 20% and 50% of another company KLD has cited as having an area of social strength, or is more than 20% owned by a firm that KLD has rated as having social strengths. When a company owns more than 50% of another firm, it has a controlling interest, and KLD treats the second firm as if it is a division of the first.
Transparency Strength	The company is particularly effective in reporting on a wide range of social and environmental performance measures, or is exceptional in reporting on one particular measure.
Other Strength	The company has a unique and positive corporate culture, or has undertaken a noteworthy initiative not covered by KLD's other corporate governance ratings.

Community

Charitable Giving	The company has consistently given over 1.5% of trailing three year net earnings before taxes to charity, or has otherwise been notably generous in its giving.
Innovative Giving	The company has a notably innovative giving program that supports nonprofit organizations, particularly those promoting self-sufficiency among the economically disadvantaged.
Support for Housing	The company is a prominent participant in public/private partnerships that support housing initiatives for the economically disadvantaged, e.g., the National Equity Fund or the Enterprise Foundation.
Support for Education	The company has either been notably innovative in its support for primary or secondary school education, particularly for those programs that benefit the economically disadvantaged, or the company has prominently supported job-training programs for youth.
Non-US Charitable Giving	The company has made a substantial effort to make charitable contributions abroad, as well as in the U.S. To qualify, a company must make at least 20% of its giving, or have taken notably innovative initiatives in its giving program, outside the U.S.
Other Strength	The company has either an exceptionally strong in-kind giving program or engages in other notably positive community activities.

Diversity

CEO	The company's chief executive officer is a woman or a member of a minority group.
Promotion	The company has made notable progress in the promotion of women and minorities, particularly to line positions with profit-and-loss responsibilities in the corporation.
Work/Life Benefits	The company has outstanding employee benefits or other programs addressing work/life concerns, e.g., childcare, elder care, or flextime.
Women & Minority Contracting	The company does at least 5% of its subcontracting, or otherwise has a demonstrably strong record on purchasing or contracting, with women and/or minority-owned businesses.
Employment of the Disabled	The company has implemented innovative hiring programs; other innovative human resource programs for the disabled, or otherwise has a superior reputation as an employer of the disabled.
Gay & Lesbian Policies	The company has implemented notably progressive policies toward its gay and lesbian employees. In particular, it provides benefits to the domestic partners of its employees.
Other Strength	The company has made a notable commitment to diversity that is not covered by other KLD ratings.

Employee Relations

Union Relations	The company has taken exceptional steps to treat its unionized workforce fairly.
Cash Profit Sharing	The company has a cash profit-sharing program through which it has recently made distributions to a majority of its workforce.
Employee Involvement	The company strongly encourages worker involvement and/or ownership through stock options available to a majority of its employees; gain sharing, stock ownership, sharing of financial information, or participation in management decision making.
Retirement Benefits Strength	The company has a notably strong retirement benefits program.
Health and Safety Strength	The company has strong health and safety programs.
Other Strength	The company has strong employee relations initiatives not covered by other KLD ratings.

Environment

Beneficial Products and Services	The company derives substantial revenues from innovative remediation products, environmental services, or products that promote the efficient use of energy, or it has developed innovative products with environmental benefits. (The term "environmental service" does not include services with questionable environmental effects, such as landfills, incinerators, waste-to-energy plants, and deep injection wells.)
Pollution Prevention	The company has notably strong pollution prevention programs including both emissions reductions and toxic-use reduction programs.
Recycling	The company either is a substantial user of recycled materials as raw materials in its manufacturing processes, or a major factor in the recycling industry.
Clean Energy	The company has taken significant measures to reduce its impact on climate change and air pollution through use of renewable energy and clean fuels or through energy efficiency. The company has demonstrated a commitment to promoting climate-friendly policies and practices outside its own operations.

Other Strength	The company has demonstrated a superior commitment to management systems, voluntary programs, or other environmentally proactive activities.

Product

Quality	The company has a long-term, well-developed, company-wide quality program, or it has a quality program recognized as exceptional in U.S. industry.
R&D/Innovation	The company is a leader in its industry for research and development (R&D), particularly by bringing notably innovative products to market.
Benefits to Economically Disadvantaged	The company has as part of its basic mission the provision of products or services for the economically disadvantaged.
Other Strength	The company's products have notable social benefits that are highly unusual or unique for its industry.

Appendix 4.2 The *changes in corporate social performance* Index ($\Delta(I_{CSP})$)

Using the information coming from the factor analysis that indicates how much each KLD category contributes to the CSP, I have constructed the *changes in corporate social performance* index that is used as the dependent variable. In doing so, I have multiplied the percentage of total variance explained (based on eigenvalue) of each component that corresponds to each KLD category (i.e., PCA factor loads) with the aggregate data for that KLD category. Then, I have subtracted the data of the latter year from that of the former. In mathematical terms, the *changes in corporate social performance* index (i.e., $\Delta(I_{CSP})$) I am using can be expressed as:

$$\Delta(I_{CSP})_z = (I_{CSP})_{z,t_2} - (I_{CSP})_{z,t_1}$$

where,

$$(I_{CSP})_{z,t} = \sum_{1}^{n} (C_n \times V_{n_{z,t}})$$

and,

z = 1, 2, 3, …, 114;
n = 1, 2, 3, …, 6;
t = 2001; 2011;

where,

z is sampled firm;
n is KLD category;
t is sample year;

and,

$I_{CSP\,z,t}$ is *corporate social performance* index value (or criterion) for firm z, in year t;

C_n is the percentage of explained variance (from the principal component analysis) for the component *n;*

$V_{n_{z,t}}$ is the sub-total of the performance loading (or aggregate data) of firm *z,* in year *t,* in a given KLD category corresponding to the component *n* (from the principal component analysis).

Appendix 4.3 The Need for a Multiple-Variable Diversity Change Index

The use of indices is an oft-employed practice in governance research (e.g., Bebchuk, Cohen and Ferrell, 2009; Gompers, Ishii and Metrick, 2003). More specifically, pluralism indices were previously used to measure diversity in various aspects of board of directors (e.g., Molz, 1995). In this research, I measure different board diversity phenomena. While the *changes in diversity in boards* index (*i.e.,* $\Delta(I_{DiB})$) measures differences in director demographics within a given board, the *changes in diversity of boards* index (*i.e.,* $\Delta(I_{DoB})$) measures differences in board structure among different company boards.

First, I have constructed the *changes in diversity in boards* index (*i.e.,* $\Delta(I_{DiB})$) using terciles split method as it the most common method in the literature. The construction of this index is straightforward. As employed in Dittmar and Mahrt-Smith (2007) and Francoeur et al. (2008), the index is composed of amalgamation of discrete values for each variable. For continuous variables, I divided the sample into terciles. The values for these variables are 0, 1 and 2 (representing below average, average and above-average values). I give values of 0 and 1 for dichotomous variables. In addition, for validity purposes I have cross-checked the results by splitting the sample into quartiles. The results of the quartiles method did not change from that of terciles.

Although frequency-split or category-split methods, such as terciles- or quartiles-split are accepted methods for creating diversity indices, their usage is rather limited. There are three major problems in employing this method. (1) First, in terciles-split method, the weights for each construct is chosen in a rank order, which is highly susceptible to extreme values (Fiedler and Armbruster, 1994). To illustrate this in an example, the elements of the set A, where A = {1, 3, 5, 12}, receives the 1^{st}, 2^{nd}, 3^{rd} and 4^{th} rankings respectively, although the difference between 5 and 12 is 7, while the difference is 2 for the rest of the elements of the set. That is to say, 12, as an extreme value in this set, is not affected in ranking order. In layman's terms, one cannot judge the true distance between elements of a number string if they are expressed in ranking order. The data set I am using in this study has extreme values, and since this method uses ranking order, the terciles-split method becomes less effective in this type of study. (2) The second reason is the terciles-split method may be a better choice in small sample size studies. As the researcher divides his or her sample into three equal groups based

upon the weights of the index constructs, the difference becomes less prone to the measurement error in small sample size studies (Seidler, 1974). On the other hand, in a study, such as this one, where there are 114 firms and 1,304 directors, dividing the sample in three equal groups creates a larger measurement error. For instance, the difference between the last element of the second tercile and the first element of the third tercile of the data is much smaller in a larger sample study than that of in a smaller sample size study. (3) Measurement in different dimensions causes errors in measurement procedures (Carron and Brawley, 2000). In this study, *changes in diversity in boards* and *changes in diversity of boards*, in fact, represent a diversity phenomenon in different dimensions. C*hanges in diversity in boards* shows differences within a firm's board over time. C*hanges in diversity of boards* shows the differences among a group of firms' boards over time. While the unit of observation in *changes in diversity in boards* is individual (i.e., director); the unit of observation in *changes in diversity of boards* is group (i.e., boards of directors). For this reason, I have eliminated the need for a multi-level research design by unifying the unit of analysis as firm in both the *changes in diversity in boards* and in the *changes in diversity of boards* indices. However, the terciles-split method is not a data standardization method, as such it does not take into consideration the different dimensions of the data.

For above reasons, I have searched for a better method that can provide more accurate results to my research design. I have constructed my diversity indices in a way that they can both better measure the dissimilarity among their constructs.

Appendix 4.4 Procedure for *changes in diversity of boards* index ($\Delta(I_{DoB})$)

The *changes in diversity of boards index* (i.e., $\Delta(I_{DoB})$) represents the difference between the values of the *diversity of boards index* (i.e., (I_{DoB})) in one reference year and that of another reference year. To achieve this, I have to calculate the *diversity of boards indices* for two reference years separately. Then, I will subtract the value of one index from another. The procedure for calculating the *diversity of boards index*, as discussed in first empirical study in Appendix 3.4, is as follows.

Recall that, in this data set, each data point (i.e., company board), is represented with four variable constructs, or features, in terms of the *diversity of boards*. I have discussed my operationalization of these constructs in detail in the measures section. My calculation of the diversity of boards index is as follows: My data is composed of different types of variables. The first variable is the number of directors sitting in a given board; the second and third variables are the percentage of outside directors of a given board and the percentage of company shares owned by all directors of a given board, respectively; the fourth variable represents whether CEO also acts as chairman or not. As such, my data set is composed of heterogeneous variables, in which the first variable is discrete, the second and third variables are continuous, and the fourth variable is of a dichotomous nature.

Physically, distance is a numerical description of how far apart objects are. In mathematics, distance is a reflection of physical distance. Using a dissimilarity matrix, a collection of proximities that are available for all pairs of n objects can be stored. In measuring inter-sample distances, the distance-measurement tool compares data samples in a matrix and provides a metric to assess how (dis)similar they are. Measured difference, or dissimilarity between two objects, or $d(i, j)$, is a non-negative number that is close to 0 when objects i and j are highly similar or 'near' each other, and becomes larger as they differ more. Several measures of inter-sample distances are formulated depending on the types of variables (i.e., binary, nominal, interval-scaled, and ratio-scaled). For instance, the Euclidean distance metric previously used in management studies (e.g., Roth & O'Donnell, 1996; Thatcher, Jehn, & Zanutto, 2003) measures paired distances only in interval-scaled variables.

However, as discussed earlier, since my data set is made of different types of variables, I use an aggregated distance function that enables us to combine all types of variables in a

single dissimilarity matrix, and, hence, assess them together (Han, Kamber, & Pei, 2011). That is, the dissimilarity between data points can be computed even when the variables describing these data points are of different types. This function is defined by Han et al. as:

$$d(i,j) = \frac{\sum_{f=1}^{p} \delta_{ij}^{(f)} d_{ij}^{(f)}}{\sum_{f=1}^{p} \delta_{ij}^{(f)}} \quad (1)$$

where i and j are two p-dimensional data points represented as $(x_{i1}, x_{i2}, ..., x_{ip})$ and $(x_{j1}, x_{j2}, ..., x_{jp})$ respectively, and $d(i,j)$ is a distance function (metric) used to express the (dis)similarity between two data points (i.e., i and j in this case). Then, the contribution of variable f to the dissimilarity between i and j (i.e., $d_{ij}^{(f)}$) is computed dependent on its type:

1. If f is binary or nominal: $d_{ij}^{(f)} = 0$ if $x_{if} = x_{if}$, or otherwise $d_{ij}^{(f)} = 1$
2. If f is interval-scaled: $d_{ij}^{(f)} = \frac{|x_{if} - x_{jf}|}{\max_h x_{hf} - \min_h x_{hf}}$
3. If f is ordinal or ratio-scaled: compute ranks r_{if} and $z_{if} = \frac{r_{if} - 1}{M_f - 1}$, and treat z_{if} as interval-scaled $(r_{if} \in \{1, ..., M_f\})$

In this function, the contribution of all different types of variables to the dissimilarity (i.e., $d_{ij}^{(f)}$) are normalized, and hence expressed on a common scale of (0, 1).

In my analysis, I individually compute the distance of each data point (i.e., company board) to all other data points in my data set using the above mentioned metric. Here, I have given equal weights to the relative contributions of each variable to the distance function (i.e., $\delta_{ij}^{(f)} = 1$). Then, I average the computed distances of each data point to all other data points using the formula below:

$$d(i,j) = \frac{\sum_{f=1}^{p} d_{ij}^{(f)}}{s} \tag{2}$$

And for the average distance to all the other boards I use:

$$D(i) = \frac{\sum_{z=1}^{k} d(i,z)}{k-1} \tag{3}$$

where,

x_{i1} : number of directors sitting in company board *i*

x_{i2} : percentage of outside (non executive) directors of company board *i*

x_{i3} : percentage of company shares owned by all directors of company board *i*

x_{i4} : fact that whether CEO of company board *i* also acts as chairman or not

s : number of features representing the *diversity of boards* (i.e., *board size, outsiders, ownership and duality*)

k : number of company boards

$d_{ij}^{(f)}$: distance of company board *i* to company board *j* with respect to the variable *f*

$\delta_{ij}^{(f)}$: relative contribution of the variable *f* to the distance between the company board *i* and the company board *j*

$d(i,j)$: distance of company board *i* to company board *j*

$D(i)$: average distance of company board *i* to all other boards

The output of this distance-measurement metric (i.e., *D(i)*) provides information on how (dis)similar a given board, taken into consideration four variables at the same time, from all other boards in my sample for a single given year. This information represents the value of the *diversity of boards index* (i.e., (I_{DoB})) for company board *i*. That is,

$$D(i) = (I_{DoB})_{(i)} \tag{4}$$

Next, to calculate the index value of the *changes in diversity of boards* (i.e., $\Delta(I_{DoB})$), I subtract the index value of a given reference year from that of another. Here, I use:

$$\Delta(I_{DoB})_{(i)} = (I_{DoB})_{(i),t_2} - (I_{DoB})_{(i),t_1} \quad (5)$$

where,

i is sampled firm;
t is sample reference year;
I_{DoB} is the value of the *diversity of boards index*;
ΔI_{DoB} is the value of the *changes in diversity of boards index.*

Appendix 4.5 Procedure for *changes in diversity in boards* Index ($\Delta(I_{DiB})$)

Changes in diversity in boards index (i.e., $\Delta(I_{DiB})$) represents the difference between the values of *diversity in boards index* (i.e., (I_{DoB})) in one reference year and that of another reference year. To achieve this, I have to calculate *diversity in boards indices* for two reference years separately. Then, I will subtract the value of one index from another. The procedure for calculating the *diversity in boards index*, as discussed in first empirical study in Appendix 3.5, is as follows.

Recall that, in this data set, each data point (i.e., company board), is represented with five variable constructs, or features, in terms of *diversity in boards.* I discussed my operationalization of these constructs in detail in the measures section. My calculation of diversity in boards index is as follows: the first variable is the mean age of directors sitting in a given board; the second and third variables are the percentage of female directors of a given board and the percentage of non-Caucasian directors in a given board, respectively; the fourth variable, a product of a formula, represents director experience of a given board; and the last variable is the mean tenure, time in years, of a given board. As such, my data set is composed of heterogeneous variables, in which the first and the last variables are discrete, the second, the third and the fourth variables are continuous. Here, no variable is of dichotomous nature.

Physically, distance is a numerical description of how far apart objects are. In mathematics, distance is a reflection of physical distance. Using a dissimilarity matrix, a collection of proximities that are available for all pairs of *n* objects can be stored. In measuring inter-sample distances, the distance-measurement tool compares data samples in a matrix and provides a metric to assess how (dis)similar they are. Measured difference, or dissimilarity between two objects, or $d(i, j)$, is a non-negative number that is close to 0 when objects *i* and *j* are highly similar or 'near' each other, and becomes larger as they differ more. Several measures of inter-sample distances are formulated depending on the types of variables (i.e., binary, nominal, interval-scaled, and ratio-scaled). For instance, the Euclidean distance metric previously used in management studies (e.g., Roth & O'Donnell, 1996; Thatcher, Jehn, & Zanutto, 2003) measures paired distances only in interval-scaled variables.

However, as discussed earlier, since my data set is made of different types of variables, I use an aggregated distance function that enables us to combine all types of variables in a

single dissimilarity matrix, and, hence, assess them together (Han, Kamber, & Pei, 2011). That is, the dissimilarity between data points can be computed even when the variables describing these data points are of different types. This function is defined by Han et al. as:

$$d(i,j) = \frac{\sum_{f=1}^{p} \delta_{ij}^{(f)} d_{ij}^{(f)}}{\sum_{f=1}^{p} \delta_{ij}^{(f)}} \quad (1)$$

where i and j are two p-dimensional data points represented as $(x_{i1}, x_{i2}, ..., x_{ip})$ and $(x_{j1}, x_{j2}, ..., x_{jp})$ respectively, and $d(i,j)$ is a distance function (metric) used to express the (dis)similarity between two data points (i.e., i and j in this case). Then, the contribution of variable f to the dissimilarity between i and j (i.e., $d_{ij}^{(f)}$) is computed dependent on its type:

1. If f is binary or nominal: $d_{ij}^{(f)} = 0$ if $x_{if} = x_{jf}$, or otherwise $d_{ij}^{(f)} = 1$
2. If f is interval-scaled: $d_{ij}^{(f)} = \frac{|x_{if} - x_{jf}|}{\max_h x_{hf} - \min_h x_{hf}}$
3. If f is ordinal or ratio-scaled: compute ranks r_{if} and $z_{if} = \frac{r_{if} - 1}{M_f - 1}$, and treat z_{if} as interval-scaled $(r_{if} \in \{1, ..., M_f\})$

In this function, the contribution of all different types of variables to the dissimilarity (i.e., $d_{ij}^{(f)}$) are normalized, and hence expressed on a common scale of (0, 1).

In my analysis, I individually compute the distance of each data point (i.e., company board) to all other data points in my data set using the above mentioned metric. Here, I have given equal weights to the relative contributions of each variable to the distance function (i.e., $\delta_{ij}^{(f)} = 1$). Then, I average the computed distances of each data point to all other data points using the formula below:

$$d(i,j) = \frac{\sum_{f=1}^{p} d_{ij}^{(f)}}{s} \tag{2}$$

And for the average distance to all the other boards I use:

$$D(i) = \frac{\sum_{z=1}^{k} d(i,z)}{k-1} \tag{3}$$

where,

x_{i1} : average age, in arithmetic mean and in years, of all directors sitting in company board *i*

x_{i2} : percentage of female directors of company board *i*

x_{i3} : percentage of non-Caucasian directors of company board *i*

x_{i4} : percentage of directors that serves at least three years in four committees in company board *i*

x_{i5} : average tenure, in arithmetic mean and in years, of all directors sitting in company board *i*

s : number of features representing *diversity in boards* (i.e., director age, gender, race, experience and tenure)

k : number of company boards

$d_{ij}^{(f)}$: distance of company board *i* to company board *j* with respect to the variable *f*

$\delta_{ij}^{(f)}$: relative contribution of the variable *f* to the distance between the company board *i* and the company board *j*

$d(i,j)$: distance of company board *i* to company board *j*

$D(i)$: average distance of company board *i* to all other boards

The output of this distance-measurement metric (i.e., *D(i)*) provides information on how (dis)similar a given board, taken into consideration five variables at the same time, from

all other boards in my sample for a single given year. This information represents the value of *diversity in boards index* (i.e., (I_{DiB})) for company board *i*. That is,

$$D(i) = (I_{DoB})_{(i)} \quad (4)$$

Next, to calculate the index value of the *changes in diversity in boards* (i.e., $\Delta(I_{DiB})$), I subtract the index value of a given reference year from that of another. Here, I use:

$$\Delta(I_{DiB})_{(i)} = (I_{DiB})_{(i),t_2} - (I_{DiB})_{(i),t_1} \quad (5)$$

where,

i is sampled firm;
t is sample reference year;
I_{DiB} is the value of *diversity in boards index*;
ΔI_{DiB} is the value of *changes in diversity in boards index.*

Appendix 4.6 Operationalization of *changes in director experience*

Since, I did not have a direct measure that represents director experience, I used committee experience as a proxy and calculated whether, or not, a given director served continuously through three consecutive years in one or more of the four common board committees (i.e., nomination, compensation, audit and governance).

I calculated *changes in director experience* using the following formula:

$$\Delta E_{k,t} = E_{k,t_2} - E_{k,t_1}$$

where,

$$E_k = \frac{1}{\sum_{j=1}^{3} n_{jk}} \sum_{j=1}^{3} \sum_{i=1}^{n_{jk}} \left(x_{jik} + y_{jik} + z_{jik} + t_{jik} \right)$$

where,

n_{jk} : number of directors in company board k in year j

x_{jik} : nomination committee membership of director i in company board k in year j (0: No, 1: Yes)

y_{jik} : compensation committee membership of director i in company board k in year j (0: No, 1: Yes)

z_{jik} : audit committee membership of director i in company board k in year j (0: No, 1: Yes)

t_{jik} : governance committee membership of director i in company board k in year j (0: No, 1: Yes)

j : a given year (i.e., 2000, 1999; 1998; and 2010, 2009; 2008)

i : a given director (i.e., of all 1,304 directors in my sample)

k : a given company board (i.e., of all 114 company boards in my sample)

$E_{k,t}$: overall director experience of company board k, in sampling reference year t

$\Delta E_{k,t}$: changes in overall director experience of company board k, from sampling reference year t_1 to sampling reference year t_2 (i.e., from 2000 to 2010)

Appendix 4.7 Regression Function and VIF Loadings

The main regression function was:

$$\Delta(I_{CSP})_i = \alpha_i + \beta_1\Delta(I_{DiB})_i + \beta_2\Delta(I_{DoB})_i + \beta_3\Delta((I_{DiB})_i \times (I_{DoB})_i) + \varepsilon_i$$

where, i = 1, …, 114.

Note that I have used 2001 and 2011 KLD data to assess the impact of *changes in diversity in boards* and *changes in diversity of boards* that reflect 2000 and 2010 data. Taking $t + 1$ as the year of observation in dependent variable with respect to t as the year of observation in independent and control variables is a well-established practice in strategy scholarship that focuses board diversity with corporate social performance (e.g., Post et al, 2011). This method is regarded as a way to both increase the face validity of the research model at hand and to reduce any possible endogeneity biases. In other terms, the effects of diversity in board's independence or directors' gender, etc. in a given year is expected to reflect a more truthful representation on that firm's social performance in the following year. This is due to the fact that there are numerous directors who have been selected for the board only at the second or even third quarter of that fiscal year. Thus, observing the board diversity and measuring its impact on the social performance of the same year will yield only a partial picture of the reality.

The variance inflation factor (VIF) provides information about multicollinearity among variables in an ordinary least squares regression analysis. Thus, to control for the existence of multicollinearity in each model VIF values are reported (Kutner, et al., 2004). The highest VIF was less than two, and the mean VIF was not significantly greater than one in all models, suggesting that multicollinearity was not a problem (Chatterjee, Hadi, and Price, 2000). Following table reports the variance inflation factor for each variable.

Variance Inflation Factor (VIF) Loadings for Regressand $\Delta(I_{CSP})$
(data years 2000 & 2010)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
$\Delta bsize$					1.028		1.020
$\Delta outsider$					1.022		1.247
$\Delta ownership$					1.045		1.074
$\Delta duality$					1.046		1.093
$\Delta female$						1.021	1.164
Δage						1.426	1.514
$\Delta race$						1.047	1.072
$\Delta experience$						1.042	1.216
$\Delta tenure$						1.282	1.428
ΔCFP	1.018	1.007	1.025	1.020	1.030	1.061	1.106
$\Delta(I_{DoB})$	1.018	1.007	1.018				
$\Delta(I_{DiB})$			1.007				
$\Delta(I_{DoB} x I_{DiB})$				1.020			

When conducting an OLS, researchers usually make the assumption that the error term has a constant variance. If this is not the case, we encounter heteroscedasticity, and we may be overstating the goodness of fit. The White test is suggested to check the existence of heteroscedasticity. The test showed that, indeed, heteroscedasticity was present. To correct for it, I used White's suggested procedure (White, 1980). The Schwartz criterion and the Akaiki information criterion, then, confirmed that I have finally obtained a reasonably good fit.

Appendix 4.8 Post-hoc Analyses (Detailed Effects)

In this section, I report the findings of my further investigation of the study data in order to find any pattern that was not specified *a priori*. The results of the following post-hoc tests, or *posteriori* tests, may present additional relationships among each of six criteria (or subgroups) of *corporate social performance* used, and the independent variables, and their variable constructs, which would otherwise remain undetected with the original research design of the study. Therefore, I will call this attempt to further drawing conclusions from my data as *KLD subgroup analyses*. Recall that in the first empirical study, I have used post-hoc analyses based on the 2006 KLD data to detect its effect on board diversity as of 2005. Here, I am using the 2001 and 2011 KLD data in order to detect changes that occurred between 2000 and 2010, and thus, to detect their effects on the changes of board diversity for the same period.

Note that for each of the ensuing six regression analyses, the sample size is 114 firms; the (*), (**), and (***) denote significance at 10%, 5%, and 1% levels respectively; and, standard errors are presented in parentheses.

Subgroup analysis for *changes in corporate governance*

Among independent variables in this analysis, neither $\Delta(I_{DoB})$, nor $\Delta(I_{DiB})$, nor $\Delta(I_{DoB})$ and $\Delta(I_{DiB})$ together has not yielded any significant relationships. As a control variable, ΔCFP also has not yielded any significant relationship. In addition, no variable construct has yielded any significant relationship either. Table 4.9 provides details of these analyses.

Table 4.9 OLS Regression Results for KLD Criterion Δ*Corporate Governance*
(data years 2000 & 2010)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	0.66***	0.67***	0.66***	0.67***	0.61***	0.58***	0.54***
	(0.05)	(0.04)	(0.05)	(0.04)	(0.07)	(0.08)	(0.09)
Δ*bsize*					0.00		0.00
					(0.02)		(0.02)
Δ*outsider*					0.48*		0.50*
					(0.33)		(0.37)
Δ*ownership*					0.40		0.52
					(0.94)		(0.96)
Δ*duality*					0.02		0.04
					(0.09)		(0.09)
Δ*female*						0.66	0.58
						(0.54)	(0.55)
Δ*age*						0.01	0.00
						(0.01)	(0.01)
Δ*race*						0.19	0.12
						(0.46)	(0.46)
Δ*experience*						0.03	-0.00
						(0.09)	(0.10)
Δ*tenure*						0.00	0.01
						(0.01)	(0.01)
$\Delta(I_{DoB})$	0.37		0.38				
	(0.57)		(0.57)				
$\Delta(I_{DiB})$		0.61	0.61				
		(0.89)	(0.89)				
$\Delta(I_{DoB} \times I_{DiB})$				12.27			
				(11.12)			
Δ*CFP*	0.01	0.01	0.01	0.01	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
R^2	0.00	0.00	0.00	0.00	0.02	0.02	0.04
Adj. R^2	-0.01	-0.01	-0.01	-0.00	-0.02	-0.02	-0.04
F statistic	0.42	0.43	0.42	0.81	0.53	0.48	0.50

Subgroup analysis for *changes in community*

Among independent variables in this analysis, neither $\Delta(I_{DoB})$, nor $\Delta(I_{DiB})$, nor $\Delta(I_{DoB})$ and $\Delta(I_{DiB})$ together has not yielded any significant relationships. As a control variable, ΔCFP has yielded significant relationships in all models. Among variable constructs, only Δ*outsider and* Δ*experience* have yielded significant relationships. Both of these models were significant at 5% level. Table 4.10 provides details of these relationships.

Table 4.10 OLS Regression Results for KLD Criterion Δ*Community*
(data years 2000 & 2010)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	0.78***	0.82***	0.79***	0.81***	0.60***	0.76***	0.65***
	(0.09)	(0.08)	(0.09)	(0.08)	(0.12)	(0.15)	(0.16)
Δ*bsize*					0.00		0.02
					(0.03)		(0.03)
Δ*outsider*					1.35**		1.27**
					(0.58)		(0.63)
Δ*ownership*					2.07		2.21
					(1.63)		(1.65)
Δ*duality*					-0.04		-0.00
					(0.16)		(0.16)
Δ*female*						-0.14	-0.36
						(0.94)	(0.95)
Δ*age*						-0.02	-0.03
						(0.02)	(0.02)
Δ*race*						-0.46	-0.67
						(0.79)	(0.80)
Δ*experience*						0.42*	0.32*
						(0.16)	(0.18)
Δ*tenure*						0.01	0.03
						(0.02)	(0.02)
$\Delta(I_{DoB})$	0.73		0.73				
	(1.01)		(1.01)				
$\Delta(I_{DiB})$		-1.38	-1.38				
		(1.57)	(1.58)				
$\Delta(I_{DoB} \times I_{DiB})$				-6.83			
				(19.79)			
ΔCFP	-0.06**	-0.06**	-0.06**	-0.07**	-0.07**	-0.05**	-0.06**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
R^2	0.04	0.04	0.05	0.04	0.09	0.10	0.14
Adj. R^2	0.02	0.03	0.02	0.02	0.05	0.05	0.06
F statistic	2.67*	2.79*	2.03*	2.46*	2.37**	2.02**	1.79**

Subgroup analysis for *changes in diversity*

Among independent variables in this analysis, only $\Delta(I_{DoB})$ has yielded a significant relationship, however, its model was insignificant. Control variable was not found significant either. Among variable constructs, only Δoutsider and Δduality have yielded significant relationships. However, their models were not found significant either. Table 4.11 provides details of these relationships.

Table 4.11 OLS Regression Results for KLD Criterion Δ*Diversity*
(data years 2000 & 2010)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	1.65***	1.51***	1.685***	1.53***	1.28***	1.46***	1.33***
	(0.15)	(0.14)	(0.16)	(0.14)	(0.21)	(0.26)	(0.28)
Δ*bsize*					-0.01		-0.01
					(0.05)		(0.06)
Δ*outsider*					0.38**		1.64*
					(0.27)		(1.10)
Δ*ownership*					2.73		2.56
					(2.77)		(2.86)
Δ*duality*					0.38*		0.39*
					(0.27)		(0.28)
Δ*female*						0.76	0.58
						(1.63)	(1.65)
Δ*age*						-0.01	-0.01
						(0.04)	(0.05)
Δ*race*						-0.30	-0.62
						(1.37)	(1.39)
Δ*experience*						0.26	0.15
						(0.29)	(0.31)
Δ*tenure*						-0.04	-0.02
						(0.04)	(0.04)
$\Delta(I_{DoB})$	-2.85*		-2.84*				
	(1.70)		(1.70)				
$\Delta(I_{DiB})$		2.28	2.27				
		(2.67)	(2.65)				
$\Delta(I_{DoB} \times I_{DiB})$				-9.20			
				(33.55)			
Δ*CFP*	0.01	0.02	0.01	0.02	0.00	0.03	0.01
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
R^2	0.02	0.00	0.03	0.00	0.05	0.02	0.06
Adj. R^2	0.00	-0.01	0.00	-0.01	0.01	-0.02	-0.02
F statistic	1.49	0.46	1.23	0.13	1.30	0.53	0.76

Subgroup analysis for *changes in employee*

Among independent variables in this analysis, both $\Delta(I_{DoB})$ and $\Delta(I_{DiB})$ have yielded significant relationships. Control variable was not found significant. Among variable constructs, Δ*bsize,* Δ*outsider,* Δ*ownership* and Δ*duality* have yielded significant relationships. Table 4.12 provides details of these relationships.

Table 4.12 OLS Regression Results for KLD Criterion Δ*Employee*
(data years 2000 & 2010)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	0.69***	0.45***	0.65***	0.52***	0.15	0.24	0.00
	(0.12)	(0.11)	(0.12)	(0.11)	(0.16)	(0.21)	(0.21)
Δ*bsize*					0.07*		0.07*
					(0.04)		(0.04)
Δ*outsider*					2.37***		2.22***
					(0.76)		(0.85)
Δ*ownership*					-3.73*		-3.98*
					(2.14)		(2.19)
Δ*duality*					0.37*		0.37*
					(0.21)		(0.21)
Δ*female*						0.64	0.31
						(1.32)	(1.27)
Δ*age*						0.02	0.01
						(0.04)	(0.03)
Δ*race*						1.90*	1.66*
						(1.11)	(1.06)
Δ*experience*						0.13	0.07
						(0.23)	(0.24)
Δ*tenure*						-0.00	0.01
						(0.03)	(0.03)
$\Delta(I_{DoB})$	-4.47***		-4.47***				
	(1.34)		(1.32)				
$\Delta(I_{DiB})$		4.39**	4.37**				
		(2.14)	(2.04)				
$\Delta(I_{DoB} \times I_{DiB})$				-45.64*			
				(26.97)			
Δ*CFP*	0.00	0.00	-0.01	0.00	0.00	0.01	0.00
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
R^2	0.09	0.03	0.12	0.02	0.15	0.03	0.17
Adj. R^2	0.07	0.02	0.10	0.00	0.11	-0.01	0.09
F statistic	5.63***	2.16*	5.40***	1.49	3.81***	0.70	2.19***

Subgroup analysis for *changes in environment*

Among independent variables in this analysis, neither $\Delta(I_{DoB})$, nor $\Delta(I_{DiB})$, nor $\Delta(I_{DoB})$ and $\Delta(I_{DiB})$ together has not yielded any significant relationships. As a control variable, ΔCFP also has not yielded any significant relationship. In addition, no variable construct has yielded any significant relationship either. While $\Delta outsider$ and Δage were found significant, their lack of model significance have forced me to not to consider them. Table 4.13 provides details of these relationships.

Table 4.13 OLS Regression Results for KLD Criterion Δ*Environment*
(data years 2000 & 2010)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	2.35***	2.35***	2.36***	2.35***	2.25***	2.53***	2.43***
	(0.09)	(0.08)	(0.09)	(0.08)	(0.12)	(0.14)	(0.16)
$\Delta bsize$					0.04		0.05
					(0.03)		(0.03)
$\Delta outsider$					0.50*		0.88*
					(0.56)		(0.62)
$\Delta ownership$					-2.04		-1.77
					(1.59)		(1.61)
$\Delta duality$					0.00		-0.03
					(0.15)		(0.16)
$\Delta female$						-0.79	-0.96
						(0.92)	(0.93)
Δage						-0.04*	-0.05**
						(0.02)	(0.02)
$\Delta race$						-0.25	-0.32
						(0.78)	(0.78)
$\Delta experience$						-0.03	-0.06
						(0.16)	(0.17)
$\Delta tenure$						0.02	0.03*
						(0.02)	(0.02)
$\Delta(I_{DoB})$	-0.17		-0.17				
	(0.98)		(0.98)				
$\Delta(I_{DiB})$		-0.58	-0.58				
		(1.52)	(1.52)				
$\Delta(I_{DoB} \times I_{DiB})$				-13.30			
				(19.00)			
ΔCFP	0.03	0.03	0.03	0.02	0.03	0.03	0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
R^2	0.01	0.01	0.01	0.01	0.04	0.03	0.08
Adj. R^2	-0.00	-0.00	-0.01	-0.00	0.00	-0.02	-0.00
F statistic	0.56	0.62	0.42	0.79	1.01	0.63	0.95

Subgroup analysis for *changes in product*

Among independent variables in this analysis, neither $\Delta(I_{DoB})$, nor $\Delta(I_{DiB})$, nor $\Delta(I_{DoB})$ and $\Delta(I_{DiB})$ together has not yielded any significant relationships. As a control variable, ΔCFP also has not yielded any significant relationship. In addition, no variable construct has yielded any significant relationship either. Again, while Δ*outsider* alone was found significant, its lack of model significance has forced me to not to consider it. Table 4.14 provides details of these relationships.

Table 4.14 OLS Regression Results for KLD Criterion Δ*Product*
(data years 2000 & 2010)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
intercept	0.53***	0.55***	0.55***	0.54***	0.45***	0.34***	0.29**
	(0.07)	(0.06)	(0.07)	(0.06)	(0.10)	(0.12)	(0.13)
Δ*bsize*					0.02		0.02
					(0.02)		(0.03)
Δ*outsider*					0.57*		0.55*
					(0.49)		(0.54)
Δ*ownership*					0.83		0.94
					(1.38)		(1.40)
Δ*duality*					0.00		0.03
					(0.13)		(0.14)
Δ*female*						0.41	0.35
						(0.78)	(0.81)
Δ*age*						0.03	0.02
						(0.02)	(0.02)
Δ*race*						0.42	0.29
						(0.66)	(0.68)
Δ*experience*						0.12	0.09
						(0.14)	(0.15)
Δ*tenure*						0.01	0.02
						(0.02)	(0.02)
$\Delta(I_{DoB})$	0.07		0.07				
	(0.84)		(0.84)				
$\Delta(I_{DiB})$		-1.73	-1.73				
		(1.30)	(1.30)				
$\Delta(I_{DoB} \times I_{DiB})$				-13.54			
				(16.35)			
ΔCFP	0.01	0.02	0.02	0.01	0.01	0.01	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
R^2	0.00	0.01	0.01	0.01	0.02	0.04	0.06
Adj. R^2	-0.01	0.00	-0.00	0.00	-0.02	-0.00	-0.02
F statistic	0.20	0.43	0.72	0.54	0.48	0.92	0.73

Summary of subgroup analyses

In this section, I have provided the results of each regression analysis that I conducted for six subgroups of my *changes in corporate social performance* measure. Table 4.15 shows a summary of the results.

Table 4.15 Summary of KLD Criteria Regression Results
(data years 2000 & 2010)

Variable	ΔCorporate Governance	ΔCommunity	ΔDiversity	ΔEmployee Relations	ΔEnviron-ment	ΔProduct	#
$\Delta(I_{DoB})$			×	+			1
$\Delta(I_{DiB})$				+			1
$\Delta(I_{DoB} \, x \, I_{DiB})$				×			0
Δ*bsize*				+			1
Δ*outsider*	×	+	×	+	×	×	2
Δ*ownership*				+			1
Δ*duality*			×	+			1
Δ*female*							0
Δ*age*					×		0
Δ*race*				×			0
Δ*experience*		+					1
Δ*tenure*							0
Σ	0	2	0	6	0	0	

× denotes variable with statistically significant relationship, yet without model achieving significance.
# denotes the total number of statistically significant relationships (*x*-axis) per independent variable and variable constructs (excluding statistically significant relationships without achieving model significance).
Σ denotes the total number of statistically significant relationships (*y*-axis) per variable construct (excluding statistically significant relationships without achieving model significance).

Here, I discuss the results of the subgroup analyses that I conducted in this section. I first discuss the results of each KLD criterion, then I discuss the results of independent variables. After that, I discuss the results of control variables, and finally I discuss the results of variable constructs.

First, about the social performance criteria, throughout the analyses in this section, I have observed that (refer to Table 4.15 for a summary) only the criterion Δ*employee relations* has yielded any statistically significant results. This means that the source of the significant relationships on the *changes in corporate social performance* (i.e., $\Delta(I_{CSP})$) of this study is

centered on this KLD criterion. The fact that the models of this criterion are statistically significant, along with relatively high *F* values of these models, reinforce this observation. This information is also visible in Σ row of Table 4.15.

Second, about the independent variables, I have observed that both $\Delta(I_{DoB})$ and $\Delta(I_{DiB})$ have created significant relationships with the social performance criteria. Both of these independence variables were associated with the criterion Δ*employee relations*. $\Delta(I_{DoB})$ was also found in relationship with the criterion Δ*diversity*, its lack of model significance has forced me to ignore it.

Third, about the control variable, I have observed that Δ*CFP* has yielded significant relationships on the criterion Δ*community* (from Table 4.10).

Fourth, in terms of variable constructs, Δ*outsider* has created more significant relationships than others. In addition, Δ*bsize,* Δ*ownership,* Δ*duality and* Δ*experience* have yielded significant relationships. This information is also visible in # column of Table 4.15.

Overall, among variable constructs the Δ*outsider*, and among the social performance criteria the Δ*employee relations* have been found abundantly.

5. Conclusion

5.1 Interconnectedness of Essays

Boards help shape our society. They are important in ensuring the well-being of firms. Post-Sarbanes-Oxley initiatives suggested modifications on boards. These suggestions were expected to minimize the risk of corporate failures, and re-assure shareholders. In time, these suggestions have extended from structural changes (e.g., elimination of leadership duality), to composition-related ones (e.g., inclusion of female directors). Altering boards, or promoting board diversity, has become a new concern of the corporate world.

While scholars have documented the effects of boards on firm's financial performance (regarding its shareholders), it is less clear with firm's social performance (regarding its stakeholders). Researchers reported conflicting results in the relationship between boards and firm's social performance. This led me to raise the (main) research question of the dissertation: *does board diversity affect corporate social performance?* Correspondingly, my main goal in this dissertation was to shed light on answering this research question (see Table 5.1 for a summary).

Table 5.1 Nature of Dissertation

	Major Research Problem	**Major Research Aim**	**Major Research Question**
Dissertation	Vagueness in the understanding of the effects of board diversity on CSP	To shed light on the effects of board diversity on CSP	To what extent, if any, does board diversity affect CSP?

I have tried to answer the main research question of dissertation in three stages. Each stage represents an essay of the dissertation. Each essay concerns a particular research problem, a particular research aim, and a particular research question to answer, which, in turn, all lead to answer the main research question of dissertation.

The first essay shows that strategy researchers use different definitions of board diversity, and point at the sources of the differences. In this essay, I try to explain the differences and suggest how related problems could be mended.

The second essay builds on the inconsistent evidence regarding board diversity relationship with corporate social performance (CSP), and on the definition provided in the first essay. In particular, I provide statistical evidence on the relationship board diversity and social performance. This second study highlights board diversity measurement problems, and proposes new measurement procedures for diversity as an index.

The third essay examines the stability over time of the relationship board diversity and social performance, a hardly addressed issue in the extent literature.

Table 5.2 sums up the nature of each dissertation essay.

Table 5.2 Nature of Dissertation Essays

	First Essay	Second Essay	Third Essay
Research Problem	Different definitions of board diversity when studied with CSP	Inconsistent evidence, and varying measurement methods, regarding board diversity and CSP	Inexistence of stable relationship between board diversity and CSP
Research Aim	To pinpoint the sources of different definitions of board diversity when studied with CSP	To provide statistical evidence, if any, between board diversity and CSP	To prove that, if found, board diversity and CSP represents a stable relationship
Research Question	What are the sources of different definitions of board diversity when studied with CSP?	Is there a statistically significant relationship between board diversity and CSP?	If there is a statistically significant relationship, is it stable over time?

5.2 Findings of Research

Table 5.3 sums up the propositions or hypotheses that correspond to research questions of each dissertation essay.

Table 5.3 Propositions / Hypotheses of Dissertation Essays

Designation	First Essay	Second Essay	Third Essay
Proposition / Hypothesis 1	Source is differences in definition of board diversity	*Diversity of boards* has a (a) positive effect on CSP, and (b) negative effect on CSP	Over time, *changes in diversity of boards* has a (a) positive effect on *changes in CSP*, and (b) negative effect on *changes in CSP*
Proposition / Hypothesis 2	Source is differences in measurement of board diversity	*Diversity in boards* has a positive effect on CSP	Over time, *changes in diversity of boards* has a positive effect *on changes in CSP*
Proposition / Hypothesis 3	Source is differences in measurement of CSP	*Diversity in boards* and CSP relation is positively moderated by *diversity of boards*	Over time, the relationship between *changes in diversity in boards* and *changes in CSP* is positively moderated by *changes in diversity of boards*

5.2.1 Findings of the first essay

The aim of the first essay (i.e., the theoretical study) was to pinpoint the sources of different definitions of board diversity in the literature. There, using (three major, along with some additional minor) propositions, I have suggested that there are three possible reasons for the inconsistent results in board diversity and corporate social performance literature: (1) differences in researchers' definition of board diversity; (2) differences in researchers' measurement of board diversity; and (3) differences in researchers' measurement of social performance.

After conducting a systematic literature review, I have confirmed all three propositions. To be exact, (1) I have demonstrated that researchers do not always consider the advising function alone when examining board diversity with social performance. They use it together

with the monitoring function of the board as an aspect of board diversity. There, I have proposed to clarify by distinguishing between *diversity of boards*, and *diversity in boards.* (2) I have demonstrated how researchers measure board diversity differently. They use both quantitative and qualitative measures. For instance, they use any of the following methods in measuring board diversity: percentage, raw number, index number, standard variance, critical mass, binary data, or categorical data. (3) I have demonstrated how researchers measure corporate social performance differently. Sometimes they take social responsibility as a measure of corporate social performance; at other times, they use distinct constructs that made corporate social performance, including: to own a corporate code of ethics, a measure on corporate environmental strategy/performance, the amount of philanthropic contributions, a measure on corporate reputation, and whether they disclose (environmental) emission rates. Also, there is an isomorphic trend in board practices, which makes measurement of board diversity even more difficult. Table 5.4 sums up the findings of the first dissertation essay.

Table 5.4 Findings of the First Essay (*)

Designation	Definition	Result	Sources
Proposition 1	Source is differences in definition of board diversity	Confirmed	Not only advising function, but also monitoring function
Proposition 2	Source is differences in measurement of board diversity	Confirmed	Both quantitative and qualitative measures, and isomorphic trend
Proposition 3	Source is differences in measurement of CSP	Confirmed	Both unified and distinct constructs of CSP

(*) To remind, the research question of the first essay was: *What are the sources of different definitions of board diversity when studied with CSP?*

5.2.2 Findings of the second essay

The aim of the second essay (i.e., the first empirical study) was to provide statistical evidence, if any, between board diversity and corporate social performance, especially when board diversity is measured as a single-unit construct. There, using three hypotheses, I have suggested that board diversity affects social performance of firms: (1) *diversity of boards* has a (a) positive effect on CSP, and (b) negative effect on CSP; (2) *diversity in boards* has a positive effect on CSP; (3) *diversity in boards* and CSP relation is positively moderated by *diversity of boards*.

After introducing diversity matrices to measure it consistently, and conducting several regression analyses using data from S&P500 firms for the year 2005, I have confirmed all three hypotheses. To be exact, (1) I have found that *diversity of boards* has negative, and (2) *diversity in boards* has positive significant effects on corporate social performance. Additionally, (3) I have found that *diversity of boards* positively moderates the relationship between *diversity in boards* and CSP. Furthermore, among separate constructs, I have found that board size has positive, director ownership has negative, director gender has positive, director race has positive, and director tenure has positive significant effects on corporate social performance. Tables 5.5 and 5.6 sum up the findings of the second dissertation essay.

Table 5.5 Findings (Hypotheses) of the Second Essay (*)

Designation	Definition	Direction	Result
Hypothesis 1.1	*Diversity of boards* has an effect on CSP	Positive	Not confirmed
Hypothesis 1.2	*Diversity of boards* has an effect on CSP	Negative	Confirmed
Hypothesis 2	*Diversity in boards* has an effect on CSP	Positive	Confirmed
Hypothesis 3	*Diversity in boards* and CSP is moderated by *diversity of boards*	Positive	Confirmed

(*) To remind, the research question of the second essay was: *Is there a statistically significant relationship between board diversity and CSP?*

Table 5.6 Findings (Constructs) of the Second Essay (*)

Designation	Category	Definition	Direction	Result
Hypothesis 1A	*Diversity of boards*	*Board size* has an effect on CSP	Positive	Confirmed
Hypothesis 1B	*Diversity of boards*	*Director independence* has an effect on CSP	Positive	Not confirmed
Hypothesis 1C	*Diversity of boards*	*Director stock ownership* has an effect on CSP	Negative	Confirmed
Hypothesis 1D	*Diversity of boards*	*Board leadership duality* has an effect on CSP	Negative	Not confirmed
Hypothesis 2A	*Diversity in boards*	*Director gender* has an effect on CSP	Positive	Confirmed
Hypothesis 2B	*Diversity in boards*	*Director age has an effect on CSP*	Positive	Not confirmed
Hypothesis 2C	*Diversity in boards*	*Director race* has an effect on CSP	Positive	Confirmed
Hypothesis 2D	*Diversity in boards*	*Director experience* has an effect on CSP	Positive	Not confirmed
Hypothesis 2E	*Diversity in boards*	*Director tenure* has an effect on CSP	Positive	Confirmed

(*) To remind, the research question of the second essay was: *Is there a statistically significant relationship between board diversity and CSP?*

5.2.3 Findings of the third essay

The aim of the third essay (i.e., the second empirical study) was to prove that, if such a statistically significant relationship is found, board diversity and corporate social performance represent a stable relationship. There, using three hypotheses, I have assumed stable relations: (1) Over time, *changes in diversity of boards* has a (a) positive effect on *changes in CSP*, and (b) negative effect on *changes in CSP*; (2) over time, *changes in diversity of boards* has a positive effect on *changes in CSP*; (3) over time, *changes in diversity in boards* and *changes in CSP* relation is positively moderated by *changes in diversity of boards.*

After conducting several regression analyses using data from S&P500 firms for the years 2000 and 2010, I have confirmed only one hypothesis. To be exact, among independent variables, (1) I have found that *changes in diversity of boards* has a negative significant effect on *changes in corporate social performance*. Furthermore, among separate constructs, I have found that *changes in director independence* has a positive significant effect on *changes in corporate social performance*. Table 5.7 and 5.8 sum up the findings of the third dissertation essay.

Table 5.7 Findings (Hypotheses) of the Third Essay (*)

Designation	Definition	Direction	Result
Hypothesis 1.1	*Changes in diversity of boards* has an effect on CSP	Positive	Not confirmed
Hypothesis 1.2	*Changes in diversity of boards* has an effect on CSP	Negative	Confirmed
Hypothesis 2	*Changes in diversity in boards* has an effect on CSP	Positive	Not confirmed
Hypothesis 3	*Changes in diversity in boards* and *changes in* CSP is moderated by *changes in diversity of boards*	Positive	Not confirmed

(*) To remind, the research question of the third essay was: *If there is a statistically significant relationship between board diversity and CSP, does it represent a stable relation (in time)?*

Table 5.8 Findings (Constructs) of the Third Essay (*)

Designation	Category	Definition	Direction	Result
Hypothesis 1A	*Changes in diversity of boards*	*Changes in board size* has an effect on CSP	Positive	Not confirmed
Hypothesis 1B	*Changes in diversity of boards*	*Changes in director independence* has an effect on CSP	Positive	Confirmed
Hypothesis 1C	*Changes in diversity of boards*	*Changes in director stock ownership* has an effect on CSP	Negative	Not confirmed
Hypothesis 1D	*Changes in diversity of boards*	*Changes in board leadership duality* has an effect on CSP	Negative	Not confirmed
Hypothesis 2A	*Changes in diversity in boards*	*Changes in director gender* has an effect on CSP	Positive	Not confirmed
Hypothesis 2B	*Changes in diversity in boards*	*Changes in director age has an effect on CSP*	Positive	Not confirmed
Hypothesis 2C	*Changes in diversity in boards*	*Changes in director race* has an effect on CSP	Positive	Not confirmed
Hypothesis 2D	*Changes in diversity in boards*	*Changes in director experience* has an effect on CSP	Positive	Not confirmed
Hypothesis 2E	*Changes in diversity in boards*	*Changes in director tenure* has an effect on CSP	Positive	Not confirmed

(*) To remind, the research question of the third essay was: *If there is a statistically significant relationship between board diversity and CSP, does it represent a stable relation (in time)?*

5.3 Contribution of Research

My work in this dissertation contributes to several research domains within management scholarship.

Firstly, I aim to contribute to the upper echelons literature with my arguments regarding board diversity. Researchers of the upper-echelon view typically take demographic attributes of top management teams as proxies for studying mental processes, and relate them to firm outcomes (Carpenter, Geletkanycz, and Sanders, 2004; Nielsen, 2010). While executive teams and board of directors have different responsibilities, agendas, and roles, both groups share similar diversity dynamics as top decision makers of the firm (Finkelstein, Hambrick and Cannella, 2009). Therefore, it is meaningful to study boards with an upper-echelons eye (Carpenter, Geletkanycz and Sanders, 2004; Hambrick. 2005; Hambrick. 2007), especially in relating to strategic outcomes (e.g., Daily, Certo, & Dalton, 1999; Hillman, Shropshire, & Cannella, 2007), or to firm performance (e.g., Daily and Dalton, 1992; Filatotchev and Bishop, 2002).

Secondly, I aim to contribute to the strategy literature with my arguments regarding board of directors and firm performance. While this relation (concerning the monitoring function of the board) has been the subject of numerous research in the financial economics literature (e.g., Hermalin and Weisbach, 1991; Vafeas, 1999), strategy scholars have also been interested in understanding the role of boards on firm's performance. For instance, they studied the effects of boards on the performance of the firm regarding, but not limited to, its advising to the management (e.g., Hillman and Dalziel, 2003); its leadership structure (e.g., Daily and Dalton, 1993); its control on the firm strategy (e.g., Baysinger and Hoskisson, 1990); and its role during institutional transitions (e.g., Peng, 2004). Traditionally, strategy researchers study board's firm performance effects either through its monitoring role, or to a lesser extent, through its advising role. However, only recently, they have started to study these two roles together. Studying a dual perspective on the board's role is gaining attention among strategy researchers (e.g., Hillman and Dalziel, 2003; Hillman, Nicholson and Shropshire, 2008). Therefore, my contribution is to put these together, and provide the conceptual and operational tools to justify it, and thus, make it possible.

Thirdly, I aim to contribute to the corporate social responsibility literature (Freeman and Reed, 1983) through the empirical evidence that I have provided regarding board diversity and corporate social performance. This literature lacks a consistent empirical link between board of directors and stakeholder management (Post, Rahman and Rubow 2011). The majority of firms are still relatively homogenous in their boards, and this fact has a toll on the interests of firm's stakeholders. Some scholars, such as, Ray (2005) argue that unless socially-framed new corporate governance procedures are enacted (e.g., ability to elect directors by other constituencies than shareholders), the stakeholders may never be fully represented in the boards. For instance, Buchholtz, Brown and Shabana (2008) see these new board initiatives as 'corporate democracy', and call researchers' attention towards studying the implementation of democratic principles in board of directors. This would offer all shareholders and stakeholders true access to board's inner workings. Importantly, Buchholtz and her colleagues argues that the first step to do so is to increase board diversity, thus making the board more representative of stakeholders' concerns.

Lastly, I aim to contribute to the organizational demography literature (Harrison, Price and Bell, 1998; Pfeffer, 1985) through my introduction of the diversity matrix and elaboration on the role of board structure in studying board diversity. Different dimensions of diversity and distinct measurements (Harrison and Klein, 2007), have been called for previously (e.g., Daley, 2002). Moreover, the insights of this research regarding *diversity of boards* may be meaningful for understanding the role of context in the study of the organizational demography. The importance of context, or form of organizational structure, in studying diversity has been called for researchers' attention earlier (e.g., Joshi and Roh, 2013). Even more importantly, prominent scholars have argued that not accounting for the role of context in demography research limits the theoretical rigor and practical relevance (e.g., Bamberger, 2008; Johns, 2006).

5.4 Limitations of Research

I acknowledge some limitations of this dissertation, and classify them mainly in two categories: theory and methodology.

From a theoretical stance, first, taking the resource dependency perspective has its limitations. Competing theoretical perspective, the resource-based view, also represents board's advising role. While an internally focused resource-based view is orientated at resources owned by the firm that can contribute to achieve the competitive advantage (Barney and Clark, 2007), externally focused resource dependence theory is orientated at the resources obtained from the firm's environment in order to deal with the uncertainties in the firm's external environment (Pfeffer and Salancik, 1978). Board diversity researchers overwhelmingly use resource dependence perspective in their studies, so I chose to study the boards using such a perspective. Clearly, this assumption can be challenged on the grounds of using different samples to study firms that are not dominated by outsiders (e.g., family firms).

Second, I use agency theory and the resource dependency theory, as these two perspectives have been the conventional choice to study boards with firm performance in the literature. However, there are other rival theories, such as, but not limited to, stewardship theory, institutional theory, transaction costs theory, legitimacy theory, signaling theory and stakeholder theory that can be instrumental. Using these theories in empirical studies may expand our understanding of board diversity in ways different than what agency and resource dependency theories can offer.

Third, I acknowledge that the link between board of directors and firm performance is a bold assumption. Numerous prominent scholars point out that there must be several mediating factors that are in play between board diversity and firm performance relationship (e.g., Finkelstein, et al., 2009). These factors, such as board processes, must be influential in studying boards. For instance, it has been reported that directors' cognitions help shape decisions about complex tasks pertaining to a firm's strategy (Forbes & Milliken, 1999). Relatedly, organization demography literature informs us that these decision makers' cognition-based group processes affect organizational performance (e.g., Pelled et al., 1999; Williams and O'Reilly 1998). Moreover, top management team diversity literature also highlights the importance of diverse mental processes among managers, and directs researchers' attention towards the relationship between different cognition sets and different decision-making processes that can cause communication flows, socio-political dynamics, etc. (Hambrick, 1994; Hambrick and Mason, 1984). Since boards are similar to executive teams as strategic decision-making groups, and, since top management team diversity arguments are

applicable to board diversity (Hambrick, 2005), then, it is logical to assume that board processes are also in play when studying board diversity and firm performance. Nevertheless, only a handful of board research (e.g., Judge and Zeithaml, 1992; Leblanc and Gillies, 2005; Sur, 2014; Westphal and Zajac, 1995; Zajac and Westphal, 1996) study board processes, as it is notoriously difficult to gain access to board meetings to observe directors' cognitive dynamics. However difficult to study, ignoring board processes might cause inaccurate reflections of real-life board behavior.

From a methodological stance, first I acknowledge that the systematic literature review that I have conducted is far from being perfect in reflecting the overall literature on board diversity and corporate social performance. To be precise, I have examined only studies that are published in SSCI journals (as they publish the most impactful research). I have ignored the evidence of the studies that are out of this scope. Moreover, even among SSCI journals, I have concentrated on research published between 2004 and 2014. Admittedly, there are few significant studies published before this sampling period. Also, my arguments do not reflect the evidence reported by the studies that are published after this sampling period.

Second, I acknowledge that the empirical results of this study may not be applicable to some other research settings. For instance, I have investigated the effects of board diversity on corporate social performance through 2005 as the sampling period. The results that I have achieved in the second essay may not hold true for some other sampling years (although I have investigated the stability of that relation over a 10-year period of time). Additionally, the results of this dissertation reflect the effects of board diversity on American firms' social performance only. Expecting similar results from firms located in other countries may be misleading. Moreover, the research questions that I have investigated in this dissertation reflect answers applicable to large firms only. That is, I have sampled only S&P500 firms, which consist of some of the world's largest firms in terms of both market-based and accounting-based measures. Furthermore, even though I have controlled the industry effects, my sample is heavily skewed towards service firms. In fairness, the majority of firms that are listed in S&P500 index are, in fact, service firms, so the sample that I have used in this dissertation is representative of S&P500 firms. However, I admit that the results that I have achieved here may not be applicable to firms in each distinct industry. Expecting similar results from firms in different industries may be misleading.

5.5 References

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