

Evidence on the Effect of Relational and Structural Social Capital on Firm Performance

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Statement of Originality

I hereby certify that the work embodied in the thesis is my own work, conducted under normal supervision. The thesis contains no material which has been accepted, or is being examined, for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made. I give consent to the final version of my thesis being made available worldwide when deposited in the University's Digital Repository, subject to the provisions of the Copyright Act 1968 and any approved embargo.

Tazrina Farah

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In loving memory of my late father Mohammad Amzad Hossain

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Table of Contents

Statement of Originality.....	ii
Acknowledgments	iii
Table of Contents	v
List of Tables	vii
List of Figures.....	viii
List of Abbreviations.....	ix
Abstract	x
Chapter 1: Introduction.....	1
1.1 Overview	2
1.2 Motivation	4
1.3 Research Questions.....	6
1.4 Research Methods.....	7
1.5 Contributions	8
1.6 Thesis Structure	9
Chapter 2: Literature Review	11
2.1 Introduction	12
2.2 Social Capital: The Definition.....	13
2.3 Classification of Social Capital	16
2.4 Measurement of Social Capital	18
2.5 Social Capital and Corporate Outcomes	24
2.5.1 Theoretical Framework of Social Capital.....	24
2.5.2 Firm-level Consequences of Relational and Structural Social Capital	29
2.6 Summary	32
Chapter 3: The Effect of Relational and Structural Social Capital on Firm Performance: Evidence from the United States.....	33
3.1 Introduction	34
3.2 Background and Hypothesis Development	37
3.3 Data and Methodology.....	40
3.3.1 Sample Construction	40
3.3.2 Variables	41
3.3.3 Model Specification	46
3.4 Empirical Results.....	47
3.4.1 Sample Statistics	47
3.4.2 Baseline Results	50
3.4.3 Robustness Checks.....	52
3.4.4 Controlling for Endogeneity	62
3.5 Conclusion.....	64
Chapter 4: The International Effect of Relational and Structural Social Capital on Firm Performance: Does the Country Context Matter?	66
4.1 Introduction	67
4.2 Literature Review and Hypothesis Development	69
4.2.1 Social Capital and Firm Performance	69

4.2.2 The Moderating Effects of Country-level Factors	71
4.3 Data and Methodology.....	81
4.3.1 Sample Construction	81
4.3.2 Variables	82
4.3.3 Model Specification	84
4.4 Empirical Results.....	85
4.4.1 Summary Statistics	85
4.4.2 Baseline Results	91
4.4.3 Robustness Checks	95
4.4.4 Moderating Effects of Country-level Variables.....	107
4.5 Conclusion.....	116
Chapter 5: Conclusion	118
5.1 Overview	119
5.2 Synopsis of Major Findings	120
5.3 Limitations and Future Research Opportunity	122
References.....	124
Appendices	147
Appendix A: Chapter 3 Variable Definitions and Additional Test Results.....	147
Appendix B: Construction Methodology for RSC and Controversy-adjusted RSC (RSC_Adjusted)	150
Appendix C: Chapter 4 Variable Definitions and Additional Test Results	156

List of Tables

Table 2.1: Definitions of social capital from the literature	15
Table 3.1: Sample selection process	41
Table 3.2: Construction methodology for RSC	43
Table 3.3: Sample distribution by industry and year	47
Table 3.4: Summary statistics	49
Table 3.5: Baseline regression: Social capital and firm performance	51
Table 3.6: Robustness check: Additional control variables	54
Table 3.7: Robustness check: Alternative measures of relational social capital	57
Table 3.8: Robustness check: Alternative measure of structural social capital	59
Table 3.9: Robustness check: Sub-sample of years 2005–15	61
Table 3.10: Change specification analysis	63
Table 4.1: Sample selection procedure	82
Table 4.2: Sample distribution by industry, year and country	87
Table 4.3: Summary statistics	91
Table 4.4: Baseline regression: Social capital and firm performance	93
Table 4.5: Robustness check: Additional control variables	96
Table 4.6: Robustness check: Alternative measures of relational social capital	99
Table 4.7: Robustness check: Alternative measure of structural social capital	101
Table 4.8: Robustness check: Sub-sample analysis	106
Table 4.9: The moderating effect of country-level social capital on the relational social capital–performance nexus	108
Table 4.10: The moderating effect of legal system on the relational social capital– performance nexus	110
Table 4.11: The moderating effect of market development on the relational social capital–performance nexus	113
Table 4.12: The moderating effect of country-level governance on the relational social capital–performance nexus	114
Table A1: Correlation Analysis	149
Table B1: TR’s ESG category scores (Thomson Reuters, 2019, p.16)	151
Table B2: TR’s ESG controversy scores (Thomson Reuters, 2019, p.17)	153
Table C1: Correlation Analysis	158
Table C2: The moderating effect of structural social capital on the relational social capital–performance nexus	159

List of Figures

Figure B1: The process for calculating controversy-adjusted RSC (RSC_Adjusted)	155
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List of Abbreviations

ABS	Australian Bureau of Statistics
CAPEX	Capital Expenditures
CEO	Chief executive officer
CFO	Chief financial officer
CSR	Corporate social responsibility
ESG	Environmental, social and governance
ESGC	Environmental, social and governance combined
FTSE	Financial Times Stock Exchange
GDP	Gross Domestic Product
GICS	Global Industry Classification Standard
MTB	Market-to-book ratio
OCF	Operating cash flow
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary least squares
ROA	Return on assets
RSC	Relational social capital
SSC	Structural social capital
TR	Thomson Reuters
US	United States
VIF	Variance inflation factor
WGI	World Governance Indicators
WVS	World Values Survey

Abstract

This thesis investigates the effect of social capital on firm performance. I argue that the impact of firm-level social capital can be contingent on its categorisation and measurement. Using a sample of 10,122 United States firm–year observations for the period 2005–18, the first empirical study examines the influence of trust-based relational and social network-based structural social capital on firm performance. The empirical results show that relational social capital positively influences firm performance, whereas the effect of structural social capital is negative. Results are robust to the use of alternative proxies of social capital, alternative model specifications and tests for endogeneity.

The second empirical study investigates the same relationship using a comprehensive global sample consisting of 24,980 firm–year observations covering 30 countries for the same period as in the previous study. This study too reports a positive effect of relational social capital and negative impact of structural social capital on firm performance, aligning with the findings of the first empirical study. The results are robust to a battery of sensitivity tests. This international study also tests the moderating effects of several country-level factors on the relationship between relational social capital and firm performance. The findings indicate that relational social capital has a stronger influence on firm performance in countries where the country-level social capital is higher, markets are developed, country-level governance is stronger and the legal system operates under a common regime.

Overall, the findings suggest that firm-level social capital plays an important role in determining firm performance; nevertheless the direction and magnitude of influence depends on the type of social capital. This finding is expected to help companies estimate their stock of social capital, and policy makers to evaluate the value relevance of social capital.

Chapter 1:

Introduction

1.1 Overview

While going through companies' annual reports, do users ever encounter items reported as 'social capital'? The most likely answer is 'no'. This may be because of the difficulty in measuring social capital and the fact that social capital may not generally be perceived as a value-relevant item by disclosure regulations. Nonetheless, company stakeholders have long recognised the importance of intangible capital (Henriques & Richardson, 2004) in making investment and financing decisions (Dean, McKenna, & Krishnan, 2012). Off-balance-sheet intangible assets such as human, intellectual and social capital often produce tangible outcomes, creating as much as 80% of a firm's value (Vodák, 2011). Social capital has received considerable attention in the social sciences (Coleman, 1988; Putnam, 1993) because it generates significant economic and social welfare outcomes at both macro and micro levels (Fafchamps & Minten, 2001; Fukuyama, 1995; Guiso, Sapienza, & Zingales, 2004; Knack & Keefer, 1997; Putnam, 2000). National and international organisations such as the Australian Bureau of Statistics (ABS), Organisation for Economic Co-operation and Development (OECD) and World Bank also recognise its role in formulating policy and encouraging informed decision-making.

To date, social capital has been accorded many definitions. Its central idea was primarily developed by Pierre Bourdieu, James Coleman and Robert Putnam (Claridge, 2004). Bourdieu (1986, p. 119) defines social capital as the 'individual's access to networks', whereas Coleman (1990, p. 302) views it in functional terms, underlining the fact that 'it is a variety of entities'. Putnam (1995, p.67) provides an outcome-oriented definition describing social capital as 'a propensity of people in a society to cooperate to produce socially efficient outcome'. To be precise, social capital refers to a form of non-financial capital or resource originating from interpersonal relationships, shared norms, shared values, trust and reciprocity.

Aside from differing definitions, consensus is lacking on how to measure and classify social capital (Fukuyama, 2001). The related literature indicates that social capital can be gauged in various ways, including in terms of network or social ties (Bourdieu, 1986; Burt, 1992; Putnam, 1995), trust and trustworthiness (Fukuyama, 1995; Putnam, 1993), and norms and sanctions (Coleman, 1988; Putnam, 1995).

Although it is plausible that social capital has economic implications for firms, until now it has received limited attention in the finance literature and very little about its effects on firm-level financial outcomes is known. However, a scant empirical literature suggests that firm-level social capital can have both positive and negative implications for a firm's financial outcomes. Resource dependence theory (Pfeffer & Salancik, 1978) considers social network-based social capital as a critical resource that helps improve firm performance. Conversely, advocates of agency theory (Jensen & Meckling, 1976) argue that a social network is linked to managerial entrenchment that procures higher agency costs and ultimately compromises a firm's economic performance. Empirical evidence also contributes to these contradictory perspectives: one strand of studies reports a positive relationship (Horton, Millo, & Serafeim, 2012; Javakhadze, Ferris, & French, 2016) and the other suggests a negative association (Fracassi & Tate, 2012; Kirchmaier & Stathopoulos, 2008) between social network and firm performance. In addition to social networks, trust-based social capital builds on the overarching theoretical premise of 'reciprocity' (Gouldner, 1960) that is captured in the principle of 'do unto others as you would have them do unto you'. Consistent with the prediction of reciprocity, empirical studies too confirm the role of trust-based social capital in improving firm performance (Amiraslani, Lins, Servaes, & Tamayo, 2017; Lins, Servaes, & Tamayo, 2017). Taken together, the opacity of firm-level social capital measures (Fukuyama, 2001; Scrivens & Smith, 2013) and contradictory empirical evidence provide the key motivation for this thesis.

The thesis uses the conceptual framework of Nahapiet and Ghoshal (1998) to specify aspects of social capital, which suggest three key facets: structural (network ties, membership of formal and informal networks), relational (trust, norms) and cognitive (shared vision, common goals) social capital. The thesis considers the relational and structural social capital of corporate firms measured by trust (Lins et al., 2017; Sacconi & Antoni, 2011) and directors' social networks (Faleye, Kovacs, & Venkateswaran, 2014; Ferris, Javakhadze, & Rajkovic, 2017a) respectively. Cognitive social capital is omitted because of the lack of availability of relevant data. This study aims to build a comprehensive understanding of the value implication of social capital by estimating the influence of relational and structural social capital on firms' financial performance.

The remainder of the chapter is organised as follows. Section 1.2 outlines the motivations for the thesis, followed by development of research questions in Section 1.3. A summary of the research methodology is presented in Section 1.4. Section 1.5 explains the contributions of the thesis to the literature and practice, followed by an outline of the thesis structure in Section 1.6.

1.2 Motivation

The first motivation for this thesis originates from the complexity, imprecision and unreliability of existing firm-level social capital indicators. A key criticism of the measures used in prior empirical studies relates to overgeneralisation of the concept. Most research employs data collected for purposes other than constructing social capital measures (Stone, 2001). Such an approach reduces the soundness of variables and introduces considerable confusion in the literature (Commission, 2003). For example, Paxton (1999) criticises the use of voter turnaround as a proxy for social capital, referring it as an outcome of social capital rather than an indicator. In finance literature, blood and organ donation have also been employed as an indicator of social capital (Hasan, Hoi, Wu, & Zhang, 2017b). Further, researchers generally

provide a meagre rationale for the connection of their measure to theoretical postulations of social capital (Paxton, 1999). Recognising social capital as a new, multifaceted and ambiguous measure (Commission, 2003), this thesis attempts to develop robust and theoretically grounded instruments for measuring firm-level social capital.

Empirical evidence clearly shows that establishing the direction and magnitude of any fundamental link between firm-level social capital and corporate financial outcome is not straightforward. Thus, the second motivation for this thesis arises from the contrasting empirical evidence relating to the value relevance of social capital. It is possible that mixed evidence is generated from the inability to adequately capture the multifaceted dimensions of the concept contemporaneously. Studies typically rely on a single stand-alone indicator of social capital or a pre-existing composite index covering a single facet of the concept (Paxton, 1999; Stone, 2001). For instance, Lins et al. (2017) studied the relational aspect derived from trust, whereas Horton et al. (2012) adopted a structural approach based on directors' social networks as a proxy for social capital to test its influence on firm performance. Although both are categorised as forms of social capital, they have distinguishing features (Tsai & Ghoshal, 1998). The structural social capital of a firm originates from network-rich directors who serve on corporate boards. In contrast, relational social capital stems from firms' corporate strategies and policies. Consequently, it is expected that the impact of these two forms of social capital on firm performance is likely to differ.

The motivation for the second study stems from the dearth of cross-country social capital studies in the finance literature. However, despite the dominance of the United States (US) market, there is a growing awareness among finance researchers that firm-level social capital can have important implications for corporate finance outcomes in a global milieu. Further, scholars are also anticipating that the strength of social capital–performance connection might

be contingent upon various country-level contextual factors (Dudley & Zhang, 2016; Ferris et al., 2017a). For example, the contingency effect of aggregate social capital is evident in an inter-regional or community setting. A limited number of US-based studies investigate the influence of regional social capital on the firm social capital–performance relationship. One set of studies finds that regional social capital has a substantial positive role to play in moderating the relationship (Hoi, Wu, & Zhang, 2018; Lins et al., 2017), while other studies do not identify regional social capital as a moderator of the association (Jha & Cox, 2015). It is plausible that these context-wise differences are more prominent among countries or regions, which may contribute to variation in empirical findings. Therefore, an international study with a comprehensive social capital measure incorporating country attributes is required to better understand its effect on firm performance.

1.3 Research Questions

Based on the motivations and research gaps identified above, this thesis articulates three research questions to be answered through two empirical studies. The first arises from the lack of pertinence, standardisation and clarity of existing firm-level social capital indicators. To deal with this concern, the first research question to be addressed in this thesis is:

Research question 1: What are appropriate firm-level measures of social capital?

One major shortcoming of the literature is that it fails to simultaneously consider the multiple dimensions of social capital when investigating its firm-level financial consequences. Given that social capital's influence can be dimension dependent, I address a second research question:

Research question 2: How does firm-level relational and structural social capital influence firm performance?

The second question is investigated in the first empirical study by estimating the distinct impacts of relational and structural social capital on firm performance using a US sample. The second empirical study takes a similar approach to testing the social capital–performance association in a global setting.

Recent studies identify country-level contextual circumstances as contingent factors that can moderate the influence of social capital on a firm’s financial outcomes (Dudley & Zhang, 2016). Hence, the third research question, which captures cross-country variation, is:

Research question 3: In what way country-level factors are associated in determining social capital’s impact on firm performance?

The third research question is exclusively addressed in the second study as it involves country-level variables that require examination in a global setting.

1.4 Research Methods

This thesis employs a confirmatory research approach where hypotheses are developed based on the relevant theoretical foundation and quantitatively tested based on secondary data. Data related to social capital are obtained from the Thomson Reuters (TR) ASSET4 ESG (i.e. environmental, social and governance) and BoardEx databases. All other financial variables, including dependent variables, are retrieved from Datastream and Worldscope. Macro-level variables are acquired from various secondary published sources including the World Bank and World Values Survey (WVS) websites. The sample period has been set primarily based on the data availability of ASSET4 ESG and then it was converged with all other data sources. Although ASSET4 ESG provides data starting from year 2002, however its major global coverage begins from 2005. To keep the US based study and international study consistent in terms of sample period, both of the studies consider firm level observations from 2005 to 2018.

This thesis adopts a similar methodology in both empirical studies. The first study involves empirical analysis of panel data for US corporations from 2005 to 2018. Testable hypotheses are examined using ordinary least squares (OLS) panel regression. The dependent variables are the firm performance indicators return on assets (ROA) and Tobin's Q, representing accounting and market performance respectively. The main independent variables are firm-level relational and structural social capital. A series of tests is undertaken to establish the robustness of the main results. The tests encompass incorporation of additional control variables to the model as well as the use of alternative measures for independent variables and sub-sample analysis.

The second empirical study uses a comprehensive global sample consisting of firms from 30 countries for the period 2005–18. The countries are selected based on data accessibility. This study uses a similar set of variables and regression methodology to the first study in a cross-country setting. Additionally, an array of country-level factors—namely country-level social capital, legal system, level of market development and country-level governance quality—are considered as moderating variables to assess the effect of country-wise variation on the social capital–performance link.

1.5 Contributions

The thesis makes several notable contributions. It contributes to the literature by adopting the novel approach of measuring firm-level social capital incorporating both structural and relational concepts. To the best of my knowledge, this is the first empirical analysis that concurrently considers multidimensional firm-level social capital to examine its influence on corporate firm performance. Consequently, the empirical investigations provide unique evidence that the magnitude and direction of the association between social capital and firm performance may differ depending on the nature of social capital. This finding contributes to a fuller understanding of social capital's value relevance. In addition, this thesis introduces the

Nahapiet and Ghoshal (1998) classification framework to the finance literature. Studies have applied this classification method to develop theoretical understanding related to social capital's effect on aspects such as knowledge transfer, citizenship behaviour and product innovation (Bolino, Turnley, & Bloodgood, 2002; Inkpen & Tsang, 2005; Tsai & Ghoshal, 1998). This study makes a key contribution by bringing this prominent classification model into the empirical social capital literature concerning corporate finance outcomes. Further, this thesis adds to the evolving finance stream of the social capital literature by developing a robust firm-level measure of relational social capital that extends and supplements Lins et al.'s (2017) trust-based social capital instrument.

The novelty of the second empirical study is that, to the best of my knowledge, it is the first comprehensive international study to examine the contingency effect of country-level social capital and other country contextual factors on the social capital–firm performance paradigm.

Finally, as well as contributing to the literature, the empirical findings of this thesis make significant practical contributions. New evidence that the category of social capital matters for firm-level economic activities can facilitate corporate decision making and capital market investments. This input will assist investors in evaluating the value relevance of social capital. Additionally, the findings can shape corporate-level policy formulation to determine the ideal level of each class of social capital. International managers can also have important insights from the factors explaining cross-country variation in social capital's impact on firm performance, which can benefit them in globalised decision-making.

1.6 Thesis Structure

The remainder of the thesis proceeds as follows. Chapter 2 presents a detailed literature review concerning social capital. The chapter thoroughly discusses the definition, classification,

measurement, theoretical underpinnings and corporate-level consequences of firm-level social capital. The subsequent two chapters present the two empirical studies. In Chapter 3, I decompose social capital into relational and structural measures and examine their relationship with firm performance in the US context. Chapter 4 continues by investigating the same association in a multi-country setting. The thesis concludes with Chapter 5, which provides a brief synopsis of the key findings along with its limitations and opportunities for future research.

Chapter 2:

Literature Review

2.1 Introduction

This chapter focuses on reviewing the broader umbrella of theoretical and empirical literature related to various aspects of social capital. The idea of social capital has received significant attention in a diverse range of academic disciplines including law, economics, politics and social sciences, since the publication of Robert Putnam's (1995) seminal study. Only very recently have corporate finance researchers become interested in investigating its value relevance. Although social capital shares few common attributes with other classes of capital, it has distinctive features such as intangibility and context specificity. Its intangibility trait is one of the factors that makes it challenging to define, measure, classify and understand its influence. Nevertheless, this same attribute elevates it as a valuable resource to corporations because it is difficult for contenders to acquire or replicate (Acqaah, Amoako-Gyampah, & Nyathi, 2014). This explains why research on social capital related to different corporate outcomes has gained increasing prominence lately. This chapter attempts to summarise the literature with a focus on the financial implications of social capital along with its definition, measurement and classification.

The chapter begins with definitions of social capital from a multidisciplinary point of view. The following two sections review classification frameworks and measurement fundamentals in regard to social capital. As a number of interdisciplinary theories surround the emerging social capital literature, the subsequent section sheds light on theoretical underpinnings. Following development of the theoretical framework, the next section deals with the various consequences of social capital in terms of corporate-level outcomes. The chapter concludes with a summary.

2.2 Social Capital: The Definition

Social capital is generally considered a multidisciplinary concept, and has been applied in a wide variety of situations. Although the concept has generated great interest among researchers, there is little consensus about the appropriate way to define it. Unsurprisingly, considering the diverse ways of evaluating social capital, there is substantial discrepancy and even contradiction in the way it is defined (Adler & Kwon, 2002). Thus, any definition adopted in a study will be contingent on the field and scope of analysis (Robison, Schmid, & Siles, 2002). This lack of a unitary concept has led to development of a number of discrete ideas, which can be clustered into a common concept of social capital under an umbrella term (Scrivens & Smith, 2013). Its fundamental conceptualisation has been mainly contributed by Pierre Bourdieu, James Coleman and Robert Putnam (Claridge, 2004). Bourdieu (1986, p. 119) adopts the structural theory framework to define social capital as the ‘individual’s access to networks’. He describes social capital as the ‘the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition’. Conversely, Coleman (1990, p. 302) defines the concept in functional terms, underlining the fact that ‘it is a variety of entities’ focused on community networks. Coleman articulates the concept as ‘a variety of entities having with two elements in common, they all consists of some aspect of social structures, and they facilitate certain actions of actors –whether persons or corporate actors - who are within the structure’. Despite some criticism of its vagueness (Portes, 1998), Coleman’s view of social capital has been hugely influential (Scrivens & Smith, 2013). Putnam (1995, p.67) provides an outcome-oriented definition of social capital as ‘features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit to produce socially efficient outcome’. Putnam perceives social capital as a public good. Although pioneering researchers in the field commonly emphasise the idea of a social network

in terms of outlining social capital, an alternative school of thought perceives social capital through the lens of trust, norms, trustworthiness, shared goals and visions (Fukuyama, 1995; Inglehart, 1997; Knack & Keefer, 1997; Nahapiet & Ghoshal, 1998). Thinking beyond the sociological viewpoint of Coleman (1988) or the political science perception of Putnam (1993), Fukuyama (1995, p. 10) fits social capital and trust within an economic framework. He highlights the trust element of social capital by identifying it as ‘the ability of people to work together for common purposes in groups and organizations’. Woolcock (1998, p. 153) also disseminates the concept of social capital based on ‘the information, trust, and norms of reciprocity’. Similarly, Gambetta (1988) labels trust as a key element of social capital that determines the subjective probability of an individual’s potential action.

Considering the economic significance of social capital, international organisations have also attempted to formulate definitions. The definition developed by the OECD (2001, p. 103) and adopted by the ABS describes social capital as ‘networks together with shared norms, values and understandings that facilitate co-operation within or among groups’. Conversely, the World Bank takes an institutional approach in outlining social capital as ‘the institutions, relationships, and norms that shape the quality and quantity of a society’s social interactions’. Further to the abovementioned definitions, several other scholars have also endeavoured to define social capital using their own perspectives, as presented in Table 2.1.

Table 2.1: Definitions of social capital from the literature

Author	Definition
Baker (1990, p. 619)	‘a resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors’
Burt (1992, p. 9)	‘friends, colleagues, and more general contacts through whom you receive opportunities to use your financial and human capital’
Belliveau, O'Reilly III, & Wade (1996, p. 1572)	‘an individual’s personal network and elite institutional affiliations’
Brehm & Rahn (1997, p. 999)	‘the web of cooperative relationships between citizens that facilitate resolution of collective action problems’
Inglehart (1997, p. 188)	‘a culture of trust and tolerance, in which extensive networks of voluntary associations emerge’
Ostrom (2000, p. 176)	‘the shared knowledge, understandings, norms, rules and expectations about patterns of interactions that groups of individuals bring to a recurrent activity’
Portes & Sensenbrenner (1993, p. 1323)	‘those expectations for action within a collectivity that affect the economic goals and goal seeking behaviour of its members, even if these expectations are not oriented toward the economic sphere’
Grafton (2005, p. 754)	‘an all-encompassing term for the norms and social networks that facilitate co-operation among individuals and between groups of individuals’
Schiff (1992, p. 160)	‘the set of elements of the social structure that affects relations among people and are inputs or arguments of the production and/or utility function’

To supplement and accommodate all these relevant central ideas, Nahapiet and Ghoshal (1998, p. 243) comprehensively define social capital as:

the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network.

This thesis employs this definition of social capital to ensure the broad ranges of coverage of various social capital aspects.

2.3 Classification of Social Capital

As the idea of social capital has a wide scope, investigators should specify which type of social capital they are interested in before they commence their research (Villalonga-Olives & Kawachi, 2015). As well as defining social capital from a variety of perspectives, scholars propose diverse classification frameworks. These categorisations differ depending on the primary focus, be it elements, the origination or the effects of social capital. However, these classifications are regarded as broadly similar (Robison et al., 2002). Gittell and Vidal (1998) conducted a comprehensive review to identify various approaches used in studying social capital and generated the idea of segregation according to its primary focus on strong or weak ties, alternatively known as ‘bonding’ and ‘bridging’ forms of social capital, respectively. By definition, bonding social capital refers to ‘trusting and cooperative relationships within homogeneous groups’, whereas bridging social capital defines ‘relationships between individuals who are dissimilar with respect to social identity and power’ (Villalonga-Olives & Kawachi, 2015, p. 2). Scholars characterise bonding ties as the ‘glue’ of society, which enables individuals to stick together in a peer group and extend support to each other. Bridging ties are described as the ‘oil’, offsetting any potential conflict among groups and developing a wider custom of cooperation (Putnam, 1995). Adler and Kwon (2002) redefine this categorisation by labelling bonding as internal and bridging as external social capital. From the organisational perspective, internal social capital, or a tie, indicates connections among internal stakeholders that foster greater productivity and reliability, resulting in efficient management. Conversely, external social capital concentrates on an organisation’s relationships with external stakeholders, such as communities, customers and regulators, which helps gaining competitive advantage and cost cutbacks.

Based on Adler and Kwon's (2002) classification, an alternative approach is suggested by Leana III and Van Buren (1999), where social capital is categorised as a public and private good. In the private good approach, the proponents (Belliveau et al., 1996; Burt, 1992) consider social capital as an individual attribute. In contrast, other scholars (Bourdieu, 1986; Coleman, 1988; Putnam, 1993) regard social capital as a public good, which identifies it as a collective possession of a social unit rather than of individuals. Another classification stream is proposed by Coleman (1988), who outlines three forms of social capital: (1) obligations, expectations, and trustworthiness that indicate individuals' mutual dependence; (2) information channels that indicate individuals' information sharing and (3) norms and effective sanctions that indicate individuals' collectivism. An alternative classification suggests social capital can also be segregated based on the scale of a network in which it can exist. For instance, starting from the micro-level (family, school, organisations, interpersonal networks) it can be found at the meso-level (communities, neighbourhoods, business clusters) and be pertinent also to the macro-level (regions, countries) (Scrivens & Smith, 2013).

With reference to coverage and specificity among contemporary classification approaches, the conceptualisation devised by Nahapiet and Ghoshal (1998) is established as the most widely accepted classification framework of social capital to date. This classification framework is adopted by several empirical and theoretical studies, such as those of Inkpen and Tsang (2005), Bolino et al. (2002) and Tsai and Ghoshal (1998). The framework suggests three different yet interrelated key facets of social capital; namely structural (network ties, membership in formal and informal network), relational (trust, civic engagement, norms) and cognitive (shared vision, common goals). Nahapiet and Ghoshal (1998) interpret the structural dimension of social capital through the lens of network ties, network configuration and network appropriability, whereas the relational dimension of social capital is characterised by trust, received obligations, mutual identification and shared norms. Finally, the cognitive aspect of social capital concerns

the degree to which actors possess a shared vision and common narratives (Bolino et al., 2002). This particular framework is preferred over other classifications for several reasons (Inkpen & Tsang, 2005; Tsai & Ghoshal, 1998). First, it integrates various dimensions of social capital as discussed in earlier studies. Second, the model is ideal for examining intra-organisational social capital at the firm level, whereas other conceptualisations of social capital are best fitted to the individual level. Finally, Nahapiet and Ghoshal (1998) develop a theoretical connotation between social capital and organisation-level performance, albeit implicitly. Based on these arguments and supporting evidence from the literature, in this thesis I adopt the integrative framework of Nahapiet and Ghoshal (1998) to conceptualise and classify social capital at the firm level. Because of the lack of availability of data concerning cognitive social capital, the application of the framework is limited to relational and structural social capital. Previous researchers (Tsai & Ghoshal, 1998) attempted to gauge cognitive dimension by employing a Likert scale as an assessment tool to collect survey responses from primary respondents. As this study relies on secondary data, I consider only firm-level relational and structural social capital.

2.4 Measurement of Social Capital

According to Fukuyama (2001), one of the key drawbacks of the social capital concept is the lack of consensus about how to measure it. Although contemporary researchers have attempted to do this using various instruments, existing ones suffer from a paucity of standardisation, reliability and theoretical backup (Gaag & Snijders, 2002). The related theoretical literature indicates that social capital can be measured in several ways, including network or social ties (Bourdieu, 1986; Burt, 1992; Putnam, 1995), trust and trustworthiness (Fukuyama, 1995; Putnam, 1993), and norms and sanctions (Coleman, 1988; Putnam, 1995). However, the

corporate finance literature linked to social capital mostly concentrates on firm-level measurements, which are broadly based on structural and relational notions.

The structural social capital concept is grounded on structural theories (Burt, 1992; Lin, 1999) that consider a social network and a set of resources embedded in that network as a measurement tool (Bourdieu, 1986; Burt, 1992). A handful of empirical studies rely on the structural concept, where social capital is measured through individual-level social networks. For instance, in their US-based study, Ferris et al. (2017a) employed chief executive officers' (CEOs') social connections as a measure of social capital to examine its impact on corporate policies. A similar study in the same context likewise considered chief financial officers' (CFOs') social network centrality as representing structural social capital (Fogel, Jandik, & McCumber, 2018). Rather than depending on any particular individual's social connectedness, an alternative set of studies proposes the use of the aggregate network size or centrality measures of all members of a board of directors/executives to gauge social capital. Following this approach, Ferris et al. (2017b) conducted an international study involving 52 countries to examine the effect of social capital on cost of equity, in which they empirically estimate social capital through the size of directors' social networks. A comparable estimation method for structural social capital is used in research conducted in US settings as well (Fafchamps & Minten, 2001; Javakhadze et al., 2016; Renneboog & Zhao, 2014). The idea behind employing directors' aggregate social network size as a social capital proxy is that it makes the measurement more rational in terms of firm-level representation. In addition to the mainstream social capital literature, there is another thread of studies (Engelberg, Gao, & Parsons, 2012; Fracassi & Tate, 2012) that deal with analogous social connection measures to examine their effect on various corporate policies. However, these researchers are reluctant to refer to their constructs as 'social capital', and identify them using alternative terms.

Critics often question the validity of employing structural social capital as a firm-level measure because it originates from individual (director/CEO)-level connections, even if in some studies the measure aggregates all the directors' connections to make it compatible with the firm level. However, some researchers dispute this claim by showing that networks located at the individual level can ultimately explain firm-level social capital (Bolino et al., 2002; Pennings, Lee, & Witteloostuijn, 1998). These authors explain the mechanism through which individuals in companies develop social capital and how individual actions within institutions might facilitate the building of firm-level social capital. In support of this, Inkpen and Tsang (2005) argue that a firm's social capital is closely linked with and often created from individual social capital. For example, a company's survival potentiality can be increased owing to its owner's strong network with powerful suppliers or buyers (Uzzi, 1997). Therefore, based on the fact that 'social capital of people aggregates into the social capital of the organization' (Burt, 1992), firm-level structural social capital may reasonably originate from the individual level.

The other approach commonly found in the finance literature is relational social capital, which is developed on the premise of trust, trustworthiness and norms (Fukuyama, 1995; Putnam, 1993). The measurement of this trust and norm-based dimension of social capital empirically revolves around two specific pre-developed US data-centric indices. The first is a county-level social capital measure developed by Rupasingha, Goetz and Freshwater (2006), where principal component analysis is undertaken to create a social capital index for each county grounded on the number of social and civic associations, voter turnout during the presidential election, census response rate and number of non-government organisations at the county level. This measure is popularly known as RFG index. The other is the state-level Putnam (2000) index. This index is an inclusive instrument that covers 14 social capital indicators gathered

from survey responses.¹ These two indices have been predominantly used both separately and jointly to measure relational social capital in multiple US-based studies (Habib & Hasan, 2017; Hasan, Hoi, Wu, & Zhang, 2017a; Jha & Chen, 2014). The RGF index, which captures the joint influence of trust and network, has been exclusively used to measure relational social capital in a broad range of studies and test its association with various issues, such as debt contracting (Hasan et al., 2017b), corporate social responsibility (CSR) (Jha & Cox, 2015), financial reporting (Jha, 2019) and agency problems (Hoi, Wu, & Zhang, 2019). In contrast, a handful of US studies identify an association between social capital and debt maturity (Huang & Shang, 2019), cost of equity (Gupta, Raman, & Shang, 2018) and corporate innovation (Gupta, Raman, & Shang, 2016) using the RGF and Putnam indices conjointly to measure trust-based relational social capital. However, the dominance of these two constructs strictly in US-based studies reflects the contextual limitations of the measures.

Apart from the abovementioned popular measures, Guiso et al. (2004) and Buonanno, Montolio and Vanin (2009) use blood and organ donation as an alternative proxy for relational social capital. A strand of studies also emphasises using survey methods, and usually employ Likert-type scales to quantify trust-based social capital. For instance, Glaeser, Laibson, Scheinkman and Soutter (2000) used a survey instrument to measure trust, showing that trust and trustworthiness are related to social closeness. Further, Youndt and Snell (2004) construct a survey instrument to measure social capital incorporating five questions focusing on the factors that might inspire collective behaviour. There are other survey-based measures; for example, a number of studies (e.g. Guiso, Sapienza, & Zingales, 2008; Pevzner, Xie, & Xin, 2015) develop a social capital instrument incorporating WVS data to capture trust, civic engagement,

¹ Indicators are as follows: club meetings attended, community projects worked on, times entertained at home, time volunteered, time spent visiting friends, agreeing that most people are honest, serving on committees for local organisations, serving as officer of clubs or organisations, attending meetings on town or school affairs, organisations per capita, mean number of group memberships, agreeing that most people can be trusted, civic and social organisations per 1000 population, and voter turnout

reciprocity and norm. Similarly, some country-specific studies (Narayan & Pritchett, 1999; Onyx & Bullen, 2000) devise a practical trust-based measure of social capital using community data.

Although the contemporary social capital literature clearly illustrates the prominent presence of the RGF and Putnam indices to measure firm-level relational social capital, I identify at least three plausible reasons why these census and survey-based constructs may not be a viable option for measuring firm-level relational social capital. First, being developed from regional surveys and censuses, these constructs will act as a less accurate predictor of firm-level relational social capital. With the help of these indices, researchers attempt to measure firm-level relational social capital from the level of trust prevailing in the region in which the firm is headquartered (Gupta et al., 2018; Hasan et al., 2017b). The problem with this measure is that it generalises across all firms located in the same region and fails to identify the unique firm-specific trust attribute. Second, the involvement of census and survey data impedes the reliability of estimates. As most of the literature specifies, it is practically impossible to produce anything like a credible census of a society's stock of social capital, as it contains figures that involve subjective estimation or, in some cases, are simply non-existent (Fukuyama, 2001). This leads to the search for a viable survey method to collect data on trust and civic engagement. However, survey-based studies are criticised for producing unreliable measures of social capital because of the potential bias in responses to surveys regarding trust and other behaviours (Javakhadze et al., 2016). Following this line of argument, Glaeser et al. (2000) state that individuals having identical trust in others still respond in a different manner to open-ended questions on general trust. The authors suggest that responses regarding generalised trust may not necessarily reflect actual actions concerning trust. Further, answers procured via survey instruments can be subject to both the ability to recollect and the self-serving bias of respondents. Finally, since the RGF index is built by blending elements of both trust and social

connections (Hoi et al., 2019), this may not be considered among the best approaches to exclusively capture the trust-based relational facet of social capital.

Considering these pitfalls, an alternative, less pronounced yet more appropriate, firm-level estimate to quantify a firm's trust is to use a measure of CSR activities. Following the global financial crisis in 2008, corporations acknowledge the role of a firm's social capital, backed by its CSR investments, in rejuvenation of stakeholder trust. However, scholarly elucidation that CSR aids in building trust precedes the financial crisis (FitzGerald, 2003). Recent empirical studies (Lins et al., 2017; Sacconi & Antoni, 2011) employ and justify the use of such measures to capture trust as a firm-level estimate of relational social capital. The idea is generated from the common confidence among corporate managers that CSR activities can foster social capital and trust (PricewaterhouseCoopers, 2013, 2014). Studies also lend credence to the claim that CSR can generate social capital and enhance stakeholder trust and cooperation. The conventional wisdom is that stronger stakeholder engagement via CSR helps to overcome the negative consequences of controversial events (Nguyen & Nguyen, 2015). Godfrey, Merrill and Hansen (2009) point out this valuable feature of CSR, by showing that higher CSR firms suffer to a lesser extent than those with lower CSR when facing litigation. Additionally, empirical evidence shows that stakeholders place more trust in these high-CSR firms, as managers of such firms are less prone to insider trading (Gao, Lisic, & Zhang, 2014) and earnings management (Kim, Park, & Wier, 2012). This approach assumes that the adoption of an explicit CSR strategy reflects the fulfilment of fiduciary duties and commitments that strengthen stakeholders' trust in firms generating social capital (Degli Antoni & Portale, 2011). Hence, following recent studies and the widespread view of practitioners, firms' CSR activities can be considered a good proxy for trust-based relational social capital (Lins et al., 2017).

2.5 Social Capital and Corporate Outcomes

As mentioned earlier, the potential economic implications of social capital are encouraging growing concern among researchers in uncovering and exploring its corporate-level consequences. The theoretical literature is also populated with a number of conjectures that are pertinent for explaining the formation and influence of social capital on different corporate finance outcomes. This section begins with a sub-section describing the development of theoretical underpinnings related to social capital, emphasising its link with firm performance. Backed by this theoretical support, the subsequent sub-section deals with the empirical literature on various firm-level consequences of relational and structural social capital.

2.5.1 Theoretical Framework of Social Capital

Theoretical propositions regarding the influence of social capital on various firm-level financial metrics can take a range of forms depending on the source and category of social capital. The relational dimension of social capital and its role in determining corporate financial performance can be explained by the theory of reciprocity (Gouldner, 1960). This theory proposes a reciprocal exchange of equal actions, such as positive reactions to favourable treatment and negative reactions to unfavourable treatment. This view of reciprocity can be supplemented with the Maussian approach as a social aspect of giving, receiving and returning (Mauss, 1967). In that sense, reciprocity can be asserted as a substantiated commitment to return what has been received. According to this theory, the social norm of reciprocity often exceeds ordinary economic exchange and establishes a unique relationship among the actors. The relational social capital described as ‘trust at the core of a circle’ arises from the continuous connection maintained by reciprocity (Torche & Valenzuela, 2011). The business implication of this theory is that firms building trust through CSR in the form of relational social capital are rewarded or reciprocated through improved financial outcomes. This proposition is

endorsed by evidence that acknowledges the role of trust in reducing transaction costs (Knack & Keefer, 1997) and minimising the consequences of information asymmetry (Arrow, 1972). Reciprocity and social capital are close associates (Diekmann, 2004). Some scholars explicitly establish reciprocity as a fundamental attribute of social capital. For instance, Putnam (2000, p. 21) defines the 'social capital as 'associated norms of reciprocity'; similarly, Fukuyama (2001) identifies reciprocity as a fundamental element of trust-based relational social capital. Both advocates of social capital theory conceive that the fundamental norms of social capital amplify cooperation (Diekmann, 2004). This view implies that through cooperation, firms are expected to enjoy a higher value in a reciprocal exchange involving the building of trust through relational social capital. This interpretation is consistent with the 'doing better by doing good' approach of CSR.

To understand the organisational consequences of relational social capital, the idea of reciprocity can be corroborated by a related but different theoretical supposition—social exchange theory (Cook & Emerson, 1987). Social exchange theory asserts that connections are shaped by utilising a subjective cost–benefit assessment and comparison of options. According to this notion, the presence of reciprocity makes any economic exchange sustainable. Fundamentals for social exchange are strongly associated with the relational aspect of social capital in terms of maintaining social bonds and high levels of trust (Hall & Widén-Wulff, 2008). The advancement of trust through the course of mutual exchanges is one of the most notable benefits of social capital. Trust is an essential component that promotes influence by means of establishing control and power (Huang & Wang, 2008). In support of this opinion, Molm, Takahashi and Peterson (2000) propose that reciprocal exchange helps build trust, which can be proved to be a valuable asset in institutional economic settings. Hence, the fundamentals of reciprocity, backed by the views of social exchange, suggest that firms are

likely to get return by means of positive financial gain if greater attention is displayed through CSR that delivers relational social capital via trust.

The structural dimension of social capital and its connection to corporate-level consequences can be theoretically justified by two competing theories. The first is resource dependence theory (Pfeffer & Salancik, 1978), which predicts a positive relationship by explaining how structural social capital in the form of directors' social networks assists in the procurement of valuable resources critical for improving firm performance. Conversely, agency theory (Jensen & Meckling, 1976), which is based on the managerial opportunistic view, considers structural social capital as a channel to maximise managerial self-interest, which generates agency cost that in turn compromises business performance. A negative relationship is therefore suggested.

Resource dependence theory (Pfeffer & Salancik, 1978) asserts that most organisations do not have direct control over resources crucial for their survival and thus look to other organisations for those resources. According to this assumption, resources such as structural social capital in the form of directors' social networks can be considered a means to facilitate organisations' access to external resources by establishing links with the outside environment. More specifically, the resource dependence perspective points out that any social collaboration that allows actors to access resources either reduces their dependence or increases other parties' dependence on them (Huang & Wang, 2008). Consistent with this view, conjectural evidence suggests that structural social capital not only reduces dependence and uncertainty created by the external environment (Beckman, Haunschild, & Phillips, 2004), but also strengthens legitimacy. This in turn enables firms to obtain required resources (Hillman, Withers, & Collins, 2009). For example, structural social capital provides access to resources such as distinctive information (Beckman & Haunschild, 2002; Shropshire, 2010). This access expedites a firm's learning curve by providing a knowledge base regarding new corporate

policies, which in turn improves firm performance (Davis, 1991; Palmer, Jennings, & Zhou, 1993).

Supporting the theoretical foundation of resource dependence theory, the resource-based view (Barney, 1991) similarly considers structural social capital as a resource that provides firms with persistent competitive advantage over their rivals. Essentially, the resource-based view depicts organisations as bundles of resources that are the sources of various competencies and opportunities (Barney, 1991; Barney, 1986). According to this view, resources that are valuable, exceptional, inimitable and unparalleled provide the organisation with know-how that is likely to improve its operations. In support of this, Nahapiet and Ghoshal (1998) show that firms characterised by higher levels of social capital are likely to be more successful than their competitors. Alternatively stated, as high-quality social networks are not easily formed and non-replicable, companies may enjoy a sustainable advantage over their competitors by virtue of such associations (Bolino et al., 2002). Uzzi (1997) advocates for this approach by presenting how an integrated network structure brings a good number of benefits at both the firm and network level.

The performance implications of social capital can be further supplemented by a relatively recent refinement of resource dependence theory known as social network theory (Lin, 1999). This theory conceives social capital as investment in embedded resources in social networks, which can be accessed to realise certain goals. The central idea of social network theory affirms that access to and use of better social resources leads to more successful actions, resulting in economic, social or political returns or advantages (Lin, 1999; Marsden & Lin, 1982). Consistent with the predictions of resource dependence theory and the resource-based view, this concept also perceives structural social capital as a positive antecedent of firm performance.

In contrast to resource dependence theory, agency theory (Jensen & Meckling, 1976) highlights the managerial opportunistic view and considers structural social capital as a contributor to the conflict of interest that arises in organisations because of the separation of ownership and control. This theory argues that directors with more extensive social networks exploit their connections to maximise their own benefits, which in turn increases agency costs and undermines firm performance. There is clear evidence that higher structural social capital leads to poorer monitoring, and encourages company managers to work to their own advantage, for their own needs and to the detriment of shareholders' interests and wealth (Kirchmaier & Stathopoulos, 2008). Westphal and Milton (2000) lend support to this notion by arguing that a more extensive social network produces social cohesion and strong group identity, which in turn offers social support and protection. In this way, company directors can manipulate or abuse their links to accomplish their own personal agendas, thus endangering a firm's performance.

The general agency theory can be further augmented by a more specific approach, namely managerial power theory (Bebchuk, Fried, & Walker, 2002). The fundamental assertion of this concept is that managerial power generated through social connections is used as an entrenchment strategy by managers, allowing them to extract economic rent at the cost of company performance. In line with this argument, evidence suggests that managerial power encourages executives to negotiate a more favourable remuneration package by influencing the board (Horton et al., 2012). Thus, the underlying concepts of agency theory and managerial power theory highlight the detrimental effect of structural social capital on a firm's financial position.

2.5.2 Firm-level Consequences of Relational and Structural Social Capital

The evolving presence of social capital in the contemporary economics and finance empirical literature stems from the urge to investigate its consequences for various firm-level activities. The literature related to relational social capital suggests that few studies employ trust as a proxy for relational social capital (Beugelsdijk & Van Schaik, 2005; Guiso et al., 2008; Helliwell, 1996; Whiteley, 2000). Most research focuses on regional trust-based social capital measure to examine its impact on various corporate issues. In a cross-country study, Guiso et al. (2008) investigated the impact of trust-based social capital on stock market participation. Their findings suggest that a lack of social capital reduces the demand for equity, making it difficult to float their stock in low-trust countries. Supporting the notion of reciprocity, another international study reports that corporate earnings announcements stimulate stronger investor reactions in trusting societies because of its perceived credibility (Pevzner et al., 2015). Several additional studies document the economic impacts of regional trust, which include reduction in stock price crash risk (Li, Wang, & Wang, 2017), cash holding (Dudley & Zhang, 2016) and agency cost (Chami & Fullenkamp, 2002). Evidence also indicates that this relational social capital can also act as a substitute for formal regulations (Carlin, Dorobantu, & Viswanathan, 2009; Cline & Williamson, 2016).

As a pioneering empirical study introducing an appropriate construct of firm-level relational social capital, Lins et al. (2017) followed Sacconi and Antoni (2011) to develop a CSR-based measure as a proxy for relational social capital, to operationalise the trust channel. In this US-based study linking CSR, trust and relational social capital, the authors observed that high-CSR firms procuring high social capital were paid back with higher stock returns during the global financial crisis of 2008. In a similar US study, Eccles, Ioannou and Serafeim (2014) found that CSR can serve as an insurance-like protection mechanism for a company, and high-CSR firms outperform those not involved in CSR or less so. More specifically, moral capital or goodwill

generated through CSR among stakeholders functions as an insurance-like safeguard that fosters firm performance (Godfrey et al., 2009; Luo & Bhattacharya, 2006). Consistent with this finding, using a US sample, Gao and Zhang (2015) confirmed that socially responsible firms face less severe reactions from investors with respect to income smoothing. Further, firms engaged in more CSR activities have greater Tobin's Q and a stronger current return–future earnings relationship. A number of other studies also provide evidence of greater firm value as a response of stakeholders to CSR activities (Deng, Kang, & Low, 2013; Nguyen, Kecskés, & Mansi, 2017)

The results of empirical studies involving structural social capital are divided in to two strands. One set of studies support resource-centric approaches by reporting a positive association with various financial and economic outcomes. For example, Geletkanycz, Boyd and Finkelstein (2001) conducted a US-based study using a sample of Fortune 1000 firms; their empirical findings validate the predictions of resource dependence theory by showing that access to social networks expedites a rapid transmission of expertise and best practices between connected companies, which allows them to capitalise on opportunities. Having access to these resources will lead to subsequent growth of the firm, thus stimulating its performance. This finding is supported by another empirical study conducted in a US setting where firms with superior social connections are reported to enjoy higher market value (Omer, Shelley, & Tice, 2014). Additionally, Ferris et al. (2017a) investigated US firms to examine the effect of structural social capital on aggregate corporate risk taking and showed that an escalation in risk taking is financially beneficial to the firm. Additional evidence from the US supports the resource dependence view of structural social capital by affirming its role in facilitating corporate innovation (Faleye et al., 2014), reducing loan spread and reducing covenant restrictions for debt (Fogel et al., 2018), and instigating a positive shift in the firm's credit rating and stock return (Engelberg et al., 2012). This positive relationship appears to hold in non-US and

international settings as well. Horton et al. (2012) provides empirical support for the performance-stimulating effect of structural social capital by examining a large sample of United Kingdom (UK) listed companies. Javakhadze et al. (2016), who investigated the influence of managerial social capital on investment and external funds in a comprehensive international dataset involving 57 countries, report consistent results. They found it to be positively associated, which in turn is reflected in firms' operating performance. Ferris et al. (2017b) provides similar global evidence in terms of the cost of equity reduction effect. Some studies also identify structural social capital as a facilitating resource that makes takeover activity possible and then leads to greater value creation (Cai & Sevilir, 2012; Renneboog & Zhao, 2014).

Another thread of studies highlight the negative aspect of structural social capital following agency theory by arguing that directors exploit their social connections to serve their own narrow interests, overlooking shareholders' wealth maximisation objectives. Consistent with the proposition, using a sample of S&P 1500 firms, Fracassi and Tate (2012) showed empirically that directors' external networks reduce firm value by undermining the effectiveness of corporate governance. This claim is supported by Fich and Shivdasani (2006) who report that busy or socially connected boards are linked to poor corporate governance and less sensitivity of CEO turnover to firm performance. Similar findings are reported for non-US contexts such as the UK (Kirchmaier & Stathopoulos, 2008), validating the managerial power argument by highlighting managers' self-serving opportunistic behaviours. Similar outcomes are observed in France (Kramarz & Thesmar, 2013). Further, a set of studies particularly highlights the agency costs of structural social capital originating from higher managerial compensation and lower turnover. For example, Nguyen (2012) showed empirically that underperforming CEOs with higher structural social capital enjoy protection and are less likely to be fired. Likewise, several other empirical studies lend support to the managerial

opportunism view by showing that managers who overtly exercise their influence receive higher salaries (Ang, Nagel, & Yang, 2014; Belliveau et al., 1996; Renneboog & Zhao, 2011), experience less pay-performance sensitivity (Hwang & Kim, 2009) and are less likely to be dismissed if they are underperforming (Fich & White, 2003; Hallock, 1997). All these evidences refute the resource-based view of structural social capital considering it as a negative antecedent of firm performance.

2.6 Summary

This chapter reviews empirical and theoretical literature associated with the definition, classification, measurement and firm-level economic outcomes of social capital. From the survey of extant literature, it is evident that social capital cannot be conceived as a straightforward concept. It is defined and classified in varied ways depending on the perception, area of study and context. Theoretical postulations and empirical studies also offer contrasting views on the relationship between social capital and firms' economic performance. The mixed evidence can be attributed to lack of a robust, comprehensive and uniform tool for measuring firm-level social capital. Further, differing results may stem from the inability to capture its various dimensions concurrently. Country-level contextual factors may also contribute to the variation. Based on the mixed findings, I argue that to completely capture and comprehend social capital's effects on financial outcomes, a wider scope of dimensions should be considered. To address this issue, a unique approach is developed in consecutive empirical Chapters 3 and 4 by incorporating multiple dimensions of social capital parallel to investigating its value implications. Both these chapters open with a brief prelude followed by development of hypotheses drawn from the literature reviewed in this chapter; they then go on to present the methodology, empirical results and conclusions.

Chapter 3:
The Effect of Relational and Structural
Social Capital on Firm Performance:
Evidence from the United States

3.1 Introduction

Since the original conceptualisation of social capital, it has been largely regarded as an interdisciplinary idea. Its prominence across multiple disciplines validates the plausibility of its association with divergent socio-economic dynamics such as immigrant support arrangements, corruption, crime and costs linked to economic transactions (Buonanno et al., 2009; Janjuha-Jivraj, 2003; Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1996). While the benefits derived from social capital for societies, communities and individuals have been comprehensively examined by social scientists (Fukuyama, 2001; Guiso et al., 2004; Knack & Keefer, 1997), the implications of social capital for the financial outcomes of publicly listed firms have not been explored in any great detail (Hasan et al., 2017b). In this study, by incorporating a particular classification framework (Nahapiet & Ghoshal, 1998), I explore the economic benefits of relational and structural social capital for corporate firms by investigating their impact on firms' accounting and market performance. Relational social capital indicates trust, which is measured by CSR activities; whereas structural social capital is social connectedness, which is gauged by directors' social networks.

The empirical literature presents mixed results concerning the influence of social capital on different corporate outcomes. A number of studies (Engelberg et al., 2012; Horton et al., 2012; Omer et al., 2014) agree on the relevance of resource dependence theory (Pfeffer & Salancik, 1978) in the form of a positive association between a firm's structural social capital and economic outcomes. Conversely, another literature strand (Ang et al., 2014; Renneboog & Zhao, 2011) lends support for the assertions of agency theory by arguing that structural social capital erodes firm value by increasing agency costs. Thus, empirical evidence on the relationship between structural social capital and firm performance is contradictory. In contrast, empirical findings (Eccles et al., 2014; Lins et al., 2017) related to trust-based relational social

capital confirm its association with positive economic outcomes, supporting the theory of reciprocity (Gouldner, 1960). This mixed evidence provides the motivation to revisit the relationship.

I propose that the mixed evidence with reference to social capital's effect on firm performance may stem from failure to simultaneously capture its various dimensions. The aim of this investigation is to reconcile this mixed evidence by arguing that the impact of social capital is actually contingent on the way it is classified. Rather than merely evaluating generalised social capital itself, it is needed to undertake a closer examination of the underlying categories applied to fully capture and comprehend its impact on firm performance. Using a comprehensive US-based sample of 10,122 firm-year observations during the period 2005–18, I document a positive and statistically significant effect of relational social capital on firm performance after controlling for firm and year fixed effects. Interestingly, the empirical results suggest that structural social capital exerts a negative influence on the same set of performance variables, confirming the importance of detailed categorisation and separation of social capital.

The study contributes to the literature in a number of important ways. First, to the best of my knowledge, this is the first analysis to concurrently take into account both structural and relational concepts to examine social capital's impact on firm performance. The limited contemporary social capital literature mainly revolves around investigating its effect on specific corporate issues such as cash holding (Habib & Hasan, 2017), leverage and debt (Fogel et al., 2018; Hasan et al., 2017b; Huang & Shang, 2019), tax and audit fee issues (Hasan et al., 2017a; Jha & Chen, 2014), financial reports (Jha, 2019) and risk (Ferris et al., 2017; Hasan & Habib, 2019). This literature noticeably overlooks the broader umbrella of firms' financial performance. Although a couple of empirical studies (Faleye et al., 2014; Javakhadze et al., 2016) examine the social capital–firm performance nexus, they limit this to a supplementary

study. Only a handful of empirical studies have exclusively investigated the relationship, and their scopes are restricted to a particular single facet of firm-level social capital. For instance, Lins et al. (2017) studied the relational aspect derived from trust, whereas Horton et al. (2012) adopted the structural approach based on directors' social networks as a proxy for social capital to test its influence on firm performance. Second, this study contributes to extending the emerging social capital literature by developing a firm-level trust-based measure of relational social capital that supplements Lins et al.'s (2017) measure. Researchers have attempted to measure social capital based on the level of trust in the region in which the firm is headquartered (Gupta et al., 2018; Hasan et al., 2017b). The problem with this measure is that it generalises among firms from the same region and fails to identify unique firm-specific trust attributes. Lins et al. (2017) was the first to empirically introduce the use of CSR as a proxy for firm-level trust-based social capital. My study complements and extends their trust-based CSR measure by viewing it through the lens of firm-level relational social capital and appending new components to the construct to better fit with the relational notion. Third, this study is the first to introduce Nahapiet and Ghoshal's (1998) classification framework to the finance literature, which extends the burgeoning social capital literature on corporate-related issues.

In terms of making a practical contribution, this study is expected to help companies estimating their stock of social capital; investors evaluating the value relevance of social capital; and policy makers reviewing disclosure regulations with respect to non-financial information.

The remainder of the chapter is organised as follows. Section 3.2 presents a brief review of the relevant theoretical and empirical literature, and the discussion leads to the formulation of hypotheses. Section 3.3 discusses the methodology and data. Section 3.4 reports the empirical results, and Section 3.5 provides concluding remarks.

3.2 Background and Hypothesis Development

In general, the literature has a tendency to perceive social capital as a valuable non-financial asset that can be capitalised for attaining social, economic and political resources (Javakhadze et al., 2016). However, recent studies identify distinct measurements, theories and channels through which social capital influences corporate finance outcomes. The central premise of the connection between trust-based relational social capital and firm performance can be captured by the theory of reciprocity (Gouldner, 1960). Reciprocity is a social norm of responding to a positive action with another positive action, rewarding kind actions. Reciprocity is explicitly acknowledged by Putnam (2000) and Fukuyama (2001) as an essential aspect of social capital. The theory posits that the actions of firms that build trust through CSR in the form of relational social capital will be reciprocated in improved performance. Thus, this notion of reciprocity predicts a positive association between RSC and firm performance.

The results of a number of empirical studies lend support to the reciprocity view of trust-channelled relational social capital by reporting a positive relationship between CSR and a firm's financial outcomes. From a shareholder perspective, a recent US study (Lins et al., 2017) linking CSR, trust and relational social capital observed that firms enjoying high trust and procuring high relational social capital were paid back in the form of higher stock returns during the global financial crisis. This finding is supported by Guiso et al. (2008) who suggested that investors place a valuation premium on firms that may exceed the general level of trust by earning a higher social capital rating. Consistent with this evidence, Bénabou and Tirole (2010) contend that managers of firms with high CSR engagement are less likely to become involved in short-term opportunistic behaviour benefiting shareholders. Researchers also emphasise the importance of social responsibility to different stakeholders as a means of building trust and experiencing a response in the form of financial gain (Rodgers, Choy, &

Guiral, 2013). Stakeholders such as customers, employees and suppliers are expected to cooperate more with firms that have demonstrated superior responsiveness and cooperative norms to those stakeholders in the past. For example, Turban and Greening (1997) and Greening and Turban (2000) assert that people's responses to a firm's CSR investment are not restricted to product purchasing; rather they may eventually seek employment in that firm. Similarly, Guiso, Sapienza and Zingales (2015) document that if the employees of a firm consider organisational management to be trustworthy and ethical, firm performance improves. Aside from employees, the benefits of social capital can be derived from enhanced customer interaction that can foster trust. Empirical studies by Jo and Na (2012) and Fombrun, Gardberg and Barnett (2000) suggest that high-CSR firms generate intangible assets such as reputation that eventually result in a highly satisfied customer base (Benlemlih & Girerd-Potin, 2017). Supporting this claim, evidence shows that customer satisfaction can accelerate customers' willingness to pay, which ensures better profitability by allowing firms to impose a higher price (Homburg, Koschate, & Hoyer, 2005) and reduce implicit transaction costs (Cornell & Shapiro, 1987; Pelozo, 2006). Servaes and Tamayo (2013) also acknowledge the value implication of trust generated with the help of efficient customer interactions through CSR. Finally, some scholars identify supplier cooperation as a channel to translate social capital into performance. A cooperative reciprocal relationship with supply partners can pay off for firms in the form of competitive advantage (Peng, Schroeder, & Shah, 2008), which can curtail supply chain disorders (Modi & Mishra, 2011). By virtue of this trust and reciprocity, suppliers compensate firms with trade credits and discounts, which ultimately ensures cost efficiency (Schwartz, 1974; Zhang, Ma, Su, & Zhang, 2014).

Given the aforementioned theoretical and empirical context, the first hypothesis addressed in this study is:

H1: Relational social capital is positively associated with firm performance.

As noted earlier, there are two contrasting theories regarding the relationship between structural social capital and firm performance. Resource dependence theory (Pfeffer & Salancik, 1978) explains how social networks assist in the procurement of the resources critical for improving firm performance. Similarly, the resource-based view (Barney, 1991) considers structural social capital a resource that provides firms with sustainable competitive advantage over their contenders. Social network theory (Lin, 1999) complements resource dependence theory by asserting that access to and use of better social resources leads to more successful instrumental actions resulting in economic, social or political returns (Lin, 1999; Marsden & Lin, 1982). Therefore, the essence of these theories in aggregate lead to prediction of a positive relationship between structural social capital and firm performance.

Conversely, agency theory (Jensen & Meckling, 1976) makes a different argument, indicating a negative influence of structural social capital on firm performance. According to this theory, directors exploit the benefits derived from their social networks at the expense of shareholders, which generates agency costs and eventually worsens firm performance.

Following the postulations of these two conflicting theories, empirical evidence in the literature can be separated into two strands. In line with resource dependent theory, one set of studies identifies structural social capital as a conduit to improve financial performance. For instance, using a sample of S&P 500 firms, Baran (2017) demonstrated empirically that directors' social connections positively influences firm performance. Several other studies (Hochberg, Ljungqvist, & Lu, 2007; Hong, Kubik, & Stein, 2004; Kuhnien, 2009) highlight the role of structural social capital as a key resource that can facilitate smooth and accurate information flow resulting in elevated economic outcomes. Previous research suggests that the information acquired from structural social capital is less costly and perceived to be reliable (Ferris et al.,

2017). In addition, this social capital can be used for efficient contract enforcement and dispute resolution that can further alleviate the requirement for costly formal legal procedures (Kandori, 1992; McMillan & Woodruff, 2000).

In contrast, following the supposition of agency theory, the other strand of recent studies stress a negative effect of structural social capital on firm performance. For example, El-Khatib, Fogel and Jandik (2015) examined the effects of CEOs' social networks on merger and acquisition outcomes in the US context and suggest that highly connected CEOs use their control and influence to procure private benefits through managerial entrenchment. This finding is supported by other US studies that show that board directors' social networks are associated with poorer industry-adjusted performance (Devos, Prevost, & Puthenpurackal, 2009), lack of monitoring and amplified agency cost (Dalton, Hitt, Certo, & Dalton, 2007; Westphal & Zajac, 1997). Based on these competing theoretical and empirical arguments, the following hypothesis is articulated:

H2: Structural social capital is associated with firm performance.

3.3 Data and Methodology

3.3.1 Sample Construction

The nature and scope of this study requires the data to be collected from multiple sources, including ASSET4 ESG, BoardEx and Worldscope. Firm-level relational social capital is collected from the TR ASSET4 ESG database, which is the world's largest database containing environmental, social and governance information. ASSET4 develops a summative score that captures a firm's ESG performance, which is segregated into three pillars: environmental, social and governance. Data regarding structural social capital is obtained from the BoardEx database, which provides social network data for senior executives and directors for a set of

global public and private sector firms. Accounting and financial variables including the dependent variables Tobin's Q, ROA and other control variables are sourced from Datastream and Worldscope. After matching and converging all these data sources by firm and year, the final sample is comprised of 1,813 US firms yielding 10,122 firm-year observations for the period 2005–18. Table 3.1 summarises the sample selection procedure.

Table 3.1: Sample selection process

The table shows the process of sample selection. The final sample includes 10,122 firm-year observations over the years 2005–18.

Particulars	Database	No. of firm-year observations	No. of firms
Initial observations	ASSET4 ESG	35,021	2,386
Less: non-matched firm-year observations with BoardEx		–12,552	–342
Remaining sample after appending BoardEx	ASSET4 ESG + BoardEx	22,469	2,044
Less: non-matched firm-year observations with Worldscope		–812	–59
Remaining sample after appending Worldscope	ASSET4 ESG + BoardEx+ Worldscope	21,657	1,985
Less: list-wise deletion for observations with missing values		–11,535	–172
Total observations	ASSET4 ESG + BoardEx+ Worldscope	10,122	1,813

3.3.2 Variables

3.3.2.1 Dependent Variables

Firm Performance

In this study, I use Tobin's Q and ROA as two alternative measures of firms' market and accounting performance, respectively. Tobin's Q is the ratio of the market value of a firm to its assets' replacement cost. The variable is estimated as the sum of market value of equity, preferred stock and long-term debt divided by total assets. As asset's replacement cost cannot

be practically estimated, the denominator of the ratio is often represented by the book value of total assets (Fracassi & Tate, 2012). Tobin's Q has been widely used in finance and accounting literature as a market-based proxy for firm valuation (Lang, Lins, & Miller, 2004; Lewellen & Badrinath, 1997). Previous structural social capital (Fracassi & Tate, 2012; Horton et al., 2012) and relational social capital (Rodgers et al., 2013; Shi & Veenstra, 2021) studies also employ this measure to calculate market-based performance. To capture accounting-based firm performance, this study employs ROA following the relevant empirical literature (Fracassi & Tate, 2012; Horton et al., 2012; Javakhadze et al., 2016; Tang, Hull, & Rothenberg, 2012). The variable is defined as a firm's net income before extraordinary items, and preferred dividend divided by total assets. All dependent and independent variables are defined Appendix A.

3.3.2.2 Independent Variables

Relational Social Capital

To quantify trust-based relational social capital, I develop a firm-level proxy for CSR activities (RSC). The measure is constructed based on the TR ASSET4 ESG database, which has been extensively used in the CSR literature (Cheng, Ioannou, & Serafeim, 2014; Liang & Renneboog, 2017; Shi & Veenstra, 2021). The database provides a built-in ESG score weighted proportionately to the count of indicators within each of 10 ESG categories. These categories are subsequently grouped into three pillars. In this study, following Lins et al. (2017), I consider 8 out of 10 categories (see Appendix B for details of the construction methodology for RSC) covering 132 of 178 indicators that are relevant and closely related to the social capital construct. The categories are mainly affiliated with environmental and social pillars, as the governance pillar is generally not considered part of a firm's CSR remit (Kim, Li, & Li, 2014). Nevertheless, a CSR strategy category score is included from the governance pillar, considering that it is closely related to firms' CSR decision making. Finally, the RSC variable

is calculated as a weighted average of 8-percentile rank-based category scores that uses the respective category-wise number of data points as weights. The scores range from 0 to 100.

Panel A, Table 3.2 illustrates the comparison between categories used for the original ESG and RSC constructs, along with their recalculated weights.

Table 3.2: Construction methodology for RSC

The table summarises the construction details for RSC. Panel A depicts the estimation of tailored category-wise weights used in development of the RSC variable. Panel B presents a brief category-wise comparison between RSC and Lins et al.'s (2017) social capital construct.

Panel A: ESG category wise weights used for RSC						
ASSET4 code	Title	Original No. of data points	Original weight		RSC weight	No. of data points in RSC
TREGENRRS	Resource Use Score	19	11%	Environmental	14%	19
TREGENERS	Emissions Score	22	12%		17%	22
TREGENPIS	Environmental Innovation Score	20	11%		15%	20
TRESGSOWOS	Workforce Score	29	16%	Social	22%	29
TRESGSOHRS	Human Rights Score	8	5%		6%	8
TRESGSOCOS	Community Score	14	8%		11%	14
TRESGSOPRS	Product Responsibility Score	12	7%		9%	12
TRESGCGBDS	Management Score	34	19%	Governance		
TRESGCGSRS	Shareholders Score	12	7%			
TRESGCGVSS	CSR Strategy Score	8	5%		6%	8
		178	100%		100%	132
Panel B: Relational Social Capital vs Lins et al.'s (2017) Social Capital						
Lins et al.'s (2017) category	ASSET4 Category	ASSET4 sub-category				
Community	Community Score	Not applicable				
Human rights	Human Rights Score	Not applicable				
Diversity and opportunity	Workforce Score	Diversity and Opportunity				
Employee relationship	Workforce Score	Employment Quality ,Health and Safety, Training and Development				
Environment	Emissions Score	Not applicable				
	Innovations Score					
	Resource use Score					
Not included	Product Responsibility Score	Not applicable				
Not included	CSR Strategy Score	Not applicable				

Unlike the ASSET4 data source used in this paper, Lins et al. (2017) obtain their social capital data from Morgan Stanley Capital International(MSCI) ESG focusing on five categories: community, diversity, employee relations, environment and human rights. To be consistent with their trust-based social capital variable, I focus and match these categories with the relevant database of interest. In addition, to improve the measure in terms of better fitting to the relational sense of social capital, two categories are appended to the replicated construct. The first is a product responsibility category that characterises a company's ability to manufacture quality goods and offer superior services combining their customers' health and safety, integrity and data privacy. The second is a CSR strategy category that represents the extent to which companies' regular decision-making processes regarding financial practices are blended with social and environmental goals. Both responsible products and socially responsible corporate strategies are considered crucial aspects that can nurture and amplify trust among relevant stakeholders to build up relational social capital. I justify this integration by arguing that these additional inputs to the RSC measure improve the construct to better fit the relational idea. Panel B of Table 3.2 shows the level of consistency between the two social capital measures. The first column of the table shows different components of Lins et al.'s (2017) social capital measure. The next two columns present the relevant categories from ASSET4 database comparable to Lins et al.'s (2017) measure.

Structural Social Capital

In this study, structural social capital is represented by the size of directors' social networks measured at the firm level (SSC). A number of studies (e.g. Borgatti, Jones, & Everett, 1998; Fafchamps & Minten, 2001) advocate using the size of a social network as a measure of structural social capital. Guiso et al. (2004) also acknowledges the superiority of network size-based measures of social capital. This study, following other analyses (Faleye et al., 2014; Ferris et al., 2017; Javakhadze et al., 2016), measures structural social capital as director

network size by counting the number of individuals with whom the selected director/executive overlaps while in employment, education or other activities at the same company, organisation or institution, in the BoardEx² universe each year, and then estimates 1 plus the natural logarithm of this number. This variable represents directors' formal and informal networks. To come up with a firm-year structural social capital variable, the average network size for all directors on a board each year is considered.

3.3.2.3 Other Control Variables

A number of firm- and governance-level characteristics are incorporated as control variables that the literature suggests are important covariates of firm performance. Among firm-level characteristics, I control for firm size as measured by the logarithm of total assets (Faleye et al., 2014; Javakhadze et al., 2016; Omer et al., 2014). Studies confirm a prominent link between firm size and firm performance (Jaskiewicz, Block, Combs, & Miller, 2017; Orlitzky, 2001; Pfeffer & Salancik, 1978). Next, I include leverage measured as the ratio of total debt to total assets (Faleye et al., 2014; Shi & Veenstra, 2021). Further, MTB is added as an additional control, measured as market value of equity over book value of common equity (Kirchmaier & Stathopoulos, 2008); along with sales growth measured as ratio of total sales to lagged total sales to account for growth opportunities (Ferris et al., 2017).

Apart from firm-level financial characteristics, several governance-related variables are also introduced into the model a typically used in the literature (Faleye et al., 2014; Lins et al., 2017). Board size is measured as the number of directors serving on the board, and board independence takes a value of 1 if the company strives to maintain a well-balanced board through an adequate number of independent board members, and 0 otherwise. Both variables

² To measure structural social capital, I consider director network size as the total number of individuals with whom the selected director overlaps while in employment, other activities, or education roles in the same company, organisation or institution; whereas Javakhadze et al. (2016) construct their network variable based on the educational, employment and other connections separately.

have been found to be linked with firm performance (Al-Najjar, Ding, & Hussainey, 2016; Liu, Miletkov, Wei, & Yang, 2015). Similarly, I incorporate the variable CEO duality, coded as 1 if the CEO is also the chair of the board, and 0 otherwise. The literature suggests that CEOs taking up the position of board chair exercise more influence over corporate strategies and decisions, which tends to have economic implications for firm performance (Hsu, Lin, Chen, & Huang, 2019; Lam & Lee, 2008; Yang & Zhao, 2014). Finally, CEO board member is included where the variable equals 1 if the CEO is a board member, and 0 otherwise, following Li & Roberts (2018).

3.3.3 Model Specification

To examine the influence of social capital on firm performance, the baseline regression equation 1 is formulated:

$$Firm\ Per f_{i,t} = \alpha + \beta_1 SC_{i,t-1} + \sum_{k=1}^n \delta_k X_{i,k,t-1} + \varepsilon_{i,t}, (1)$$

where $Firm\ Per f_{i,t}$ is performance of firm i (measured by ROA or Tobin's Q) in year t , and SC represents the main independent variables RSC and SSC. As per the theory of reciprocity, the coefficient of RSC β_1 is expected to be positive. The hypothesised sign of coefficient of SSC is positive (negative) as predicted by resource dependence theory (agency theory). $X_{i,k,t-1}$ represents an array of firm-level control variables. All right-hand-side variables in the equation are lagged for 1 year. To ensure the absorption of panel data characteristics, the error term is adjusted by clustering standard errors at firm level (Petersen, 2009). Further, all variables are winsorised at the 1% and 99% levels to neutralise the effect of outliers.

3.4 Empirical Results

3.4.1 Sample Statistics

Table 3.3 shows the industry- and year-wise distribution of average sample key characteristics. Panel A summarises the Global Industry Classification Standard (GICS) sector (2-digit GICS code)-wise mean and count of dependent, independent and prime firm-level control variables. The sample observations are fairly spread across the 11 GICS sectors and not heavily concentrated in any particular industry segment. However, the sample is mostly dominated by the Industrials, Financials, Information Technology and Consumer Discretionary sectors, which comprise 57.32% of the total observations. In terms of accounting performance, the Consumer Staples industry sector exhibits the highest average ROA of 10% and, consistent with expectation, this sector reports the highest mean RSC score of 60.830. The market-based measure Tobin's Q takes its largest average value (2.543) in the Health Care sector. The Financials sector, which makes up 14.48% of the total sample, exhibits a lower level of performance and social capital indicators despite having the highest average asset size and lowest level of leverage. Panel B reports mean variables and observation counts distributed by year. The number of observations is initially low and then significantly increases in the later years. The data coverage for TR's ASSET4 evolves gradually over time, which justifies the consistent chronological increment in observations through the years.

Table 3.3: Sample distribution by industry and year

The table reports sample averages of key firm characteristics distributed by 2-digit GICS sector in Panel A and by year in Panel B

Panel A : GICS industry-wise sample mean							
Industry	Obs	ROA	Tobin's Q	RSC	SSC	Size	Leverage
Communication Services	313	0.036	1.688	42.728	8.451	6.882	0.275
Consumer Discretionary	1372	0.083	1.832	48.905	8.240	6.615	0.245
Consumer Staples	466	0.100	2.139	60.83	8.352	6.979	0.276

Energy	653	0.054	1.293	49.985	8.239	7.011	0.246
Financials	1466	0.035	0.764	43.888	8.202	7.244	0.165
Health Care	1131	0.015	2.543	51.063	8.524	6.552	0.225
Industrials	1550	0.074	1.684	49.34	8.324	6.646	0.263
Information Technology	1414	0.058	2.269	49.771	8.507	6.568	0.172
Materials	641	0.065	1.470	47.999	8.200	6.593	0.311
Real Estate	650	0.046	1.473	47.834	8.38	6.709	0.477
Utilities	466	0.039	0.870	53.785	8.309	7.220	0.353

Panel B: Year-wise sample mean

Year	Obs	ROA	Tobin's Q	RSC	SSC	Size	Leverage
2005	324	0.064	1.777	49.047	8.412	6.945	0.223
2006	369	0.072	1.811	50.689	8.458	6.986	0.218
2007	377	0.077	1.707	51.219	8.472	7.027	0.221
2008	404	0.077	1.130	50.735	8.460	7.035	0.232
2009	524	0.071	1.371	49.706	8.383	6.931	0.251
2010	600	0.068	1.545	49.470	8.368	6.866	0.238
2011	617	0.066	1.426	51.928	8.374	6.891	0.232
2012	629	0.065	1.481	52.210	8.397	6.927	0.238
2013	643	0.068	1.764	51.822	8.409	6.938	0.245
2014	652	0.071	1.774	52.788	8.430	6.971	0.254
2015	653	0.064	1.673	52.675	8.443	7.002	0.262
2016	1090	0.049	1.816	48.012	8.306	6.728	0.277
2017	1584	0.035	1.912	45.830	8.213	6.494	0.264
2018	1656	0.032	1.696	45.443	8.208	6.492	0.255

Table 3.4 provides summary statistics for key variables in the full sample. The accounting and market performance variables ROA and Tobin's Q have a mean of 5.54% and 1.68%, respectively. These numbers are in the range of those reported by Fracassi and Tate (2012) for S&P 1500 firms. The mean RSC is 49.13 with standard deviation of 19.34, which is comparable to the ASSET4-based CSR score of 46.254 reported by Utz (2018) for a US sample. On average, the directors are connected to 1,794 individuals. Consistent with the expectation that SSC is a low volatile measure (Faleye et al., 2014), I report mean SSC as 8.338 with low

standard deviation of 0.572. The sample firms have a mean asset size of 6.780 and this is consistent with Hasan et al. (2017b) who report a value of 6.67 with moderately low leverage (mean leverage of 0.25) and high growth opportunity (mean MTB of 3.880). The leverage and MTB figures are comparable to those of Utz (2018) who reports MTB of 3.77 and leverage of 0.2470, respectively. On average, the sample firms have approximately 10 board members.

Table 3.4: Summary statistics

This table reports pooled descriptive statistics for the variables in this study. The pooled sample consists of 10,122 firm-year observations from 1,813 unique firms over the period 2005–18. Firm performance is proxied by ROA and Tobin's Q; social capital measures are represented by RSC, SSC, ENV_Pillar, Social_Pillar, Gov_Pillar and Average Network Size; and Size, Leverage, MTB, Sales_Growth, CEO_Duality, Board_Size, Board_Independence and CEO_Board_Member are used as firm-level control variables. All variables are defined in Appendix A. All continuous variables are winsorised at the 1st and 99th percentile levels.

Variable	Observations	Mean	SD	Min	Max
ROA	10,122	0.0554	0.0844	−0.518	0.257
Tobin's Q	10,122	1.680	1.355	0.143	8.310
RSC	10,122	49.13	19.34	17.33	91.31
ENV_Pillar	10,122	46.98	22.43	10.19	94.36
Social_Pillar	10,122	51.05	19.68	14.93	93.93
Gov_Pillar	10,122	51.73	21.20	8.49	92.43
SSC	10,122	8.338	0.572	5.848	9.396
Average Network Size	10,122	1,794	980.4	55.60	7,546
Size	10,122	6.780	0.665	4.697	8.340
Leverage	10,122	0.250	0.182	0	0.786
MTB	10,122	3.880	4.382	0.460	29.05
Sales_Growth	10,122	0.0947	0.247	−0.470	1.942
CEO_Duality	10,122	0.680	0.466	0	1
Board_Size	10,122	10.02	2.298	5	17
Board_Independence	10,122	0.914	0.280	0	1
CEO_Board_Member	10,122	0.982	0.133	0	1

3.4.2 Baseline Results

The baseline model is estimated using OLS regressions with robust standard errors adjusted for heteroscedasticity and within-firm clustering. All regressions are equipped with firm and year fixed effects to deal with unobserved, time-invariant firm-level heterogeneity. The year fixed effects account for the factors pertinent to specific years, whereas the firm fixed effects framework neutralises the explanatory power of all other time-invariant measures. As a battery of firm-level control variables are incorporated in each model, to mitigate the potential concern of multicollinearity I check for it by running OLS regressions. The mean variance inflation factor (VIF) is 1.297, with a highest value of 2.064 for firm size. The variables that are of interest—that is, social capital variables—have VIF of 1.624 and 1.386. Consequently, the results do not appear to be distorted by multicollinearity. Before conducting the multivariate test, I have also examined whether the difference between the mean values of firm performance measures for the low and high group of relational social capital are statistically significant. The sample has been divided into two groups partitioned by the median to execute this univariate test. I find the difference in mean values (P-values) of ROA and Tobin's Q are - 0.0152(0.00) and 0.0649(0.00) respectively for firms in the low and high groups of RSC. Although the univariate results are partially consistent with expectation, these unconditional relations require multivariate tests to draw inferences, which I present next.

Table 3.5 presents the main regression analysis for the effects of relational and structural social capital on firms' accounting and market performance. Models 1 and 2 report the estimated coefficients of RSC with dependent variable ROA and Tobin's Q, respectively. The estimates of RSC are positive and significant at the 1% level for ROA and the 5% level for Tobin's Q. Supporting the notion of reciprocity, this outcome implies that the existence of firm-level relational social capital can build up trust, which rewards firms with improved performance. In terms of economic significance, the magnitude of the coefficient suggests that a one standard

deviation increase in RSC is associated with around 8.38% and 3.18% increase in ROA and Tobin's Q in the following year, respectively. This finding is consistent with Lins et al. (2017) who provide evidence that trust between a firm and various stakeholders built through social capital pays off later in terms of higher stock return.

Models 3 and 4 in Table 3.5 show the results relating to the association of SSC with ROA and Tobin's Q, respectively. Unlike RSC, SSC has negative coefficients for ROA, significant at the 10% level. The negative coefficient (-0.00854) of association between SSC and firm performance supports the managerial opportunistic view of agency theory. In terms of economic significance, this suggests that a one standard deviation increase in SSC would render an approximate 8.98% decrease in a firm's accounting performance. This finding for the two categories of social capital is interesting as it implies that social capital's effect on firm performance is conditional on how it is measured and categorised. This outcome complements those of previous studies (Fich & Shivdasani, 2006; Fracassi & Tate, 2012) that highlight the darker side of social network-based social capital. Although the results remain qualitatively the same, I do not find any significant association between SSC and a market-based measure; that is, Tobin's Q. These marginally weak effects of structural social capital are not surprising because a fixed effects framework relies entirely on within-subject variation when identifying the effects of independent variables. Similar to the observation made by Faleye et al. (2014), this structural social capital, which is measured as directors' social connections, is sticky and does not vary much between years, which might be the cause of weak statistical significance. In Models 5 and 6, which include both measures of social capital, the results remain qualitatively and quantitatively comparable to the prior models.

Table 3.5: Baseline regression: Social capital and firm performance

This table reports the results of a baseline regression examining the effect of social capital on firm performance, where firm performance is proxied by ROA and Tobin's Q and social capital is proxied by RSC and SSC. All firm- and governance-level control variables are used in the regression. All

variables are defined in Appendix A. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	ROA	Tobin's Q	ROA	Tobin's Q	ROA	Tobin's Q
RSC	0.000240*** (0.00463)	0.00277** (0.0278)			0.000234*** (0.00567)	0.00272** (0.0296)
SSC			−0.00854* (0.0632)	−0.0751 (0.238)	−0.00822* (0.0722)	−0.0713 (0.258)
Size	0.00368 (0.650)	−0.911*** (0)	0.00736 (0.370)	−0.872*** (1.99e−10)	0.00503 (0.537)	−0.899*** (5.58e−11)
Leverage	−0.0590*** (2.25e−07)	−0.0789 (0.632)	−0.0605*** (1.55e−07)	−0.0932 (0.575)	−0.0599*** (1.77e−07)	−0.0866 (0.601)
MTB	0.00173*** (9.28e−06)	0.0633*** (0)	0.00177*** (6.05e−06)	0.0638*** (0)	0.00174*** (7.97e−06)	0.0634*** (0)
Sales_Growth	0.00466 (0.228)	0.126** (0.0380)	0.00509 (0.190)	0.130** (0.0313)	0.00475 (0.218)	0.126** (0.0376)
Board_Size	0.000124 (0.808)	0.00820 (0.311)	0.000170 (0.740)	0.00868 (0.286)	0.000141 (0.781)	0.00835 (0.304)
CEO_Duality	0.00233 (0.375)	−0.00405 (0.911)	0.00205 (0.438)	−0.00686 (0.853)	0.00216 (0.411)	−0.00558 (0.880)
CEO_Board_Member	−0.0101 (0.200)	−0.0300 (0.734)	−0.00936 (0.230)	−0.0216 (0.805)	−0.0101 (0.197)	−0.0296 (0.736)
Board_Independence	0.00424 (0.339)	−0.0106 (0.871)	0.00461 (0.297)	−0.00657 (0.921)	0.00434 (0.326)	−0.00977 (0.882)
Constant	0.0307 (0.553)	7.497*** (0)	0.0846 (0.178)	7.950*** (0)	0.0895 (0.152)	8.007*** (0)
Observations	10,122	10,122	10,122	10,122	10,122	10,122
Adjusted R-squared	0.0460	0.200	0.0447	0.200	0.0477	0.201
Number of firms	1,813	1,813	1,813	1,813	1,813	1,813
Firm fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES

3.4.3 Robustness Checks

The regression findings presented above suggest that social capital significantly affects a firm's financial performance. In this section, a number of tests is conducted to scrutinise the substantiveness and robustness of the main results.

3.4.3.1 Omitted Variable Bias

It is possible that the analysis overlooks some other determinants of firm performance that are correlated with other incorporated variables. To address this, I consider using an alternative model specification to check whether the results of the main test are driven by specific control variables. Specifically, I append two firm-level variables: CAPEX and capital intensity. CAPEX is estimated as the ratio of capital expenditures to total assets. Capital expenditures represent one key strategic action to tap growth opportunities. Scholars acknowledge the role of CAPEX in determining both current and future firm performance (Appuhami, 2008; McConnell & Muscarella, 1985; Scapens & Sale, 1981). This variable has also been used in several social capital studies as the main (Faleye et al., 2014; Habib & Hasan, 2017) and alternative (Javakhadze et al., 2016) control variable. The other variable, capital intensity, is estimated as ratio of total assets to sales revenue, which indicates firms' efficiency in utilising their assets to produce goods or services. The empirical literature shows both benefits and drawbacks of capital intensity in relation to performance (Lee & Xiao, 2011; Shapiro & Titman, 1986). To further check the robustness of the results, I reproduce the baseline regression results presented in Table 3.6 by incorporating these two additional controls. The results show that the coefficients of both CAPEX and capital intensity are significant in terms of the accounting measure ROA. Although the results are qualitatively consistent for both performance measures, the coefficients are insignificant with respect to the market-based measure, Tobin's Q. The baseline results showing the association of social capital and firm performance remain comparable in terms of sign, significance and magnitude, indicating that the stated results are robust even after controlling for these additional controls. The only exception is evident in Model 5 where the coefficient of SSC becomes marginally insignificant ($p = .107$) in the presence of relational social capital.

Table 3.6: Robustness check: Additional control variables

This table reports result of a robustness test examining the effect of social capital on firm performance, where firm performance is proxied by ROA and Tobin's Q; and social capital is proxied by RSC and SSC. Baseline regression is re-estimated considering additional control variables (CAPEX and Capital_Intensity). All firm- and governance-level control variables are used in the regression. All variables are defined in Appendix A. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q	(3) ROA	(4) Tobin's Q	(5) ROA	(6) Tobin's Q
RSC	0.000212** (0.0127)	0.00270** (0.0429)			0.000206** (0.0156)	0.00262** (0.0473)
SSC			-0.00788* (0.0928)	-0.0943 (0.173)	-0.00751 (0.107)	-0.0897 (0.191)
Size	0.0112 (0.186)	-0.941*** (8.36e-11)	0.0142* (0.0983)	-0.903*** (4.00e-10)	0.0123 (0.150)	-0.928*** (1.28e-10)
Leverage	-0.0633*** (8.02e-09)	-0.118 (0.470)	-0.0648*** (5.38e-09)	-0.136 (0.410)	-0.0643*** (6.39e-09)	-0.129 (0.433)
MTB	0.00158*** (4.99e-05)	0.0625*** (0)	0.00161*** (3.68e-05)	0.0629*** (0)	0.00158*** (4.43e-05)	0.0626*** (0)
Sales_Growth	-0.00448 (0.282)	0.123* (0.0623)	-0.00412 (0.321)	0.127* (0.0539)	-0.00437 (0.293)	0.124* (0.0605)
Board_Size	0.000180 (0.741)	0.00792 (0.360)	0.000197 (0.719)	0.00813 (0.351)	0.000179 (0.741)	0.00791 (0.363)
CEO_Duality	0.00211 (0.437)	0.00189 (0.961)	0.00176 (0.518)	-0.00245 (0.950)	0.00192 (0.478)	-0.000355 (0.993)
CEO_Board_Member	-0.00986 (0.189)	-0.0309 (0.729)	-0.00915 (0.218)	-0.0219 (0.804)	-0.00978 (0.187)	-0.0299 (0.736)
Board_Independence	0.00513 (0.292)	-0.0144 (0.845)	0.00540 (0.265)	-0.0110 (0.882)	0.00524 (0.279)	-0.0130 (0.860)
CAPEX	0.171*** (0)	0.301 (0.327)	0.171*** (0)	0.298 (0.335)	0.170*** (0)	0.289 (0.349)
Capital_Intensity	-0.00274*** (1.94e-05)	-0.00598 (0.485)	-0.00279*** (1.44e-05)	-0.00652 (0.451)	-0.00273*** (2.15e-05)	-0.00584 (0.497)
Constant	-0.0153 (0.774)	7.741*** (0)	0.0372 (0.563)	8.365*** (0)	0.0399 (0.532)	8.400*** (0)
Observations	9,567	9,567	9,567	9,567	9,567	9,567
Adjusted R-squared	0.0825	0.204	0.0816	0.203	0.0839	0.204
Number of firms	1,745	1,745	1,745	1,745	1,745	1,745
Firm fixed effects	YES	YES	YES	YES	YES	YES

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	ROA	Tobin's Q	ROA	Tobin's Q	ROA	Tobin's Q
Year fixed effects	YES	YES	YES	YES	YES	YES

3.4.3.2 Alternative Measures of Social Capital

To mitigate concerns that the results might be biased or subjective to the particular measures used in the baseline tests, as a further test of the robustness, I employ other proxies for social capital. Three approaches are implemented to construct substitute measures of social capital for pursuing sensitivity analysis.

First, some studies (Cheng et al., 2014; Chollet & Sandwidi, 2018) in the ASSET4 database incorporate controversies when developing their own CSR-based construct. Following these, I also use an alternative measure of relational social capital adjusted for controversy scores (RSC_Adjusted). If any sort of scandal or negative media stories arise, the reported company is penalised and this affects its overall controversy score. The ESG Controversy Score is calculated based on 23 ESG controversy categories. To be consistent with the original procedure for constructing the RSC variable, I estimate firm-level controversy scores by summing across 17 of the 23 categories of controversy.³ These 17 categories are chosen based on their relevance to the eight category scores used to estimate the original RSC score. Finally, RSC_Adjusted is calculated by taking into account the controversy score and accordingly discounting the original RSC score. Details of the construction methodology are described in Appendix B and the process of calculation is illustrated in Figure B1.

For Models 1 and 2 in Table 3.7, the coefficient of RSC_Adjusted is positive and significant for both ROA (significant at the 5% level) and Tobin's Q (significant at the 10% level), which

³ There are built-in downloadable scores known as the TR ESG Combined Score (comparable to RSC_Adjusted) and ESG Controversies Score. However, for consistency with previous calculations of RSC, I estimate tailored controversy and Adjusted_RSC considering the requirement of being relevant to relational social capital.

implies the results are robust to an alternative measure of relational social capital and do not differ from the main findings.

Second, as an alternative to the original measure of relational social capital, following Jha and Cox (2015), the relational social capital measure is separated into different components to test their separate and distinct effects on firm performance. To do this, I examine the association between firm performance and two major pillar components: environmental and social. Models 3–6 in Table 3.7 show regression results using the environmental and social pillars in place of the original test variable RSC. The results demonstrate that the association between relational social capital and firm performance is mainly driven by the social pillar. The coefficient of the social pillar is positive and significant at the 1% level across all models (Models 5 and 6). However, the coefficient of the environmental pillar is positive and significant at the 5% level only for the ROA model (Model 3); it is not significant for the Tobin's Q model (Model 4). This implies that by concentrating more on social factors such as employee welfare, community improvement and human rights, firms are able to build more trust that in turn can be paid off in the form of improved business performance. This result is conceptually partially consistent with the findings of Chollet and Sandwidi (2018), who examine the relationship between systematic risk and CSR and find that environmental and governance performance measures explain most of the variation in systematic risk.

Table 3.7: Robustness check: Alternative measures of relational social capital

This table reports results of a robustness test examining the effect of social capital on firm performance, where firm performance is proxied by ROA and Tobin's Q. Baseline regression is re-estimated considering the alternative measures RSC_Adjusted, ENV_Pillar, Social_Pillar. All firm- and governance level control variables are used in the regression. All variables are defined in Appendix A. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q	(3) ROA	(4) Tobin's Q	(5) ROA	(6) Tobin's Q
RSC_Adjusted	0.000156** (0.0159)	0.00173* (0.0735)				
ENV_Pillar			0.000117** (0.0434)	0.00120 (0.186)		
Social_Pillar					0.000192*** (0.00779)	0.00265*** (0.00689)
SSC	-0.00829* (0.0703)	-0.0723 (0.252)	-0.00843* (0.0659)	-0.0740 (0.243)	-0.00818* (0.0741)	-0.0701 (0.266)
Size	0.00622 (0.448)	-0.884*** (1.04e-10)	0.00620 (0.449)	-0.884*** (1.39e-10)	0.00545 (0.505)	-0.898*** (0)
Leverage	-0.0603*** (1.59e-07)	-0.0908 (0.585)	-0.0599*** (1.92e-07)	-0.0875 (0.598)	-0.0605*** (1.35e-07)	-0.0930 (0.576)
MTB	0.00175*** (7.08e-06)	0.0635*** (0)	0.00176*** (6.45e-06)	0.0637*** (0)	0.00173*** (8.87e-06)	0.0633*** (0)
Sales_Growth	0.00480 (0.213)	0.127** (0.0366)	0.00511 (0.188)	0.131** (0.0312)	0.00448 (0.246)	0.122** (0.0461)
Board_Size	0.000120 (0.813)	0.00813 (0.316)	0.000160 (0.753)	0.00859 (0.292)	0.000144 (0.776)	0.00833 (0.304)
CEO_Duality	0.00213 (0.418)	-0.00598 (0.871)	0.00215 (0.414)	-0.00579 (0.875)	0.00204 (0.437)	-0.00695 (0.851)
CEO_Board_Member	-0.00987 (0.205)	-0.0272 (0.756)	-0.00984 (0.206)	-0.0265 (0.762)	-0.00971 (0.213)	-0.0263 (0.763)
Board_Independence	0.00430 (0.331)	-0.0101 (0.879)	0.00465 (0.291)	-0.00620 (0.925)	0.00405 (0.361)	-0.0143 (0.829)
Constant	0.0854 (0.173)	7.960*** (0)	0.0877 (0.162)	7.982*** (0)	0.0876 (0.161)	7.993*** (0)
Observations	10,122	10,122	10,122	10,122	10,122	10,122
Adjusted R-squared	0.0464	0.200	0.0459	0.200	0.0475	0.201
Number of firms	1,813	1,813	1,813	1,813	1,813	1,813
Firm fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES

Finally, I test the robustness of the main test results by employing an alternative measure of structural social capital. As discussed earlier, the network-based structural social capital measure is the average network size of all board directors working for a given firm in a year. Table 3.8 shows sensitivity of the results to this possibility by estimating regressions, where I use total network size rather than average network size as a proxy for structural social capital. The results continue to support the original findings showing negative and significant results in terms of ROA and an insignificant coefficient for Tobin's Q across all models (Models 1–8).

3.4.3.3 Sub-sample of Years 2005–15

A chronological year-wise increment in the sample observations is plausible as the coverage of the ASSET4 ESG database evolves over time and expands gradually. A rapid surge in the number of observations is observed after year 2015. The last 3 years of the sample (2016–18) consist of around 50% of total observations. Chollet and Sandwidi (2018) and Eccles et al. (2014) report a year-wise gradual increment in the ASSET4 ESG universe. However, this variation in year-wise observations may cause data selection bias. To mitigate this concern, a sub-sample analysis is conducted using data from 2005 to 2015. Table 3.9 shows that the results remain unchanged and are not driven by heavily populated years in the sample.

Table 3.8: Robustness check: Alternative measure of structural social capital

This table reports results of a robustness test examining the effect of social capital on firm performance, where firm performance is proxied by ROA and Tobin's Q. Baseline regression is re-estimated considering alternative measure SSC_Total_Network_Size. All firm- and governance-level control variables are also used in the regression. All variables are defined in Appendix A. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively

Variable	(1) ROA	(2) Tobin's Q	(3) ROA	(4) Tobin's Q	(5) ROA	(6) Tobin's Q	(7) ROA	(8) Tobin's Q
RSC	0.000235*** (0.00554)	0.00272** (0.0293)						
RSC_Adjusted			0.000156** (0.0159)	0.00174* (0.0734)				
ENV_Pillar					0.000118** (0.0425)	0.00120 (0.185)		
Social_Pillar							0.000192*** (0.00763)	0.00265*** (0.00683)
SSC_Total_Network_size	-0.00832* (0.0503)	-0.0716 (0.222)	-0.00836** (0.0497)	-0.0721 (0.219)	-0.00850** (0.0461)	-0.0738 (0.210)	-0.00828* (0.0518)	-0.0705 (0.229)
Size	0.00519 (0.525)	-0.898*** (5.57e-11)	0.00637 (0.436)	-0.883*** (1.03e-10)	0.00635 (0.438)	-0.882*** (1.39e-10)	0.00560 (0.493)	-0.897*** (0)
Leverage	-0.0601*** (1.66e-07)	-0.0878 (0.596)	-0.0604*** (1.49e-07)	-0.0920 (0.580)	-0.0601*** (1.80e-07)	-0.0886 (0.593)	-0.0606*** (1.26e-07)	-0.0942 (0.571)
MTB	0.00174*** (8.00e-06)	0.0634*** (0)	0.00175*** (7.11e-06)	0.0636*** (0)	0.00176*** (6.48e-06)	0.0637*** (0)	0.00173*** (8.91e-06)	0.0633*** (0)

[illegible]

Table 3.9: Robustness check: Sub-sample of years 2005–15

This table reports results of a robustness test examining the effect of social capital on firm performance, where firm performance is proxied by ROA and Tobin's Q, and social capital is proxied by RSC and SSC. Baseline regression is re-estimated for a sub-sample over the period 2005–15. All firm- and governance-level control variables are used in the regression. All variables are defined in Appendix A. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q	(3) ROA	(4) Tobin's Q	(5) ROA	(6) Tobin's Q
RSC	0.000244** (0.0117)	0.00315** (0.0239)			0.000233** (0.0161)	0.00313** (0.0242)
SSC			−0.0104* (0.0592)	−0.0270 (0.699)	−0.00965* (0.0774)	−0.0170 (0.807)
Size	0.00455 (0.645)	−0.907*** (9.61e−09)	0.00779 (0.438)	−0.880*** (2.74e−08)	0.00596 (0.547)	−0.905*** (1.27e−08)
Leverage	−0.0443*** (0.00146)	−0.360* (0.0851)	−0.0450*** (0.00153)	−0.359* (0.0894)	−0.0452*** (0.00134)	−0.362* (0.0856)
MTB	0.00159*** (0.00392)	0.0628*** (1.37e−10)	0.00163*** (0.00321)	0.0631*** (1.39e−10)	0.00161*** (0.00340)	0.0629*** (1.35e−10)
Sales_Growth	0.00145 (0.771)	0.164** (0.0416)	0.00234 (0.637)	0.173** (0.0301)	0.00169 (0.731)	0.165** (0.0409)
Board_Size	−0.000305 (0.627)	−0.00286 (0.740)	−0.000249 (0.691)	−0.00240 (0.782)	−0.000280 (0.654)	−0.00281 (0.744)
CEO_Duality	0.000209 (0.943)	0.00500 (0.900)	0.000160 (0.957)	0.00534 (0.894)	0.000124 (0.966)	0.00485 (0.903)
CEO_Board_Member	−0.00801 (0.490)	−0.00990 (0.919)	−0.00710 (0.538)	0.00541 (0.955)	−0.00828 (0.472)	−0.0104 (0.915)
Board_Independence	0.00180 (0.709)	0.00555 (0.937)	0.00198 (0.681)	0.00678 (0.923)	0.00190 (0.691)	0.00573 (0.935)
Constant	0.0387 (0.554)	7.737*** (0)	0.112 (0.164)	7.892*** (0)	0.110 (0.170)	7.863*** (0)
Observations	5,792	5,792	5,792	5,792	5,792	5,792
Adjusted R-squared	0.0420	0.231	0.0406	0.229	0.0443	0.231
Number of firms	713	713	713	713	713	713
Firm fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES

3.4.4 Controlling for Endogeneity

A primary endogeneity concern that arises in the first place is whether the result is driven by reverse causality. It can be argued that firms functioning better can attract more social capital by appointing well-connected directors (Fich, 2005) and being socially more responsible. The research method applied in this chapter invalidates the possibility of a potential feedback effect moving from firm performance to social capital. This is because the formation of social capital variables predates the dependent variables. Following Javakhadze et al. (2016), this type of reverse causality problem is addressed by using the 1-year-lagged values of explanatory variable in the regression following the argument that such historic numbers are essentially predetermined. To address potential endogeneity related to omitted variables, a number of control variables is included in the main regressions.

Following previous studies (Omer et al., 2014), a change specification analysis is employed as an approach to endogeneity control. Specifically, I regress the change in firm performance variables (ΔROA and $\Delta \text{Tobin's Q}$) against the change in social capital (ΔRSC and ΔSSC) and control variables ($\Delta \text{Controls}$) using changes from year t to $t+1$; t to $t+2$; and t to $t+3$ and present the results in Panels A, B and C of Table 3.10. Panel A shows the coefficient of ΔRSC is weakly significant for ΔROA and insignificant for $\Delta \text{Tobin's Q}$ in the t to $t+1$ timeframe. This outcome is a result of social capital being spatially sticky in nature (Habib & Hasan, 2017; Rutten, Westlund, & Boekema, 2010) such that any notable annual change in such a short window is expected to be less likely. This resonates with why the impact may not be promptly reflected in market-based measures. In Panels B and C, the coefficients of ΔRSC are positive and statistically significant for both accounting and market measures, implying that the change in relational social capital is positively associated with firm performance, confirming the baseline inferences. Although the results remain qualitatively similar, the coefficient of ΔSSC shows statistically insignificant results across all models of change specification analysis.

Table 3.10: Change specification analysis

This table reports results of change specification analysis in Panels A, B and C, where firm performance is proxied by Δ ROA and Δ Tobin's Q, and social capital is proxied by Δ RSC and Δ SSC. All changes of firm- and governance-level control variables are also used in the regression (for brevity, the control variables results are not shown). All variables are defined in Appendix A. Heteroscedasticity-robust p -values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Panel A						
t to $t+1$	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Δ ROA	Δ Tobin's Q	Δ ROA	Δ Tobin's Q	Δ ROA	Δ Tobin's Q
Δ RSC	5.58e-05*	0.000347			5.51e-05*	0.000316
	(0.0677)	(0.699)			(0.0710)	(0.725)
Δ SSC			-0.00174	-0.0809	-0.00167	-0.0805
			(0.323)	(0.118)	(0.344)	(0.120)
Δ Controls	YES	YES	YES	YES	YES	YES
Observations	8,181	8,181	8,181	8,181	8,181	8,181
R-squared	0.043	0.153	0.043	0.153	0.043	0.153
Number of firms	1,623	1,623	1,623	1,623	1,623	1,623
Firm fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES
Panel B						
t to $t+2$	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Δ ROA	Δ Tobin's Q	Δ ROA	Δ Tobin's Q	Δ ROA	Δ Tobin's Q
Δ RSC	0.000108*	0.00186*			0.000107*	0.00184*
	(0.0588)	(0.0768)			(0.0612)	(0.0802)
Δ SSC			-0.00285	-0.0710	-0.00275	-0.0691
			(0.405)	(0.252)	(0.423)	(0.265)
Δ Controls	YES	YES	YES	YES	YES	YES
Observations	6,579	6,579	6,579	6,579	6,579	6,579
Adj R-squared	0.0658	0.185	0.0649	0.184	0.0659	0.184
Number of firms	1,112	1,112	1,112	1,112	1,112	1,112
Firm fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES

Panel C						
t to $t+3$	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Δ ROA	Δ Tobin's Q	Δ ROA	Δ Tobin's Q	Δ ROA	Δ Tobin's Q
Δ RSC	0.000260*** (0.00234)	0.00270** (0.0339)			0.000257*** (0.00259)	0.00268** (0.0350)
Δ SSC			−0.00730 (0.122)	−0.0465 (0.463)	−0.00693 (0.139)	−0.0427 (0.501)
Δ Controls	YES	YES	YES	YES	YES	YES
Observations	5,505	5,505	5,505	5,505	5,505	5,505
Adj R-squared	0.0647	0.210	0.0603	0.209	0.0659	0.210
Number of firms	697	697	697	697	697	697
Firm fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES

3.5 Conclusion

This chapter examines the effect of firm-level social capital on firms' accounting and market performance, measured by ROA and Tobin's respectively. The analysis focuses on two broad class of firm-level social capital, measured by relational and structural concepts. Accordingly, it is argued that the association between social capital and a firm's economic performance may differ depending on the nature of social capital. To test the relationship, a comprehensive investigation is conducted on a sample of 10,122 firm-year observations in the US for the years 2005–18. Interestingly, the empirical results document relational social capital as a positive antecedent of a firm's accounting and market performance, lending credence to the theory of reciprocity; whereas, corroborating agency theory, structural social capital is found to have a negative influence on accounting performance. However, unlike relational social capital, the structural social capital results are weakly significant in terms of accounting performance, ROA, but statistically insignificant for market-based Tobin's Q.

The outcomes are economically meaningful and robust in a series of sensitivity tests. The results are invariant to alternative model specifications, alternative variable measurements, controlling for additional control variables, sub-sample analyses and a test for endogeneity. Overall, the findings indicate that developing trust through relational social capital can be considered an insurance policy that pays off. This is how, in addition to financial capital, relational social capital can be beneficial for improving firm performance. Conversely, the empirical results suggest that the structural social capital generated through directors' rapport-building activities can be detrimental to firm performance. This evidence overtly exposes that directors are prone to exploit their social connections for their own benefit, resulting in poor governance, higher compensation and poorly executed takeover tactics.

The findings of this study have important implications for the corporate finance literature as they can guide corporate-level decisions related to determining the stock of social capital. For instance, firms may be inclined to invest more in selective CSR activities that generate relational social capital. In addition, the results have important insights for companies regarding appointment of highly connected top executives. The ideas around the value implications of social capital can also benefit stakeholders such as shareholders, employees, suppliers and customers, by helping them to make informed decisions about a corporation.

Chapter 4:
**The International Effect of Relational
and Structural Social Capital on Firm
Performance: Does the Country Context
Matter?**

4.1 Introduction

This study examines the effects of social capital on firms' financial performance in an international setting. Using a large international sample, I investigate whether two distinct categories of firm-level social capital—namely, relational and structural social capital—influence firm performance. As a related question, I examine whether the effects of structural social capital on firm performance is moderated by country-level factors.

Prominent international organisations such as the World Bank, OECD and national governments pay attention to social capital as a valuable tool to alleviate market inadequacies (Ferris et al., 2017). Although this validates the importance of social capital research against a global backdrop, the issue receives only limited attention in finance research, particularly in an international context. Thus, this study is motivated by two factors.

First, the relevance of social capital for firm performance in a global setting is largely overlooked in research, and studies of US firms are overrepresented in the scant social capital literature. A number of studies have examined the effects of social capital on a broad range of corporate indicators in the context of the US market, such as debt contracting (Hasan et al., 2017b), cost of equity (Gupta et al., 2018), private debt (Fogel et al., 2018), corporate cash holding (Habib & Hasan, 2017), corporate tax avoidance (Hasan et al., 2017a), merger and acquisition (Cai & Sevilir, 2012), idiosyncratic volatility (Hasan & Habib, 2019) and corporate innovation (Gupta et al., 2016). The preference for research in the US market rather than other markets results from readily available social capital measures at different US regional levels, including the state-level index developed by Putnam (2000) and county-level RGF index constructed by Rupasingha et al. (2006). Despite the dominance of US-based studies, there is a growing consensus among finance researchers that firm-level social capital can have important implications for corporate finance outcomes in a global milieu. Several recent cross-

country studies provide evidence in favour of social capital's impact on investment sensitivity and external financing (Javakhadze et al., 2016) and cost of equity (Ferris et al., 2017). In this study, I extend this line of inquiry by examining how firm-level social capital categorically influences firm performance across countries.

The second motivation for this investigation is a desire to uncover country-level factors that contribute to social capital's effects on firms' economic performance. Evidence suggests that the association between social capital and cost of equity may be contingent on development of the financial market and legal protection (Ferris et al., 2017). Consistent with this idea of relevance of cross-country variation, Dudley and Zhang (2016) demonstrate that the influence of trust-based social capital on corporate cash holding differs across firms operating in different countries with differing levels of governance quality, cultural values and financial development. Therefore, it can be argued that the effect of social capital is context dependent.

To test the above predictions, I adopt the integrative framework of Nahapiet and Ghoshal (1998) to conceptualise and classify social capital as relational and structural at the firm level. Using a comprehensive sample of 24,980 firm-year observations from 30 countries for the period 2005–18, I document a positive and statistically significant effect of relational social capital on firm performance after controlling for industry, country and year effects, consistent with the theoretical assertion of reciprocity. Supporting the prediction of agency theory, the empirical results in this chapter suggest that structural social capital exerts a negative effect on the same set of performance variables. These findings are consistent with empirical results presented in Chapter 3 generated from US sample. The results are robust to alternative model specifications and estimation windows. The findings remain unaltered when alternative measures of relational and structural social capital are used; additional control variables are used; and sub-sample analyses are conducted. Additionally, the effect of firm-level relational

social capital on performance is stronger in countries where country-level social capital is high. The results also suggest that the effect of trust-centric relational social capital on firm performance is stronger when countries are more developed, have strong country-level governance and are under a common legal regime.

This study makes several noteworthy contributions. First, to the best of my knowledge, it is the first to use an extensive international sample to evaluate the effects of relational and structural social capital on firms' financial performance. Second, the importance of social capital at the macro level is well recognised by the OECD, national agencies and the academic literature. This study adds to the field by providing evidence of how country-level social capital and other contextual factors moderate the relationship between firm-level social capital and performance.

The organisation of the rest of this chapter is as follows. Section 4.2 presents a literature review and articulates hypotheses. Section 4.3 defines the empirical model and discusses the detailed variable construction process. Section 4.4 reports the major findings, tests for robustness and discussions related to moderating effects. Section 4.5 concludes the chapter with a concise summary and a discussion of the findings.

4.2 Literature Review and Hypothesis Development

4.2.1 Social Capital and Firm Performance

To investigate social capital's impact on firm performance in a global setting, two broad groups of social capital are considered: relational and structural social capital. The idea of 'relational social capital' advocated by Nahapiet and Ghoshal (1998) is developed on the premise of trust, trustworthiness and norms. According to the theory of reciprocity (Gouldner, 1960), firms' actions will be reciprocated by higher value in exchange for building trust through relational social capital. This trust-based relational social capital is generated through socially responsible

activities. Guiso et al. (2008) documents that firm performance is better when top management is perceived as trustworthy and ethical. Similar evidence from a cross-country setting demonstrates that social capital reduces the necessity for costly monitoring through its trust channels (Javakhadze et al., 2016) and can also minimise the adverse consequences of incomplete contracts (Grossman & Hart, 1986). Therefore, based on theoretical and empirical premises relevant to the global milieu, the following hypothesis is formulated:

H1: Relational social capital is positively associated with firm performance in a global context.

Structural social capital, based on the theoretical framework of structural theories of Lin (1999), emphasises connections and participation in various networks by a corporate board of directors. There are two contending theories that predict the direction of the relationship between structural social capital and firms' financial performance. According to resource dependence theory (Pfeffer & Salancik, 1978), structural social capital facilitates organisations' access to external resources by establishing a link with the outside environment. Thus, by taking the essence of the resource-based view this theory perceives a structural network as a positive antecedent of firm performance. As predicted by resource dependence theory, empirical evidence suggests that structural social capital allows access to new opportunities and resources, which in turn improves firm performance (Geletkanycz et al., 2001). This type of resource can also augment economic efficiency and improve synchronisation by reducing information asymmetry. From the informational viewpoint, a set of studies involving international settings, such as Cohen, Frazzini and Malloy (2008), Engelberg et al. (2012) and Rauch and Casella (2003), provides consistent evidence in favour of structural social capital by showing how networks create opportunities for information flow, smooth stock market participation, restrain the cost of external financing and facilitate portfolio choice judgements.

Alternative to this view, agency theory (Jensen & Meckling, 1976) predicts a negative relationship between structural social capital and firm performance. According to agency theory, a social network is exploited by directors for their own advantage and to the detriment of shareholders' interests (Kirchmaier & Stathopoulos, 2008). These contrasting theories lead to the following testable hypothesis:

H2: Structural social capital is positively associated with firm performance in a global context.

4.2.2 The Moderating Effects of Country-level Factors

This section identifies and discusses various country-level factors that may be crucial in moderating the association between relational social capital and performance. The argument for considering only relational social capital is discussed in Section 4.4.3.3. In this study, I investigate the moderating effects of country-level social capital and various country-specific contextual factors on the relationship between firm-level relational social capital and performance.

4.2.2.1 Country-level Social Capital

The link between firm-level relational social capital and performance may be influenced by cross-country differences in country-level social capital, as it can shape stakeholders' perceptions regarding a firm's engagement in building trust through relational social capital. The evidence from studies involving a cross-section of countries (Knack & Keefer, 1997; Porta et al., 1997; Zak & Knack, 2001) suggests that country-level social capital can usually be measured by country-level trust. A number of attempts to explore country-level trust and its direct influence on different financial, social and economic outcomes are reported in the economics and finance literature (Goergen, Chahine, Brewster, & Wood, 2013). The literature suggests that country-level trust strongly predicts its economic success (Arrow, 1972; Fukuyama, 1995; Knack & Keefer, 1997). Thinking beyond a sociological viewpoint as in

Coleman (1988) or a political science perception as in Putnam (1993), Fukuyama (1995, p. 10) fits social capital and trust within an economic framework. By scrutinising the relative pecuniary performance of different nations and cultures, Fukuyama (1995) advocates that the level of trust embedded in a given society decides its affluence and degree of democracy, as well as its capacity to compete in a cost-effective way. An economy-level study of 29 countries shows that trusting economies not only experience economic payoffs, but are also less dependent on formal institutions, are more investment friendly, have stronger incentives to innovate and are able to yield higher returns on human capital (Knack & Keefer, 1997). In a similar international study, Zak and Knack (2001) develop a model where they define trust as the ‘aggregate amount of time economic agents spend on production rather than on monitoring each other’. After testing their model on 44 countries, they suggest that a higher level of country-level trust promotes investment and economic growth and reduces income inequality by reducing transaction costs. In addition to country-level social capital, regional social capital is also found to be significant in terms of gauging the performance of a large organisation such as a government (Porta et al., 1997), and financial development (Guiso et al., 2004).

A number of studies have examined the direct effects of country-level social capital on other firm-level financial outcomes. For example, a cross-country study suggests that lack of regional trust reduces demand for equity, making it difficult to float firms’ stock. Similarly, firms in a high-trust region are exposed to lower future crash risk (Li et al., 2017) and investors consider their earnings reports to be more reliable (Pevzner et al., 2015).

Apart from directly influencing a firm’s economic performance, country-level social capital may create contingent circumstances that moderate the connection between firm-level relational social capital and firm performance. This contingency can be theoretically justified by two competing ideas. First, I argue that country-level social capital can strengthen the

positive influence of relational social capital on firm performance. This primary proposition follows Putnam's (2000) argument that an agent's social capital is more valuable in a society where overall social capital is higher. Thus, relational social capital's effect on firm performance will vary, depending on the level of social capital prevailing in a given country. By setting this idea against a global backdrop, it can be argued that in countries characterised by lower inclination to trust, CSR activities are less likely to be regarded by investors and other stakeholders as trust-enhancing activities; instead, they may be perceived as window dressing and fabrication. Conversely, in high-trust countries, employees, customers and other stakeholders are more likely to remunerate trustworthy firms; for example, by purchasing product and working efficiently (Lins et al., 2017). Moreover, high social capital countries tend to have more attentive, responsive and receptive people as stakeholders concerned with firm-level CSR, which amplifies the positive relationship between relational social capital and firm performance (Hoi et al., 2018). In this case, active responses of stakeholders regarding CSR could help the firm to take the lead in CSR activities. This positioning could result in favourable outcomes by improving the firm's relationships with various stakeholders, which in turn matters for economic performance.

The relevance of positive moderation of country-level social capital also fits with the framework of conformity theory (Bernheim, 1994). Although trust prevailing in a country may be formed in a variety of ways, societal norms and values mainly determine the extent of trust establishment by directing people's behaviour and beliefs (Hofstede, 1980). As different norms and values are created from each culture's 'collective programming', the practices applied by trustors to select whether and whom to trust may be profoundly reliant on a society's culture (Doney, Cannon, & Mullen, 1998). Hence, when considering country-level trust as an element of culture, it can be argued that firms will experience difference in the sensitivity of relational

social capital to performance in such a way that this will positively moderate the social capital–performance link. This is based on conformity to a country’s trust culture.

In contrast to Putnam’s proposition and cultural conformity theory, grounded in the agency proposition (Friedman, 1970), it is also plausible that higher country-level social capital might weaken the positive relational social capital–performance relationship. Friedman’s (1970) classic proposition detected CSR engagement as a distraction from the company’s basic operations, whereas the focus should be on shareholders’ value maximisation. In line with this assertion, Bénabou and Tirole (2010) introduce the ‘direct values’ theory, which contends that non-investing stakeholder intervention may not always generate value for the firm as their involvement could instigate overinvestment in social issues. This happens because stakeholders tend to demand ‘direct value’ through corporate engagement in CSR, even when the costs overshadow the benefits of CSR practices. In a high social capital country that promotes social practices, if direct value-seeking stakeholders are successful in persuading overinvestment in CSR among firms, it will be challenging for firms to build relational social capital from that CSR engagement. As a result, firm-level relational social capital may have a less pronounced effect on a firm’s financial performance among corporations in countries with high-level social capital (Hoi et al., 2018).

Given the aforementioned contrasting theoretical conjectures, a third hypothesis is posited:

H3: The positive association between relational social capital and firm performance is moderated by country-level social capital.

4.2.2.2 Contextual Factors

In addition to country-level social capital, financial returns to relational social capital may be conditional on contextual differences across countries. Two comprehensible empirical facts

drive investigation of this contingency. First, firms operating in different economies do not systematically invest equally in social activities. This claim is empirically confirmed by Ioannou and Serafeim (2012), who found large variation in CSR ratings across countries by examining the relationship between national institutions and social performance in the global context. Second, even firms that do systematically invest equally in social activities in different countries might not be able to proportionally translate this CSR investment into trust formation through building relational social capital. This is mainly because CSR-based social capital is multidimensional, but also addresses externalities originating from operating environments (Magill, Quinzii, & Rochet, 2015). These fundamental attributes of CSR-based relational social capital suggest that its impact on firm performance may be influenced by regulations, institutional arrangements, market development and societal preferences (Liang & Renneboog, 2017). Therefore, researchers have attempted to identify country- or region-wise contingency factors that explain heterogeneity in firm performance owing to firm-level social capital. Accordingly, I argue that three contextual moderators—namely, legal system, market development and country-level governance quality—are the most critical in determining the degree to which firms might gain from developing relational social capital (Doh & Guay, 2006; Wang & Qian, 2011)

4.2.2.2.1 Legal System

A country's legal system is considered a fundamental determinant of the level of a country's CSR (Liang & Renneboog, 2017). Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) point out two regimes that gave birth to all legal systems: civil law and common law. Civil law countries take a stakeholder-oriented approach that ensures regulations protect the interests of all company stakeholders instead of concentrating solely on shareholders. Such a legal regime provides an environment that encourages safeguarding human rights of different parties such as customers, employees, suppliers and other market participants (Benlemlih & Girerd-Potin,

2017). Therefore, in civil law countries, to some extent, CSR is considered more of an obligation than a discretionary issue (La Porta, Lopez-de-Silanes, & Shleifer, 2008). In addition to rule-based compulsion, the overall civil structure promotes societal preference for corporate philanthropy in such a way that stakeholders expect stronger CSR behaviour from firms. Consistent with this expectation, the average CSR score of firms in stakeholder-oriented countries is found to be considerably higher than in investor-oriented countries (Becchetti, Ciciretti, & Conzo, 2013; Jo, Song, & Tsang, 2016; Kim, Park, & Ryu, 2015)

In contrast to civil administrations, common law countries reinforce the shareholder primacy model by encouraging laws and regulations that effectively protect the interests of shareholders. Common law countries mostly follow private market outcomes. It is presumed that under perfect market conditions, maximising profits to safeguard the welfare of shareholders motivates a firm to act in the best interest of all stakeholders, including consumers, workers and shareholders (Magill et al., 2015). In such a legal setting, CSR activities are expected to be considered an opportunistic managerial act, since investors prevailing in such an environment are only interested in their own value maximisation and development of the capital market.

To reiterate, the classical view of civil law countries is that they are more reliant on rule-based mechanisms to maintain stakeholder orientation, and CSR is expected to be more apparent than in common law countries where various regulatory bodies demote social practices (Benlemlih & Girerd-Potin, 2017). This typical notion may be useful for capturing how firm-level CSR practices are shaped by the legal system and its subsequent enforcement differences across countries. However, it is needed to think beyond this typical perception to understand more comprehensively and identify how the legal system influences the ability of firms to effectively convert their CSR activities into relational social capital, to elevate performance.

The theoretical underpinnings explaining the moderating role of the legal system in shaping the link between relational social capital and firms' financial performance are derived from the fundamental proposition of salience theory (Bordalo, Gennaioli, & Shleifer, 2012). Salience theory postulates a cognitive bias that highlights people's tendency to pay attention to attributes or payoffs that are more often different or salient compared with the average. Salience is defined in the psychology literature as 'the phenomenon that when one's attention is differentially directed to one portion of the environment rather than to others, the information contained in that portion will receive disproportionate weighting in subsequent judgments' (Taylor & Thompson, 1982). In the empirical finance literature, studies demonstrate the asset pricing implications of salience theory. Cosemans and Frehen (2021) provide strong empirical support from the US market for the predictions of the salience model in terms of stock returns. They demonstrate that investors pay attention to salient payoffs that can be distinguished from other stock market payoffs. This result is supported by Khaleghi, Aghaei and Rezaei (2018). Although the context of this chapter is not explicitly related to asset pricing, it is reasonable to fit the conceptual framework of salience theory to explain the moderation effect of legal systems.

CSR is voluntary in common law countries but somewhat mandatory in civil law countries (Liang & Renneboog, 2017). In other words, CSR is more customary in civil law countries than in common law countries. Given that in civil law countries CSR adoption originates from statutory obligations, stakeholders may overlook and discount a firm's CSR attempts because they consider them legally directed and non-discretionary. Moreover, the overall favourable environment in such countries drives higher overall CSR standard and performance. Thus, it is challenging for firms to be treated as salient by stakeholders based solely on their CSR undertakings. In such a legal setting, firms need to put much greater effort into CSR to draw attention and stand out. As a result, it will be more difficult for firms operating under a civil

legal system to utilise CSR intended for building trust, which improves financial performance. Supporting the salience theory, I argue that, in civil law countries, as CSR is regarded as a consequence of strict legislative systems, it is likely that firms' CSR efforts are relatively disregarded. Hence, in a civil framework, relational social capital will have a less pronounced effect on firm performance. Nevertheless, unlike in civil origin countries, corporations operating in common law countries are able to translate their social practices into relational social capital because CSR is non-compulsory and stakeholders will not take it for granted. As common law regulations do not promote such social activities, firms that engage in CSR activities will be salient and receive more attention. Stakeholders in such an environment can effortlessly distinguish firms with strong CSR practices and consider such commitments as trustworthy. According to the reciprocity view, firms are eventually rewarded with higher returns. Therefore, it can be said that the common law framework positively moderates the link between relational social capital and firm performance. These arguments lead to the fourth hypothesis:

H4: The positive association between relational social capital and firm performance is moderated by a country's legal system.

4.2.2.2.2 Level of Market Development

Aside from a country's legal origins, the extent of social capital's influence on firm performance also depends on the level of development of the market in which firms operate because this shapes stakeholders' responses and awareness. Stakeholders have to be aware about firms' social capital building activities for engendering trust and consequently making a reasonable response. This stakeholder sentience is contingent upon an efficient flow of information and firm visibility (Wang & Qian, 2011). The public acquires firm-related information either directly from the firm or with the help of other channels, such as the media

or the stock market (Fombrun & Shanley, 1990). The efficient flow of information can ensure a firm's transactional competence and visibility. It is reasonable to expect that a firm's information flow efficiency and stakeholder awareness differ considerably depending on the level of development of the market in which the company operates. A developed market enjoys symmetric and valid corporate information by virtue of ample information channels and active market supervision. In such a market setting, information flow is assisted through cutting-edge technology, media coverage and the capital market. This enables stakeholders to obtain the necessary information about firms' relational social capital building activities more efficiently and promptly. This informed set of stakeholders is likely to respond with greater cooperation and support, which turns into positive financial gains (Wang & Qian, 2011). In contrast, emerging and frontier economies are characterised by poor information flow and ineffective market supervision. As a result, social initiatives undertaken by firms competing in less developed markets bear the risk of being overlooked. This makes it difficult to translate these social efforts into relational social capital through which firms can improve economic performance (Wang, Dou, & Jia, 2016). Therefore, I propose a fifth hypothesis:

H5: The positive association between relational social capital and firm performance is moderated by a country's level of market development.

4.2.2.2.3 Country-level Governance Quality

Variation in the institutional environment in which firms function may also plausibly influence the association between relational social capital and firms' financial performance. Institutional differences leading to different country-level governance mechanisms—such as control of corruption, effectiveness of rule of law and regulatory quality—often shape distinct country-specific organisational behaviour, culture, practices and performance (Dodd & Gilbert, 2016). Country governance consists of six dimensions: voice and accountability; political stability and

absence of violence/terrorism; government effectiveness; regulatory quality; rule of law;⁴ and control of corruption (Kaufmann, Kraay, & Mastruzzi, 2009).

Country-level governance is often critical to different corporate outcomes. Ngobo and Fouda (2012) indicate that good country governance can improve firm performance when it achieves the rule of law and reduces corruption. Utilising a sample from 14 central and eastern European countries, Hanousek and Kochanova (2016) empirically report that bribery and corruption adversely influence firms' sales and productivity growth nationally. Similarly, Li, Moshirian, Pham and Zein (2006) found that macro-level governance features noticeably explain variation in cross-country effectiveness of supervisory monitoring mechanisms at the firm level, which affects financial performance. I argue that, apart from directly influencing corporate outcomes, the national governance environment also moderates the degree to which relational social capital influences a firm's economic performance (Campbell, 2007). Effective country-level governance mechanisms can ensure that managers' CSR endeavours are the result of a genuine desire to foster trust by building relational social capital, rather than exploiting CSR as a device for managerial opportunism (Breuer, Müller, Rosenbach, & Salzmann, 2018). Under the umbrella of stringent regulations, stakeholders will recognise a firm's CSR efforts as sincere initiatives and not merely as window dressing. This will enable firms to generate trust and cooperation, ensuring favourable financial returns. Additionally, countries with a strong institutional environment have favourable regulatory policies such as tax breaks or advantageous terms as a reward for acting in a socially responsible manner (Wang et al., 2016). This well-enforced governance system helps firms to reduce cost and eventually enjoy positive returns. In contrast, a loose and ineffective national governance environment is largely characterised by institutional voids (Agyei-Boapeah & Machokoto, 2018; Amaeshi, Adegbite,

⁴ The proxy used for measuring country-level governance quality, WGI, has a legal component. Thus, the key moderating variable—the legal system—used to address H4 could be correlated with the moderating variable, WGI, used to test H6.

& Rajwani, 2016) such as weak execution of laws and leniency in deterring corruption. Such an institutional setting will render a firm's social capital building initiatives less credible to stakeholders; leaving no significant response from them that can be converted into economic gain. The sixth hypothesis is thus formulated as:

H6: The positive association between relational social capital and firm performance is moderated by country-level governance quality.

4.3 Data and Methodology

4.3.1 Sample Construction

To examine the association between social capital and firm performance in a global setting, this study develops a comprehensive multi-country data sample extracted from several databases. Data related to relational and structural social capital are obtained from the TR ASSET4 and BoardEx databases, respectively. Financial variables including the main dependent variables are collected from Worldscope and Datastream. I acquire country-level variables from multiple relevant sources. A proxy for country-level social capital is created using responses from the WVS, which gauges whether or not most people in a nation can be trusted. World Governance Indicators (WGI) and Gross Domestic Product (GDP) data are sourced from the World Bank. Additionally, data for national legal systems and the Anti-director Rights Index are collected from Porta et al. (1998). Beginning with an initial sample of 83,569 firm-year observations from 43 countries, I merge and converge all data sources by firm and year and then exclude countries with less than 10 observations. The final sample consists of 24,980 firm-year observations from 4,022 unique firms from 30 countries for the period 2005–18. Table 4.1 presents a summary of the sample selection procedure.

Table 4.1: Sample selection procedure

The table illustrates the procedure used to select the sample. The final sample consists of 24,980 firm–year observations from 2005 to 2018.

Particulars	Database	No. of firm–year observations
Initial observations	ASSET4 ESG	83,569
Less: non-matched firm–year observations with BoardEx		–36,239
Remaining sample after appending BoardEx	ASSET4 ESG + BoardEx	47,330
Less: non-matched firm–year observations with Worldscope		–7,100
Remaining sample after appending Worldscope	ASSET4 ESG + BoardEx+ Worldscope	40,230
Less: list-wise deletion for observations with missing values		–15,250
Total observations	ASSET4 ESG + BoardEx+ Worldscope	24,980

4.3.2 Variables

4.3.2.1 Dependent Variables

4.3.2.1.1 Firm Performance

Consistent with Chapter 3, Tobin’s Q and ROA are employed as alternative measures of firms’ market and accounting performance, respectively. Tobin’s Q is calculated as the sum of market value of equity, preferred stock and long-term debt divided by total assets. ROA is defined as a firm’s net income before extraordinary items and preferred dividend, divided by total assets.

4.3.2.2 Independent Variables

4.3.2.2.1 Relational and Structural Social Capital

In this chapter, I use the same measures of firm-level social capital that are used and described in detail in Section 3.3.2.2 of chapter 3. A firm-level proxy for CSR activities quantifies relational social capital. This trust-centric social capital measure represents a score that ranges

from 0 to 100. Structural social capital is estimated as the size of the directors' social network collected from BoardEx Universe.

4.3.2.3 Control Variables

I control for a similar set of firm characteristics and firm-level governance variables as mentioned and discussed in Section 3.3.2.3 of Chapter 3. At the country level, I mainly control for the state of the economy and business environment. The proxy used for measuring the state of the economy is the natural logarithm of a country's per capita GDP. The business environment is represented by the Anti-director Rights Index (Porta et al., 1998), which captures a country's shareholder protection rules. It is an aggregate measure of shareholder rights that takes values from 0 to 5, with higher scores for greater shareholder rights (Shen & Chih, 2005).

4.3.2.4 Moderators

4.3.2.4.1 Country-level Social Capital

Following Knack and Keefer (1997), I use societal trust as a proxy to measure country-level social capital. The variable is extracted from the responses to the WVS question 'Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?' Country-level social capital for each country is taken as the percentage of respondents replying 'most people can be trusted' each year (Goergen et al., 2013; Porta et al., 1997). I calculate the average of the responses to two relevant recent surveys (2005–09 & 2010–14) in each country–year, where higher indicator values correspond to higher trust (Pevzner et al., 2015).

4.3.2.4.2 Contextual Factors

I use three proxies to represent country-level contextual factors as moderators. The first moderator is the legal system (common or civil law) that identifies countries according to their customary legal environment (Benlemlih & Girerd-Potin, 2017). This measure is a dummy indicator (Civil) valued at 1 if the country is a civil law country, and 0 otherwise. The second moderator is a proxy indicating the level of market development status (Wang & Qian, 2011) based on the country's economic size, wealth, quality of markets, and depth and breadth of markets as provided by the Financial Times Stock Exchange (FTSE). This measure is also a dummy variable (FTSE_Developed), which takes the value of 1 if the country is classified as developed and 0 if the country falls into another development category; that is, advanced emerging, secondary emerging or frontier. The third moderator is another context-based proxy representing the institutional environment of a country. To characterise the institutional environment of a country, I employ country-level governance as measured by the WGI (Kaufmann et al., 2009). I take the average of six dimensions of WGI: voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. By taking the average, I calculate a country-year WGI that ranges from -2.5 to 2.5 (Dudley & Zhang, 2016; Farah, Li, Li, & Shamsuddin, 2021).

4.3.3 Model Specification

Following the methodology stated in Section 3.3.3 of Chapter 3, the baseline regression model is developed as follows:

$$Firm\ Per f_{i,t} = \alpha + \beta_1 SC_{i,t-1} + \sum_{k=1}^n \delta_k X_{i,k,t-1} + \sum_{k=1}^m \gamma_k M_{k,t-1} + \varepsilon_{i,t}, (1)$$

where $Firm\ Per f_{i,t}$ is the performance of firm i (measured by Tobin's Q or ROA) in year t and SC indicates key independent variables RSC and SSC. $X_{i,t-1}$ is a set of firm-specific control

variables and $M_{k,t-1}$ represents a set of country-specific variables. The postulated sign of β_1 is positive for RSC and positive or negative for SSC. All independent and control variables are lagged for 1 year and winsorised at the 1% and 99% levels to address the effect of outliers. All regression models include year, industry and country effects.

The main model is then altered to examine the moderating effects of country-level social capital and contextual factors on the relational social capital–firm performance relationship. Specifically, in model (1) an interaction term is added in following manner:

$$Y_{i,t} = \alpha + \beta_1 RSC_{i,t-1} + \beta_2 SSC_{i,t-1} + \beta_3 MF_{k,t-1} + \beta_4 MF_{k,t-1} * RSC_{i,t-1} + \sum_{k=1}^n \delta_k X_{i,k,t-1} + \sum_{k=1}^m \gamma_k M_{k,t-1} + \varepsilon_{i,t}, \quad (2)$$

Here, RSC is relational social capital and SSC is structural social capital. $MF_{k,t-1}$ represents moderating variables such as country-level social capital (Country_Social_Capital) and contextual factors such as legal environment (Civil), level of market development (FTSE_Developed) and country-level governance quality (WGI). To assess their moderating effects, these variables are inputted one at a time.

4.4 Empirical Results

4.4.1 Summary Statistics

Panels A, B, C and D of Table 4.2 report industry-, year- and country-wise descriptive statistics for the main firm and country characteristics in the sample. In Panel A, the sample is segregated based on 11 GICS industry sectors of which three—Industrials, Consumer Discretionary and Financials—make up 45.72% of the total observations. The Consumer Staples industry sector has the highest mean RSC score of 57.69; this industry plausibly exhibits the highest average ROA of 8.2%. Because of the nature of its business, the Financials sector has the highest average asset size (7.419) and the Health Care sector shows the maximum value of the network

measure, SSC (8.219). Real Estate is found to be the most levered sector with a moderate level of other firm characteristics. Panel B of the same table summarises the mean variables across the years. The firm–year observations allocated in the initial years are lower because of the limited coverage of the ASSET4 database. The reported firm characteristics are stable across the years and do not show any year-specific extreme variability. Panel C shows the country-wise distribution of the key variables. The sample observations are highly concentrated into three countries—the US, Australia and the UK—covering 57.77% of the entire sample. India has the highest performance measures, with ROA of 9% and Tobin’s Q of 2.58, and a middling score for RSC and SSC. The highest mean RSC and SSC prevail in Spain and the US, with these scores lowest in Egypt and Japan, respectively. Asset size and leverage do not show any significant differences across countries, except that Taiwan and South Africa show a low level of financial leverage. Panel D of Table 4.2 presents the mean country-level characteristics. Norway reports the highest level of GDP per capita backed by the strongest national trust environment. The country has a mean GDP per capita of 83973.675 USD, along with the highest country-level social capital of 73.7% and a robust country-level governance score. Overall, the developed countries have greater economic growth, stronger institutional setting and more sustainable trust environment. However, to address time-, industry- and country-specific heterogeneity, appropriate fixed effect estimators are used in all regression estimates reported in this chapter.

Table 4.2: Sample distribution by industry, year and country

The table presents sample means for key firm characteristics distributed by 2-digit GICS sector (Panel A), year (Panel B) and country (Panel C); and country-level variables distributed by country (Panel D).

Panel A: GICS Industry-wise sample mean

Industry	Obs	ROA	Tobin's Q	RSC	SSC	Size	Leverage
Communication Services	933	.059	1.536	52.407	8.128	6.947	.300
Consumer Discretionary	3,814	.077	1.660	53.629	7.869	6.578	.243
Consumer Staples	1,551	.082	1.906	57.691	7.824	6.765	.253
Energy	1,702	.035	1.225	52.012	7.834	6.712	.245
Financials	3,358	.034	0.708	51.976	7.997	7.419	.183
Health Care	1,895	.035	2.452	52.869	8.219	6.501	.227
Industrials	4,249	.065	1.431	53.113	7.881	6.633	.255
Information Technology	2,148	.065	2.179	52.854	8.212	6.552	.168
Materials	2,382	.036	1.241	53.023	7.785	6.461	.232
Real Estate	1,701	.052	1.102	52.060	8.002	6.724	.382
Utilities	1,247	.044	0.923	55.891	7.904	7.133	.354

Panel B: Year-wise sample mean

Year	Obs	ROA	Tobin's Q	RSC	SSC	Size	Leverage
2005	681	.070	1.610	52.392	8.011	6.866	.239
2006	828	.083	1.679	53.825	8.046	6.898	.238
2007	885	.086	1.576	54.300	8.062	6.945	.238
2008	978	.068	1.026	54.651	8.061	6.984	.245
2009	1,242	.055	1.287	54.128	8.028	6.904	.260
2010	1,274	.066	1.424	53.311	7.975	6.907	.244
2011	1,362	.062	1.266	54.617	7.994	6.878	.230
2012	1,816	.059	1.358	53.593	7.980	6.797	.233
2013	2,053	.056	1.478	53.296	7.921	6.809	.239
2014	2,018	.055	1.438	52.719	7.829	6.822	.247
2015	2,055	.045	1.428	53.126	7.857	6.789	.247
2016	2,826	.048	1.534	53.041	7.938	6.658	.257
2017	3,442	.045	1.661	52.430	7.940	6.560	.253
2018	3,520	.042	1.466	52.834	7.958	6.580	.248

Panel C: Country-wise sample mean							
Country	Obs	ROA	Tobin's Q	RSC	SSC	Size	Leverage
Australia	2,209	.029	1.436	47.977	7.831	6.103	.204
Brazil	325	.069	1.448	56.146	6.971	6.773	.334
Canada	1,200	.028	1.110	49.703	8.015	6.625	.239
Chile	122	.043	0.901	47.491	7.112	7.048	.291
Egypt	19	.031	0.659	29.419	7.219	6.633	.207
France	1,036	.047	1.086	69.080	7.772	7.246	.266
Germany	828	.050	1.169	62.821	7.284	7.075	.231
Hong Kong	990	.058	1.205	43.157	7.951	6.908	.245
India	651	.090	2.058	54.587	7.898	6.844	.281
Indonesia	42	.083	1.611	49.654	7.347	6.603	.339
Italy	418	.028	0.843	58.492	7.371	7.311	.318
Japan	675	.040	1.089	66.180	6.663	7.275	.215
Malaysia	187	.071	1.643	53.056	7.950	6.732	.240
Mexico	129	.059	1.499	45.646	7.335	6.727	.252
Netherland	296	.063	1.186	64.208	7.851	7.093	.271
New Zealand	153	.071	1.655	44.260	7.628	6.114	.248
Norway	226	.054	1.212	58.731	7.488	6.746	.251
Philippines	124	.066	1.322	49.537	7.360	6.846	.313
Singapore	330	.062	1.089	45.530	8.169	6.994	.226
South Africa	638	.079	1.311	55.467	7.401	6.264	.188
South Korea	240	.051	0.987	65.439	6.833	7.329	.235
Taiwan	145	.045	1.049	61.261	6.990	7.029	.176
Thailand	95	.063	1.401	63.734	6.948	6.950	.313
Turkey	118	.064	0.985	58.131	7.168	7.122	.279
UK	2,100	.071	1.421	57.607	8.199	6.490	.240
USA	10,122	.055	1.680	49.133	8.338	6.780	.250
Finland	243	.062	1.251	64.130	7.570	6.726	.224
Spain	441	.056	1.396	70.287	7.278	7.180	.332
Sweden	382	.076	1.496	60.053	7.260	6.678	.289
Switzerland	496	.064	1.690	60.288	7.909	6.962	.203

Panel D: Country-wise sample mean of country-level variables

	Anti- director Rights Index	GDP per capita (USD)	WGI	Country social capital	FTSE development classification	Legal system
Australia	4	56020.846	1.582	.485	Developed	Common
Brazil	3	10814.638	-.051	.081	Advanced Emerging	Civil
Canada	5	46634.008	1.636	.418	Developed	Common
Chile	5	14428.316	1.105	.124	Secondary Emerging	Civil
Egypt	2	3162.343	-.869	.200	Secondary Emerging	Civil
France	3	40008.799	1.191	.187	Developed	Civil
Germany	1	42720.235	1.492	.392	Developed	Civil
Hong Kong	5	40015.505	1.449	.442	Developed	Common
India	5	1555.556	-.256	.264	Secondary Emerging	Common
Indonesia	2	3514.317	-.263	.375	Secondary Emerging	Civil
Italy	1	34657.393	.548	.275	Developed	Civil
Japan	4	40088.435	1.325	.362	Developed	Civil
Malaysia	4	10167.292	.349	.086	Advanced Emerging	Common
Mexico	1	9756.355	-.224	.139	Advanced Emerging	Civil
Netherlands	2	49489.127	1.669	.543	Developed	Civil
New Zealand	4	39912.963	1.843	.519	Developed	Common
Norway	4	83973.675	1.734	.737	Developed	Civil
Philippines	3	2788.233	-.312	.032	Secondary Emerging	Civil
Singapore	4	53861.235	1.55	.373	Developed	Common
South Africa	5	6428.771	.209	.233	Advanced Emerging	Common
South Korea	2	27190.512	.765	.273	Developed	Civil
Taiwan	3	11444.322	1.019	.272	Advanced Emerging	Civil
Thailand	2	6071.477	-.296	.367	Advanced Emerging	Common
Turkey	2	11225.000	-.216	.082	Advanced Emerging	Civil
UK	5	43009.494	1.436	.300	Developed	Common
US	5	53165.691	1.257	.369	Developed	Common
Finland	3	46916.14	1.824	.580	Developed	Civil
Spain	4	29363.421	.874	.194	Developed	Civil

	Anti- director Rights Index	GDP per capita (USD)	WGI	Country social capital	FTSE development classification	Legal system
Sweden	3	52879.429	1.752	.627	Developed	Civil
Switzerland	2	76259.288	1.748	.512	Developed	Civil

Table 4.3 presents summary statistics for all variables used to estimate the baseline model for the entire sample. On average, firms in the sample have ROA and Tobin's Q of 5.45% and 1.46, respectively. The mean RSC is 53.24, which is similar to the ASSET4-based CSR score of 53.68 reported by Chollet and Sandwidi (2018) for a global sample. The mean environmental and social pillar scores (52.44 and 54.08) are also in harmony with figures stated in the same international study. At the firm level, on average directors are connected to 1,351 individuals, which is much lower than that of US sample (1,794) reported in Chapter 3. The sample firms have a mean asset size of 6.754 with moderately low level of leverage. The mean MTB (3.17) and sales growth (8.85%) values are close to MTB reported as 3.02 (Ioannou & Serafeim, 2012) and sales growth as 9.57% (Javakhadze et al., 2016) in other cross-country studies, respectively.

Table 4.3: Summary statistics

This table displays descriptive statistics for the variables used in this chapter. All variables are defined in Appendix C. All continuous variables are winsorised at the 1st and 99th percentile levels.

Variable	Observations	Mean	SD	Min	Max
ROA	24,980	.0545	.0876	-.5179	.3327
Tobin's Q	24,980	1.464	1.247	0.116	8.310
RSC	24,980	53.24	19.83	14.85	91.74
ENV_Pillar	24,980	52.44	22.86	10.19	95.45
Social_Pillar	24,980	54.08	20.59	10.12	94.41
Gov_Pillar	24,980	52.47	20.64	8.488	92.43
SSC	24,980	7.952	0.780	5.078	9.396
Average Network Size	24,980	1,351	916.6	7.167	7,546
Size	24,980	6.754	0.754	4.697	8.844
Leverage	24,980	0.246	0.177	0	0.816
MTB	24,980	3.168	3.648	-2.595	29.05
Sales_Growth	24,980	0.0885	0.290	-0.615	2.003
Board_Size	24,980	10.27	3.343	4	22
CEO_Duality	24,980	0.446	0.497	0	1
CEO_Board_Member	24,980	0.874	0.332	0	1
Board_Independence	24,980	0.662	0.473	0	1
Anti_Director_Rights	24,980	4.273	1.163	1	5
GDP_per_capita	24,980	10.56	0.750	7.275	11.32

4.4.2 Baseline Results

To test the aforementioned association, the baseline model is estimated by running OLS regressions with robust standard errors. Industry, country and year fixed effects are included in all regressions to account for year-, country- and industry-specific heterogeneity. One potential concern is whether multicollinearity might distort the findings; thus VIF is calculated. For each continuous independent variable, VIF is found to be less than 5, which suggests the absence of severe multicollinearity problems. Before conducting the multivariate test, I have also conducted univariate test by dividing the sample into two groups, stated as high and low, based on RSC median. I find the difference in mean values (P-values) of ROA and Tobin's Q are - 0.0089 (0.00) and 0.2203(0.00) respectively for firms in the low and high groups of RSC. Although the univariate results are partially consistent with expectation, these unconditional relations require multivariate tests to draw inferences, which I present in next section.

The baseline results are presented in Columns 1–6 of Table 4.4 from estimates of equation 1. The cross-country effect of RSC and firm performance is depicted in Columns 1 and 2. The coefficient of RSC is positive and significant at the 1% level for both the accounting and markets measures of performance; that is, ROA and Tobin's Q. In terms of economic significance, the magnitude of the coefficient suggests that a one standard deviation increase in RSC is associated with around 6.98% and 3.43% increase in ROA and Tobin's Q respectively in the following year. This result leads to rejection of the null hypothesis and establishes that relational social capital has a positive association with a firm's financial performance in the global setting, confirming the assertion of the theory of reciprocity. This finding complements previous multi-country studies that suggest social capital inversely affects cost of equity (Ferris et al., 2017), reduces the effects of financial constraints and ensures effective managerial decision making, which is ultimately reflected in firm performance (Javakhadze et al., 2016).

Columns 3 and 4 of Table 4.4 report the regression results for structural social capital. Unlike the positive relationship in terms of relational social capital, the coefficients of SSC is negative and significant at the 1% level for ROA, but statistically insignificant for Tobin's Q. The economic significance of this result is that a one standard deviation increase in SSC will result in around 7.14% decrease in firm performance. This suggests that firm performance is negatively impacted with an increase in firm-level structural social capital. This finding supports the opportunistic view of agency theory but is inconsistent with the predictions of resource dependence theory. In Columns 5 and 6, upon incorporating both measures of social capital in the regression, I continue to find qualitatively and quantitatively similar coefficients for RSC and SSC.

Table 4.4: Baseline regression: Social capital and firm performance

The table reports results of baseline regressions for the full sample. In Columns 1, 3 and 5 the dependent variable is ROA; in Columns 2, 4 and 6 it is Tobin's Q. The independent variable of interest is RSC (Columns 1 & 2), SSC (Columns 3 & 4) and Both (Columns 5 & 6). All variables are defined in Appendix C. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q	(3) ROA	(4) Tobin's Q	(5) ROA	(6) Tobin's Q
RSC	0.0002*** (0.0004)	0.0026*** (0.0000)			0.0002*** (0.0002)	0.0025*** (0.0001)
SSC			-0.0049*** (0.0053)	0.0292 (0.1107)	-0.0053*** (0.0025)	0.0243 (0.1847)
Size	-0.0047 (0.1482)	-0.5722*** (0.0000)	-0.0005 (0.8764)	-0.5454*** (0.0000)	-0.0032 (0.3324)	-0.5785*** (0.0000)
Leverage	-0.0163** (0.0382)	-0.3702*** (0.0000)	-0.0175** (0.0259)	-0.3790*** (0.0000)	-0.0166** (0.0345)	-0.3692*** (0.0000)
MTB	0.0032*** (0.0000)	0.0897*** (0.0000)	0.0033*** (0.0000)	0.0902*** (0.0000)	0.0033*** (0.0000)	0.0897*** (0.0000)
Sales_Growth	0.0119*** (0.0000)	0.1060*** (0.0000)	0.0117*** (0.0000)	0.1058*** (0.0000)	0.0117*** (0.0000)	0.1064*** (0.0000)
CEO_Duality	0.0035** (0.0478)	0.0082 (0.6697)	0.0033* (0.0564)	0.0095 (0.6238)	0.0033* (0.0587)	0.0091 (0.6377)
CEO_Board_Member	-0.0045 (0.1632)	-0.0140 (0.6853)	-0.0045 (0.1730)	-0.0165 (0.6335)	-0.0043 (0.1839)	-0.0150 (0.6648)
Board_Independence	-0.0022 (0.2637)	-0.0251 (0.2312)	-0.0017 (0.4008)	-0.0211 (0.3133)	-0.0021 (0.3021)	-0.0258 (0.2188)
GDP_per_capita	-0.0260*** (0.0001)	0.0395 (0.5412)	-0.0269*** (0.0000)	0.0591 (0.3629)	-0.0279*** (0.0000)	0.0473 (0.4659)

Anti_Director_Rights	-0.0173*** (0.0044)	-0.2165*** (0.0002)	-0.0171*** (0.0056)	-0.2192*** (0.0002)	-0.0170*** (0.0054)	-0.2180*** (0.0002)
Constant	0.4115*** (0.0000)	5.4088*** (0.0000)	0.4391*** (0.0000)	4.8987*** (0.0000)	0.4624*** (0.0000)	5.1792*** (0.0000)
Observations	24,980	24,980	24,980	24,980	24,980	24,980
Overall R-squared	0.0830	0.4680	0.0795	0.4640	0.0830	0.4690
Between R-squared	0.1200	0.5360	0.1220	0.533	0.1230	0.5370
Number of firms	4,022	4,022	4,022	4,022	4,022	4,022
Industry fixed effects	YES	YES	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES

The global outcomes related to relational and structural social capital are statistically and economically consistent with the results presented in Chapter 3 for the US context. This implies that the positive influence of relational social capital and the negative impact of structural social capital on firm performance is not specific to any particular country setting; rather, the association is universal.

4.4.3 Robustness Checks

This section discusses results from analyses that confirm the robustness of the findings based on social capital.

4.4.3.1 Omitted Variable Bias

To mitigate potential problems arising from correlated omitted variables, the baseline regression is re-estimated incorporating five firm characteristics as additional control variables. The first two additional variables are CAPEX and capital intensity, which are discussed in detail in Section 3.4.3.1 of Chapter 3. Further, it is expected that firms with greater liquidity and operating cash flow perform better financially because they are able to meet their obligations and are exposed to less financial risk (Benlemlih & Girerd-Potin, 2017; Harjoto, 2016; Jo & Harjoto, 2012). Liquidity is estimated as current ratio and calculated as the ratio of total current assets to total current liabilities. Operating cash flow (OCF) is measured as net cash flow from operating activities scaled by total sales. Kumar, Rajan and Zingales (1999) demonstrate that firm size can also be measured as the number of employees, and this number makes a difference in firm performance through value-added productivity. Thus, the natural logarithm of the total number of employees is also incorporated here as a control variable. Table 4.5 presents the results after incorporating the additional control variables into the main model. Data limitations for these additional control variables restrict the sample size to around 15,201 firm–year observations. Despite the decline in sample size, the coefficients show that

the link between category of social capital and firm performance remains qualitatively unaltered in terms of sign, significance and scale, indicating that the stated results are not likely to be driven by omitted correlated time-invariant variables.

Table 4.5: Robustness check: Additional control variables

The table reports results of regressions incorporating the five additional control variables. In Column 1, the dependent variable is ROA; Tobin's Q is in Column 2. The independent variables of interest are RSC and SSC. The additional control variables are CAPEX, Capital_Intensity, Employee, OCF and Liquidity. All variables are defined in Appendix C. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q
RSC	0.000149** (0.0135)	0.00292*** (0.000232)
SSC	-0.00500*** (0.00696)	0.0294 (0.201)
Size	-0.0244*** (2.76e-09)	-0.575*** (0)
Leverage	-0.0347*** (3.35e-05)	-0.481*** (2.64e-06)
MTB	0.00439*** (0)	0.0941*** (0)
Sales_Growth	0.0172*** (1.97e-05)	0.155*** (1.47e-06)
Board_Size	-0.000460 (0.165)	0.00695* (0.0619)
CEO_Duality	0.00250 (0.223)	0.0331 (0.188)
CEO_Board_Member	-0.00812** (0.0275)	-0.0671 (0.135)
Board_Independence	-0.00233 (0.274)	-0.0155 (0.527)
CAPEX	0.0388 (0.120)	0.460* (0.0710)
Capital_Intensity	-7.61e-06** (0.0200)	5.41e-05 (0.498)
Employee	0.00709***	-0.0154

	(1)	(2)
Variable	ROA	Tobin's Q
	(6.95e-06)	(0.299)
OCF	0.0660***	0.0336
	(0)	(0.579)
Liquidity	-0.00109	0.0259***
	(0.280)	(0.00936)
GDP_per_capita	-0.0257***	0.0226
	(0.000722)	(0.790)
Anti_Director_Rights	-0.0112**	-0.248***
	(0.0438)	(0.000639)
Constant	0.499***	5.526***
	(2.73e-08)	(1.38e-07)
Observations	15,201	15,201
Overall R-squared	0.271	0.464
Between R-squared	0.395	0.537
Number of firms	2,357	2,357
Industry fixed effects	YES	YES
Country fixed effects	YES	YES
Year fixed effects	YES	YES

4.4.3.2 Alternative Measures of Social Capital

To test the sensitivity of the main results, the baseline regression is re-run by employing alternative proxies for relational and structural social capital. First, an alternative construction for relational social capital is used, which is estimated by adjusting for controversies (Cheng et al., 2014). Second, RSC is disentangled according to its components, and two embedded pillars (environmental and social) are independently applied as an alternative measure to RSC (Habib & Hasan, 2017). Third, a substitute measure is developed for structural social capital that takes into account total network size instead of directors' average network size. The details of these alternative measures are presented in Section 3.4.3.2 of Chapter 3.

The results of the analysis employing alternative proxies for relational and structural social capital are shown in Table 4.6 and 4.7 respectively. Columns 1 and 2 of Table 4.6 show that the coefficient of RSC_Adjusted is positive and statistically significant for both ROA and Tobin's Q at the 1% significance level, validating the conclusions from the original analyses. In particular, this finding suggests that a specific measure of relational social capital does not determine the main finding.

As another alternative, the original measure of relational social capital is broken down into its components and the environmental and social pillars are used to re-estimate the regression. The results reported in Columns 3–6 in Table 4.7 show that the coefficients for the environmental and social pillars are both positive and highly significant at the 1% level. This implies that the positive influence of relational social capital is equally derived from its social capital building activities related to improving environmental and social concerns. The empirical outcome indicates that firms can benefit from investing in eco-efficient resources, reducing emissions and developing new environmental technologies. In addition, firms are expected to preserve human rights, protect business ethics and ensure quality of products that can foster trust and elevate firm performance.

I test the robustness of the main test results further by employing an alternative measure of structural social capital. The results reported in Table 4.7 continue to corroborate the main findings showing negative and statistically significant results at 1% in terms of ROA and an insignificant coefficient for Tobin's Q across all models (Columns 1–8). This result is also consistent with the US sample estimates reported in empirical Chapter 3.

Table 4.6: Robustness check: Alternative measures of relational social capital

The table reports regression results for the full sample incorporating alternative measures of relational social capital. In Columns 1, 3 and 5 the dependent variable is ROA and in Columns 2, 4 and 6, it is Tobin's Q. The independent variable of interest is RSC_Adjusted (Columns 1 & 2), Env_Pillar (Columns 3 & 4) and Social_Pillar (Columns 5 & 6). All variables are defined in Appendix C. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q	(3) ROA	(4) Tobin's Q	(5) ROA	(6) Tobin's Q
RSC_Adjusted	0.000176*** (8.01e-06)	0.00142*** (0.000982)				
ENV_Pillar			0.000114*** (0.00817)	0.00134*** (0.00602)		
Social_Pillar					0.000175*** (0.000203)	0.00212*** (2.62e-05)
SSC	-0.00521*** (0.00315)	0.0269 (0.142)	-0.00516*** (0.00355)	0.0266 (0.147)	-0.00526*** (0.00288)	0.0253 (0.167)
Size	-0.00196 (0.539)	-0.557*** (0)	-0.00210 (0.523)	-0.564*** (0)	-0.00258 (0.434)	-0.571*** (0)
Leverage	-0.0170** (0.0301)	-0.375*** (2.33e-06)	-0.0169** (0.0314)	-0.373*** (2.67e-06)	-0.0169** (0.0313)	-0.372*** (2.60e-06)
MTB	0.00326*** (0)	0.0898*** (0)	0.00327*** (0)	0.0899*** (0)	0.00326*** (0)	0.0897*** (0)
Sales_Growth	0.0117*** (3.55e-05)	0.106*** (5.37e-06)	0.0118*** (3.14e-05)	0.107*** (4.47e-06)	0.0116*** (3.74e-05)	0.105*** (6.12e-06)

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	ROA	Tobin's Q	ROA	Tobin's Q	ROA	Tobin's Q
Board_Size	−0.000763** (0.0159)	0.00306 (0.306)	−0.000764** (0.0157)	0.00293 (0.330)	−0.000782** (0.0134)	0.00270 (0.365)
CEO_Duality	0.00353** (0.0444)	0.0109 (0.573)	0.00337* (0.0550)	0.00976 (0.614)	0.00324* (0.0641)	0.00825 (0.670)
CEO_Board_Member	−0.00446 (0.173)	−0.0164 (0.635)	−0.00438 (0.180)	−0.0155 (0.654)	−0.00439 (0.179)	−0.0156 (0.651)
Board_Independence	−0.00199 (0.319)	−0.0237 (0.259)	−0.00180 (0.367)	−0.0226 (0.281)	−0.00214 (0.283)	−0.0268 (0.202)
GDP_per_capita	−0.0280*** (2.22e−05)	0.0500 (0.440)	−0.0275*** (3.05e−05)	0.0515 (0.429)	−0.0273*** (3.64e−05)	0.0537 (0.407)
Anti_Director_Rights	−0.0174*** (0.00444)	−0.222*** (0.000155)	−0.0168*** (0.00617)	−0.216*** (0.000219)	−0.0172*** (0.00494)	−0.220*** (0.000150)
Constant	0.458*** (1.30e−08)	5.053*** (7.92e−10)	0.453*** (1.90e−08)	5.066*** (1.00e−09)	0.453*** (2.02e−08)	5.071*** (6.86e−10)
Observations	24,980	24,980	24,980	24,980	24,980	24,980
Overall R-squared	0.0824	0.466	0.0813	0.467	0.0828	0.469
Between R-squared	0.124	0.535	0.122	0.536	0.123	0.537
Number of firms	4,022	4,022	4,022	4,022	4,022	4,022
Industry fixed effects	YES	YES	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES

Table 4.7: Robustness check: Alternative measure of structural social capital

The table reports regression results for the full sample incorporating alternative measures of structural social capital. In Columns 1, 3, 5 and 7 dependent variable is ROA and Tobin's Q in Columns 2, 4, 6 and 8. In all columns, the independent variable of interest is SSC_Total_Network_Size. All variables are defined in Appendix C. Heteroscedasticity-robust P-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q	(3) ROA	(4) Tobin's Q	(5) ROA	(6) Tobin's Q	(7) ROA	(8) Tobin's Q
RSC	0.000210*** (0.000166)	0.00254*** (7.06e-05)						
RSC_Adjusted			0.000177*** (6.71e-06)	0.00142*** (0.000966)				
ENV_Pillar					0.000114*** (0.00789)	0.00135*** (0.00580)		
Social_Pillar							0.000176*** (0.000196)	0.00213*** (2.47e-05)
SSC_Total_Network_size	-0.00521*** (0.00369)	0.0187 (0.291)	-0.00511*** (0.00432)	0.0209 (0.234)	-0.00502*** (0.00513)	0.0209 (0.236)	-0.00512*** (0.00428)	0.0197 (0.264)
Size	-0.00292 (0.388)	-0.578*** (0)	-0.00164 (0.612)	-0.557*** (0)	-0.00179 (0.591)	-0.564*** (0)	-0.00226 (0.498)	-0.571*** (0)
Leverage	-0.0167** (0.0333)	-0.369*** (3.31e-06)	-0.0171** (0.0290)	-0.375*** (2.43e-06)	-0.0170** (0.0302)	-0.373*** (2.79e-06)	-0.0170** (0.0302)	-0.372*** (2.71e-06)
MTB	0.00325*** (0)	0.0897*** (0)	0.00326*** (0)	0.0899*** (0)	0.00327*** (0)	0.0900*** (0)	0.00326*** (0)	0.0897*** (0)

[illegible]

[illegible]

4.4.3.3 Sub-sample Analysis

To further confirm the robustness of the baseline results, I re-estimate the baseline regression using two restricted samples created by excluding specific industries and markets. The first sub-sample analysis is conducted excluding the GICS based financial and utility industry. Financial and utility industries are different from other industries because of their unique asset structures, revenue generating processes and regulations (Cheng, Goh, & Kim, 2018). For example: section 8 of the Clayton antitrust act in the US prohibits any person from simultaneously serving as board director for competing corporations, otherwise known as an interlocking directorate. This regulation is generally not applied to banks, banking associations and trust companies or to firms that are not engaged in interstate commerce, such as those in the utility industry. As a result, a considerable number of potential interlocks among banks would not be affected by these provisions (Travers Jr, 1984). Inspired by the US law, Italian law also enacts separate regulations formulated for the financial industry (Baccini & Marroni, 2016). Such differences in regulations may result in differences in interlocking, which in turn may play a role in determining the size of directors' networks in these industries; thus influencing structural social capital-related outcomes. In addition, the financial industry has unique ethical standards that represent organised restrictions and fundamental ideologies such as integrity, fair conduct, respect and transparency in the market. Differences in codes of ethics may influence stakeholder trust, with consequences for relational social capital (Tulcanaza-Prieto, Shin, Lee, & Lee, 2020). To avoid this unintended impact, a sub-sample is created excluding 3,358 observations of financial and 1,247 observations of utility industries. Columns 1 and 2 of Table 4.8 present the results, indicating that all coefficients for the main independent variables are statistically significant at the 1% level, with the exception that structural social capital is not significant for Tobin's Q. These results are quantitatively and qualitatively in

harmony with the primary regression results. Therefore, it can be inferred that the influence of social capital is not driven by any particular industry.

In addition to this industry-based sub-sample, another sub-sample test is conducted using a non-US sample. Although the international sample contains data from 30 countries across the world, around 40.52% of the total observations are derived from the US market. Thus, a restricted sample analysis is incorporated to confirm that the results are not biased by the US sample. The coefficients of regressions are shown in Columns 3 and 4 of Table 4.8. The results related to relational social capital do not differ from the main findings. This implies that the association between relational social capital and firm performance is not driven by the US sample alone, which confirms the global validity of the relationship.

Interestingly, the results from the baseline regression do not hold in terms of structural social capital. Although the coefficients are qualitatively similar, SSC produces statistically insignificant results when US observations are excluded. This finding empirically suggests that the negative influence of structural social capital can only be attributed to the US market and may not apply to the other countries in the sample. Thus, for testing country-level contingencies that determine the direction and magnitude of the social capital–firm performance nexus, only relational social capital is considered for the remainder of the chapter.

Table 4.8: Robustness check: Sub-sample analysis

The table reports regression results for sub-sample analyses. Columns 1 and 2 show results using a sub-sample excluding financial and utility industries. Columns 3 and 4 show results using a non-US sub-sample. In Columns 1 and 3, the dependent variable is ROA and in Columns 2 and 4, it is Tobin's Q. The independent variables of interest are RSC and SSC in all models. All variables are defined in Appendix C. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

VARIABLES	Without finance & utility		Non-US sub-sample	
	(1)	(2)	(3)	(4)
	ROA	Tobin's Q	ROA	Tobin's Q
RSC	0.000184*** (0.00527)	0.00244*** (0.00107)	0.000224*** (0.000797)	0.00150** (0.0476)
SSC	-0.00672*** (0.00143)	0.00104 (0.962)	-0.00200 (0.271)	0.0172 (0.368)
Size	0.00448 (0.285)	-0.590*** (0)	-0.0151*** (2.31e-05)	-0.517*** (0)
Leverage	-0.0196** (0.0309)	-0.526*** (5.79e-10)	-0.00842 (0.358)	-0.297*** (0.00241)
MTB	0.00323*** (0)	0.0889*** (0)	0.00678*** (0)	0.0988*** (0)
Sales_Growth	0.0129*** (7.62e-05)	0.139*** (5.67e-08)	0.0165*** (1.76e-06)	0.0815*** (0.00145)
Board_Size	-0.000930** (0.0257)	0.00440 (0.260)	-0.000672* (0.0515)	0.00246 (0.431)
CEO_Duality	0.00405* (0.0506)	0.0111 (0.624)	0.000506 (0.819)	0.0185 (0.435)
CEO_Board_Member	-0.00536 (0.169)	-0.00609 (0.880)	-0.00271 (0.445)	-0.0143 (0.705)
Board_Independence	-0.00202 (0.391)	-0.0304 (0.214)	-0.00200 (0.336)	-0.0180 (0.397)
GDP_per_capita	-0.0359*** (7.18e-06)	0.0354 (0.648)	-0.0241*** (0.00115)	-0.144** (0.0491)
Anti_Director_Rights	-0.0228*** (0.00170)	-0.277*** (7.68e-05)	-0.0178*** (0.00245)	-0.225*** (0.000109)
Constant	0.535*** (3.83e-08)	5.748*** (5.54e-09)	0.472*** (6.27e-08)	6.923*** (0)
Observations	20,375	20,375	14,858	14,858
Overall R-squared	0.0878	0.439	0.179	0.473
Between R-squared	0.140	0.508	0.210	0.555
Number of firms	3,272	3,272	2,209	2,209
Industry fixed effects	YES	YES	YES	YES

VARIABLES	Without finance & utility		Non-US sub-sample	
	(1)	(2)	(3)	(4)
	ROA	Tobin's Q	ROA	Tobin's Q
Country fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES

4.4.4 Moderating Effects of Country-level Variables

4.4.4.1 Country-level Social Capital

As discussed earlier, two plausible but competing theories can explain the direction of the moderating effect of country-level social capital on the social capital–performance link. According to Putnam's proposition, firm-level relational social capital will generate higher value in a high social capital environment and this proposition is in line with cultural conformity theory. In contrast, 'direct value' theory predicts that higher country-level social capital will weaken the positive relational social capital–performance link. Columns 1 and 2 of Table 4.9 displays regression results that include the moderating effect of country-level social capital. Consistent with previous findings, the coefficient of RSC is positive and significant at the 1% level. Also of particular interest is the individual coefficient for the Country Social Capital variable, which is significantly positive at 5% in terms of ROA but not significant for Tobin's Q. This highlights that firms generate higher accounting performance in countries where an overall high level of social capital or trust prevails. This notion is consistent with previous studies (Goergen et al., 2013; Knack & Keefer, 1997; Zak & Knack, 2001) showing that a high-trust environment fosters investment and reduces monitoring costs.

The coefficient of the interaction term $RSC \times \text{Country_Social_Capital}$ is positive and statistically significant at 5% for ROA and at 1% for Tobin's Q. In support of the cultural conformity theory, these results imply that firm-level relational social capital is more beneficial to a firm's economic performance in high social capital countries. This empirical finding also lends credence to the idea that a high social capital environment has a set of stakeholders who

are naturally more accommodating and responsive towards CSR, which helps firms to reap greater financial benefits from their engagement in social capital building activities through social efforts. This outcome is fundamentally consistent with the stream of literature demonstrating that regional social capital has a substantial positive role to play in moderating the effect of firm-level trust on performance (Hoi et al., 2018; Lins et al., 2017).

Table 4.9: The moderating effect of country-level social capital on the relational social capital–performance nexus

The table reports regression results for the full sample. In Column 1, the dependent variable is ROA and in Column 2 it is Tobin's Q. The independent variables of interest are RSC, Country_Social_Capital and their interaction. All variables are defined in Appendix C. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q
RSC	0.000208*** (0.000198)	0.00251*** (8.39e–05)
Country_Social_Capital	0.176** (0.0167)	0.356 (0.704)
RSC*Country_Social_Capital	0.00113** (0.0139)	0.00961* (0.0679)
SSC	–0.00538*** (0.00231)	0.0241 (0.189)
Size	–0.00336 (0.315)	–0.580*** (0)
Leverage	–0.0165** (0.0352)	–0.369*** (3.01e–06)
MTB	0.00325*** (0)	0.0897*** (0)
Sales_Growth	0.0118*** (2.84e–05)	0.107*** (4.25e–06)
CEO_Duality	0.00328* (0.0618)	0.00880 (0.649)
CEO_Board_Member	–0.00411 (0.208)	–0.0130 (0.703)
Board_Independence	–0.00195	–0.0249

Variable	(1) ROA	(2) Tobin's Q
	(0.330)	(0.236)
GDP_per_capita	−0.0292*** (1.11e−05)	0.0364 (0.572)
Anti_Director_Rights	−0.0141** (0.0281)	−0.209*** (0.000681)
Constant	0.456*** (9.53e−08)	5.367*** (6.22e−10)
Observations	24,980	24,980
Overall R-squared	0.0844	0.470
Between R-squared	0.125	0.538
Number of firms	4,022	4,022
Industry fixed effects	YES	YES
Country fixed effects	YES	YES
Year fixed effects	YES	YES

4.4.4.2 Moderating Effects of Contextual Factors

In this section, three contextual factors—namely the legal system, level of market development and country-level governance quality—are introduced as moderators and the empirical results are discussed.

4.4.4.2.1 Legal System

Columns 1 and 2 in Table 4.10 show the results for the moderating effect of the legal environment as measured by the country-wise legal system: civil or common law. In the main results, the coefficient of RSC is positive and significant at the 1% level for both ROA and Tobin's Q. The individual coefficient of Civil is also positive and statistically significant, suggesting that overall firms financially perform better under a civil legal regime. The coefficient of the interaction term between RSC and Civil is negative and statistically significant at 5% for ROA; however, the interaction term indicates an insignificant outcome in

terms of Tobin's Q. This result partially confirms the fourth hypothesis, lending support to salience theory that the legal environment moderates the association of relational social capital and firms' accounting performance in a way that the positive relationship is stronger in common law countries.

CSR is voluntary in common law countries but to some extent mandatory in civil law countries (Liang & Renneboog, 2017). Firms in civil law countries have a propensity to invest more in social activities, which raises the national CSR standard as per native stakeholders' expectations. In such a setting, it is quite difficult for firms to achieve salience through CSR engagement, as stakeholders underestimate firms' CSR performance. Conversely, firms in common law countries are able to send a valuable signal through CSR undertakings with a lesser effort. It helps them stand out and experience salience, ensuring a stronger influence on performance, as per the assumptions of salience theory.

Table 4.10: The moderating effect of legal system on the relational social capital–performance nexus

The table reports regression results for the full sample. In Column 1, the dependent variable is ROA and in Column 2, Tobin's Q. The independent variables of interest are RSC, Civil and their interaction. All variables are defined in Appendix C. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q
RSC	0.000272*** (2.26e–05)	0.00286*** (5.64e–05)
Civil	0.0497*** (0.00842)	0.130 (0.595)
Civil* RSC	–0.000240** (0.0194)	–0.00129 (0.332)
SSC	–0.00529*** (0.00276)	0.0247 (0.180)
Size	–0.00362 (0.279)	–0.581*** (0)

	(1)	(2)
Variable	ROA	Tobin's Q
Leverage	−0.0167** (0.0333)	−0.370*** (3.12e−06)
MTB	0.00324*** (0)	0.0897*** (0)
Sales_Growth	0.0118*** (3.03e−05)	0.107*** (4.66e−06)
Board_Size	−0.000767** (0.0155)	0.00271 (0.368)
CEO_Duality	0.00337* (0.0545)	0.00940 (0.627)
CEO_Board_Member	−0.00448 (0.170)	−0.0158 (0.649)
Board_Independence	−0.00195 (0.331)	−0.0252 (0.230)
GDP_per_capita	−0.0289*** (1.37e−05)	0.0421 (0.518)
Anti_Director_Rights	0.00750 (0.564)	−0.155 (0.293)
Constant	0.388*** (7.92e−05)	5.130*** (6.84e−07)
Observations	24,980	24,980
Overall R-squared	0.0843	0.469
Between R-squared	0.125	0.538
Number of firms	4,022	4,022
Industry fixed effects	YES	YES
Country fixed effects	YES	YES
Year fixed effects	YES	YES

4.4.4.2.2 Level of Market Development

The regression results related to the moderating effect of level of market development are presented in Columns 1 and 2 of Table 4.11. The individual coefficient of RSC is negative and

significant at 5% level for ROA but insignificant in terms of Tobin's Q. This implies that the hypothesized positive influence of RSC on ROA turns out to be negative in emerging or non-developed countries. Unlike developed countries, emerging countries are featured with weak legal and institutional framework and stakeholders are relatively less sustainability sensitive (Fahad & Busru, 2021). As a result, any CSR attempt by the firms can be perceived as less credible and wastage of resources. Therefore, the CSR initiatives in form of relational social capital could be less likely to be translated in to trust and can negatively influence firm performance in emerging countries. This result is also supported by empirical studies that has been conducted in the context of emerging economy (Selcuk & Kiymaz, 2017). The individual coefficient of FTSE_Developed is weakly significant in terms of ROA at 10% but insignificant in terms of Tobin's Q. This result partially confirms that overall firm-level performance is higher in developed economies. Similarly, Collins (1990) found that firms operating in developed countries perform better than those functioning mainly in developing countries. Similar evidence is also provided by Christmann, Day and Yip (1999). I find positive and significant coefficients of the interaction between RSC and FTSE_Developed for both ROA (at 1%) and Tobin's Q (at 5%). This finding validates the fifth hypothesis that the positive relational social capital–performance link is moderated by the level of market development in such a way that it is stronger for firms operating in developed economies than in developing economies. This is consistent with the notion that developed countries have information efficiency that creates a more informed set of stakeholders who can promptly respond to any relational social capital-creating actions taken by firms. These findings also support the CSR literature (Wang & Qian, 2011; Q. Wang et al., 2016) by showing that firms functioning in advanced economies have a more pronounced effect of relational social capital on firm performance.

Table 4.11: The moderating effect of market development on the relational social capital–performance nexus

The table reports regression results for the full sample. In Column 1, the dependent variable is ROA and in Column 2, Tobin's Q. The independent variables of interest are RSC, FTSE_Developed and their interaction. All variables are defined in Appendix C. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q
RSC	−0.000283** (0.0220)	−0.000878 (0.618)
FTSE_Developed	0.0353* (0.0602)	0.133 (0.441)
FTSE_Developed* RSC	0.000543*** (3.43e−05)	0.00376** (0.0408)
SSC	−0.00544*** (0.00209)	0.0236 (0.198)
Size	−0.00339 (0.311)	−0.579*** (0)
Leverage	−0.0166** (0.0346)	−0.369*** (3.21e−06)
MTB	0.00324*** (0)	0.0896*** (0)
Sales_Growth	0.0118*** (3.02e−05)	0.107*** (4.68e−06)
CEO_Duality	0.00325* (0.0631)	0.00871 (0.652)
CEO_Board_Member	−0.00444 (0.174)	−0.0157 (0.650)
Board_Independence	−0.00194 (0.331)	−0.0250 (0.234)
GDP_per_capita	−0.0277*** (2.69e−05)	0.0484 (0.455)
Anti_Director_Rights	−0.0168*** (0.00579)	−0.217*** (0.000181)
Constant	0.438*** (8.65e−11)	5.182*** (0)

	(1)	(2)
Variable	ROA	Tobin's Q
Observations	24,980	24,980
Overall R-squared	0.0830	0.469
Between R-squared	0.124	0.537
Number of firms	4,022	4,022
Industry fixed effects	YES	YES
Country fixed effects	YES	YES
Year fixed effects	YES	YES

4.4.4.2.3 Country-level Governance

As a proxy for country-level governance, I use the WGI to measure national governance quality. The results for the moderating effect of additional contextual variable country-level governance quality are presented in Columns 1 and 2 of Table 4.12. I find that the direct effect of relational social capital on firm performance for both measures is in harmony with the primary results, although the individual coefficient for WGI is statistically insignificant. The moderating effect of WGI is positive and significant at the 5% level for ROA but insignificant for Tobin's Q. Thus, the testable prediction is partially supported that the country-level governance quality moderates the relational social capital–performance nexus. This result suggests that national governance quality fosters the positive influence of relational social capital on firm performance. This is understandable because a sound institutional environment makes social efforts more creditworthy for stakeholders. As a result, such efforts can easily translate to relational social capital that promotes trust and brings positive financial gain to firms.

Table 4.12: The moderating effect of country-level governance on the relational social capital–performance nexus

The table reports regression results for the full sample. In Column 1, the dependent variable is ROA and in Column 2, Tobin's Q. The independent variables of interest are RSC, WGI and their interaction.

All variables are defined in Appendix C. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q
RSC	0.000208*** (0.000190)	0.00250*** (9.09e-05)
WGI	0.00428 (0.680)	-0.0554 (0.615)
RSC*WGI	0.000214** (0.0185)	0.00168 (0.165)
SSC	-0.00540*** (0.00223)	0.0238 (0.195)
Size	-0.00333 (0.319)	-0.579*** (0)
Leverage	-0.0165** (0.0358)	-0.369*** (3.18e-06)
MTB	0.00325*** (0)	0.0896*** (0)
Sales_Growth	0.0118*** (3.07e-05)	0.107*** (4.62e-06)
CEO_Duality	0.00326* (0.0632)	0.00845 (0.661)
CEO_Board_Member	-0.00425 (0.193)	-0.0146 (0.672)
Board_Independence	-0.00204 (0.308)	-0.0254 (0.226)
GDP_per_capita	-0.0287*** (2.83e-05)	0.0551 (0.396)
Anti_Director_Rights	-0.0164*** (0.00707)	-0.218*** (0.000152)
Constant	0.480*** (4.67e-09)	5.265*** (1.98e-10)
Observations	24,980	24,980
Overall R-squared	0.0832	0.469
Between R-squared	0.124	0.537
Number of firms	4,022	4,022
Industry fixed effects	YES	YES

Variable	(1) ROA	(2) Tobin's Q
Country fixed effects	YES	YES
Year fixed effects	YES	YES

4.5 Conclusion

This study extends the social capital literature using the Nahapiet and Ghoshal (1998) framework where two distinct categories of social capital—namely relational and structural social capital—are considered. This chapter demonstrates that the influence of social capital on firm performance can be contingent on social capital's category and can vary across countries. The testable hypotheses are grounded in different competing theories. For structural social capital, resource dependence theory predicts that social capital will have a positive effect on firm efficiency, whereas agency theory predicts the opposite. In line with the principle of reciprocity, trust-based relational social capital predicts a positive relationship with firm performance. I test these competing propositions on a large panel of corporations consisting of 24,980 firm-year observations from 30 countries for the years 2005–18 and find contrasting evidence in terms of relational and structural social capital. The empirical outcomes suggest that relational social capital has a positive and statistically significant effect on both accounting and market-based firm performance measures. In contrast, structural social capital generates negative and relatively weakly significant results with regard to accounting performance but insignificant results for the market-based measure. This result generated from a global sample is consistent with the results obtained from the US sample reported in Chapter 3. The findings are robust to a battery of sensitivity tests. Additionally, the moderating effects of several country-level factors are examined. The findings related to the moderating effect of country-level factors reveal that the relationship between firm-level relational social capital and firms'

economic performance is stronger in countries where the country-level social capital is higher, the economy is developed, the institutional framework is robust and the legal system is common law. Overall, the findings indicate that relational social capital creates a strong trust base, which in turn rewards firms in terms of stronger performance. However, the effort that directors put into building their structural social capital seems to harm accounting performance. This clearly indicates that agency costs offset the rewards from a director's social network. This finding complements the recent literature on the social capital–corporate outcome nexus by reporting contradictory yet interesting findings. These findings have important implications for corporate policy makers, shareholders and other stakeholders in relation to corporate-level policy formulation, in terms of them determining the level of each class of social capital the firms want to maintain for the purposes of achieving the best performance. Moreover, the cross-country variation detected in the value relevance of social capital can provide useful insights for international managers. In the real world, national trust level along with other contextual factors often determine the way organisations around the world make judgements, leading to decisions that may diverge from optimal practice in systematic or geographically anticipated ways. Therefore, an international manager may be keen to identify how these incorporeal issues matter in high-stakes corporate decisions in a globalised environment.

Chapter 5:

Conclusion

5.1 Overview

Over the last decade, the concept of social capital has emerged as an important aspect of the contemporary social sciences (Knack & Keefer, 1997; Woolcock, 1998). Recently, finance researchers are also developing keenness to learn about different financial outcomes of corporate social capital upon realising its value implications. Nevertheless, the literature provides conflicting theoretical and empirical evidence, in terms of social capital's effect on firm performance. Scrivens and Smith (2013) suggest that these mixed empirical findings result from inconsistent measurement strategies for the key firm-level social capital variable. Previous studies lack a robust, comprehensive and uniform tool to measure social capital. Moreover, they either exclusively focus on structural measures, or adopt only the relational approach to measure social capital. Failing to measure firm-level social capital by considering both concepts simultaneously may be a potential reason for variation in results. Further, in an international setting, country-level factors may be partially responsible for variation in the social capital–firm performance relationship. To reconcile the inconsistencies in the literature, this study focused on the following specific objectives:

1. to develop comprehensive measures of firm-level social capital applying both relational and structural concepts
2. to investigate the effects of relational and structural social capital on firm performance and identify whether these effects differ
3. to examine the impact of country-level social capital and various country contextual factors in moderating the relationship between relational social capital and firm performance.

The remainder of the chapter is organised as follows. Section 5.2 presents a synopsis of the key findings. The chapter closes with a section that identifies the limitations of the study and avenues for future research.

5.2 Synopsis of Major Findings

The first empirical study inspects the effect of two broad classes of firm-level social capital, measured by relational and structural concepts, on firm performance. Using a sample of 10,122 firm–year observations from 1,813 unique US corporations for the years 2005–18, I find that relational social capital has a positive and statistically significant influence on both accounting and market-based performance measures. Conversely, structural social capital exerts a negative and comparatively weak influence in terms of accounting performance, but this is not statistically significant for the market performance measure. Supporting the principle of reciprocity, the findings suggest that the presence of CSR-based relational social capital can be favourable to firm value. In contrast, conforming to agency theory, directors’ profuse social connections in the form of structural social capital appears to hurt their firms’ financial performance. The robustness of the main results is validated through a number of sensitivity tests. First, to address the omitted variable bias, the additional control variables capital expenditures and capital intensity are incorporated into the base regression model and the main results are found to be unaltered by this change. The findings of the study are also robust to alternative social capital measurements, sub-sample analyses and a test for endogeneity conducted through change specification analysis. In short, the empirical results of the first study, reported in Chapter 3, are consistent with the prediction that the extent and direction of the relationship between social capital and firms’ economic performance may vary depending on the dimension of social capital.

The second empirical study examines the same association in a cross-country context. By using a sizable international sample comprised of 24,980 firm–year observations from 30 countries for the years 2005–18, this study attempted to test how the effect of social capital on firm performance is conditional on its category and how it differs across countries. Consistent with the first study’s findings, the results of this investigation suggest that relational social capital has a positive and statistically significant effect on performance whereas structural social capital produces negative outcomes with regard to accounting performance but insignificant results for the market-based measure. These findings are also substantiated by a series of robustness tests. The study is extended by testing the moderating effects of several country-level factors on the relationship of relational social capital and firm performance. The finding from the moderating analysis related to country level social capital supports the conformity theory by showing that the positive influence of relational social capital on firm performance is stronger in high social capital countries. The country level contextual factors also significantly moderate the relational social capital-performance association. The relationship is found to be more prominent in common law countries, which is consistent with the idea of salience theory. I also found that countries with robust country level governance and developed capital market experience a relatively stronger influence of relational social capital on firms’ economic performance.

As a whole, the findings of this thesis complement the recent literature on the social capital–corporate finance outcome link by documenting interesting, category-contingent findings. The resulting inferences indicate that to completely capture and understand the influence of social capital on firms’ financial outcomes, it is necessary to think beyond the broader umbrella of social capital and more closely examine its type.

5.3 Limitations and Future Research Opportunity

The infancy of the social capital literature might have created potential limitations for this thesis, which at the same time reveals opportunities for future research. First, this thesis exclusively applies Nahapiet and Ghoshal's (1998) framework to identify the dynamics of social capital. The framework incorporates three dimensions of social capital: relational, structural and cognitive. However, the scope of this thesis is limited to the first two constructs. The third category, labelled the 'cognitive dimension' is indicated as a set of resources that provide a shared platform to foster collective goals, shared culture and a common vision for the members of an organisation (Nahapiet & Ghoshal, 1998). Scrutinising its nature suggests it is conceivable that quantifying cognitive social capital would be problematic. Previous researchers (Tsai & Ghoshal, 1998) have attempted to gauge components such as shared vision by employing a Likert scale as an assessment tool to collect survey responses from primary respondents. As this study relies on secondary data, I consider only firm-level relational and structural social capital to assess their influence on firm performance. Future researchers might consider including firm-level cognitive dimensions, which are yet to gain considerable attention in the mainstream social capital literature but whose significance is confirmed by scholars (Conner & Prahalad, 1996; Grant, 1996).

Second, the structural social capital measure used in thesis is the size of a social network that represents the total number of individuals with whom the directors/executives of a firm share a common education, employment or social history. My thesis considers an aggregate measure of directors' formal and informal networks. However, it is plausible that structural social capital may originate from diverse sources, including directors' common academic or similar employment circumstances, or shared social background. Hence, the effect of each source of structural social capital on firm performance may not be identical. For example, Cohen et al.

(2008) demonstrates that people who attend the same educational institutions often retain a higher level of interaction and a long-term relationship relative to other acquaintances, and are more homophilous (Kalmijn & Flap, 2001). Studies also identify meaningful connection between investment choices and educational networks (Cohen et al., 2008; Massa & Simonov, 2005). Additionally, evidence indicates that educational networks elevate effective interactions as their connections are based on value sharing and bonding (Massa & Simonov, 2004). Therefore, future research could consider segregating structural social capital by its source to deepen understanding of the effects of structural social capital.

Third, in relation to the second empirical study, there may be more country-level contingency factors that potentially moderate the relational social capital–performance connection. Among others, national culture could be treated as such a moderator. National culture is recognised as a fundamental determinant of differences among individuals and organisations (Hofstede, 1980). In a global study involving 3,753 firms from 43 countries, Sun, Yoo, Park and Hayati (2018) find that CSR has a positive effect on firm performance, but this effect is weaker for firms located in indulgent cultures, where a society allows free gratification of elementary needs and defies strict social norms. Conversely, in an uncertainty-avoiding society, relational social capital accumulated through CSR activities is likely to be a valuable resource as it can reduce environmental uncertainty for firms (Peng, Dashdeleg, & Chih, 2012). This provides future researchers a window to explore cultural differences as a means to advance understanding of contingency factors that drive the influence of relational social capital on firm performance.

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Appendices

Appendix A: Chapter 3 Variable Definitions and Additional Test Results

Variable	Description	Source
Firm Performance		
ROA	Net income before extraordinary items and preferred dividends divided by total assets	Worldscope
Tobin's Q	Sum of market value of equity, preferred stock and long-term debt divided by total assets	Worldscope, calculation
Social Capital		
RSC	Relational social capital measured as overall CSR score for weighted average performance on the environmental and social dimensions of ESG. This measure ranges from 0 to 100.	ASSET4 ESG, calculation
SSC	Structural social capital measured as director network size. Firm-level average of the number of individuals with whom the selected director/executive overlaps while in employment, education or other activities at the same company, organisation, or institution each year, estimated as 1 plus natural logarithm of this number.	BoardEx, calculation
RSC_Adjusted	The RSC score adjusted for the aggregate controversy scores calculated from the number of controversies across 17 categories.	ASSET4 ESG, calculation
ENV Pillar	The environmental pillar measures a company's impact on living and non-living natural systems, including air, land and water, as well as complete ecosystems. It reflects how well a company uses best management practices to minimise environmental risks and capitalise on environmental opportunities to generate long-term shareholder value. This measure ranges from 0 to 100.	ASSET4 ESG, calculation
Social Pillar	The social pillar measures a company's capacity to generate trust and loyalty with its workforce, customers and society, through its use of best management practices. It is a reflection of the company's reputation and the health of its license to operate, which are key factors in determining its ability to generate long-term shareholder value. This measure ranges from 0 to 100.	ASSET4 ESG, calculation

Financial Control variables		
Size	Logarithm of firm total assets	Worldscope
Leverage	Total debt divided by total assets of the company	Worldscope
MTB	Market value of equity over book value of common equity	Worldscope
Sales_Growth	Ratio of total sales to lagged total sales	Worldscope
Governance Control variables		
Board_Size	Number of the directors serving on the board	BoardEx
Board_Independence	Dummy variable equal to 1 if the company strives to maintain a well-balanced board through an adequate number of independent board members; 0 otherwise	ASSET4 ESG
CEO_Duality	Dummy variable equal to 1 if the CEO is also the board chair; 0 otherwise	ASSET4 ESG
CEO_Board_Member	Dummy variable equal to 1 if the CEO is also a board member; 0 otherwise	ASSET4 ESG
Additional Control variables		
CAPEX	Capital expenditure estimated as ratio of capital expenditures to total assets	Worldscope
Capital_Intensity	Ratio of total assets to sales revenue	Worldscope

Table A1: Correlation Analysis

This table represents the pairwise correlation matrix along with significance level. *, **, *** denote significance at the 10%, 5% and 1% level, respectively.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) RSC	1.000											
(2) SSC	0.458***	1.000										
(3) Size	0.522***	0.382***	1.000									
(4) Leverage	0.059***	0.067***	0.130***	1.000								
(5) MTB	0.036***	0.110***	-0.195***	0.118***	1.000							
(6) Sales_growth	-0.073***	-0.029***	-0.121***	-0.059***	0.127***	1.000						
(7) Board_Size	0.374***	0.265***	0.578***	0.006	-0.090***	-0.103***	1.000					
(8) CEO_Duality	0.098***	0.003	0.144***	-0.024**	0.004	-0.036***	0.098***	1.000				
(9) CEO_Board_Member	0.059***	0.083***	0.029***	-0.019*	-0.001	0.008	0.040***	0.062***	1.000			
(10) Board_Independence	0.179***	0.175***	0.123***	0.068***	-0.024**	-0.064***	0.103***	0.010	0.014	1.000		
(11) Tobin's Q	-0.018*	0.045***	-0.413***	-0.138***	0.570***	0.176***	-0.234***	-0.023**	-0.009	-0.063***	1.000	
(12) ROA	0.111***	0.026***	0.046***	-0.037***	0.153***	-0.069***	0.030***	0.089***	-0.028***	-0.019*	0.236***	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix B: Construction Methodology for RSC and Controversy-adjusted RSC (RSC_Adjusted)

Source: TR (Refinitiv) ESG Scores Handbook (Thomson Reuters, 2019)

Construction of relational social capital

The independent variable RSC is based on ESG scores developed by TR, which describes the fundamental details of the ESG scores in its handbook (Thomson Reuters, 2019, p.5-7) in the following way:

TR ESG scores company's ESG performance based on reported data in the public domain. It captures and calculates over 400 company level ESG data points, of which TR carefully selected a subset of 178 most comparable and relevant fields to power the overall company assessment and scoring process. They are grouped into 10 categories (emissions, environmental product innovation, human rights, shareholders, etc.). A combination of the 10 categories, weighted proportionately to the count of measures within each category, formulates the three pillar scores and the final ESG score, which is a reflection of the company's ESG performance, commitment and effectiveness based on publicly reported information. The category scores are rolled up into three pillar scores—environmental, social and corporate governance. The underlying measures are based on considerations around comparability, data availability and industry relevance. For a measure to be included in the model the decision rule was expecting to see at least 5% of the companies for which the issue is relevant to report on it, else the data point will not be included in the model of 400+ data items. Since the scoring methodology is relative to a benchmark of peer companies, TR has ensured the measures that make up the scoring are all comparable. This results in 178 comparable measures that make up the 10 ESG category scores and the overall ESG score.

The relational social capital measure used in this thesis is manually calculated based on the individual ESG category scores. However, it differs from the original built-in downloadable overall ESG score available in the ASSET4 ESG database. The original ESG score is calculated from all 10 ESG categories and categories are subsequently grouped into three pillars. Instead of considering all 10 categories, for the variable in question, RSC, only relevant ESG category scores are used. Thus, only categories closely related to CSR activities are taken into consideration. Consequently, the category weights are also re-estimated. This means that the ESG score represented by RSC is calculated considering eight category scores comprised of 132 data points instead of all 178. The RSC variable is the weighted average of the eight relevant category scores. The category scores are the percentile ranks for each relevant category. Table B1 lists the ESG categories along with definitions and inclusion status for the RSC variable.

Table B1: TR's ESG category scores (Thomson Reuters, 2019, p.16)

Score	Inclusion Status in RSC	Relevant Pillar	Definition
TR ESG Resource Use Score	Included	Environment	The Resource Use Score reflects a company's performance and capacity to reduce the use of materials, energy or water and to find more eco-efficient solutions by improving supply chain management.
TR ESG Emissions Score	Included	Environment	The Emission Reduction Score measures a company's commitment and effectiveness in reducing environmental emissions in the production and operational processes.
TR ESG Innovation Score	Included	Environment	The Innovation Score reflects a company's capacity to reduce the environmental costs and burdens for its customers, thereby creating new market opportunities through new environmental technologies and processes or eco-designed products.
TR ESG Workforce Score	Included	Social	The Workforce Score measures a company's effectiveness towards job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce.
TR ESG Human Rights Score	Included	Social	The Human Rights Score measures a company's effectiveness in respecting the fundamental human rights conventions.
TR ESG Community Score	Included	Social	The Community Score measures the company's commitment to being a good citizen, protecting public health and respecting business ethics.

Score	Inclusion Status in RSC	Relevant Pillar	Definition
TR ESG Product Responsibility Score	Included	Social	The Product Responsibility Score reflects a company's capacity to produce quality goods and services integrating the customers' health and safety, integrity and data privacy.
TR ESG CSR Strategy Score	Included	Governance	The CSR Strategy Score reflects a company's practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes.
TR ESG Management Score	Not included	Governance	The Management Score measures a company's commitment and effectiveness towards following best practice corporate governance principles.
TR ESG Shareholders Score	Not included	Governance	The Shareholders Score measures a company's effectiveness towards equal treatment of shareholders and the use of antitakeover devices.

Construction of controversy-adjusted relational social capital

The alternative measure of relational social capital is the controversy-adjusted RSC score (RSC_Adjusted) calculated by incorporating the ESG controversies overlay collected from worldwide media sources.

TR describes the ESG controversies scores in their handbook (Thomson Reuters, 2019, p.7) in the following way:

The ESG controversies score is calculated based on 23 ESG controversy topics. During the year, if a scandal occurs, the company involved is penalized and this affects their overall ESG combined score and grading. The impact of the event may still be seen in the following year if there are new developments related to the negative event, for example lawsuits, ongoing legislation disputes or fines. All new media materials are captured as the controversy progresses. The main objective of this score is to discount the ESG performance score based on negative media stories. It does this by incorporating the impact of significant, material ESG controversies in the overall ESG combined Score. When companies were involved in ESG controversies, the ESG combined score is calculated as the weighted average of the ESG

scores and ESG controversies score per fiscal period, with recent controversies reflected in the latest complete period. When companies were not involved in ESG controversies, the ESG combined score is equal to the ESG score.

There are built-in downloadable scores known as the TR ESG combined (ESGC) score and ESG controversy score. To be consistent with previous calculations of RSC, I calculate a tailored controversies score to subsequently develop the controversy-adjusted RSC variable (RSC_Adjusted), which is comparable to the ESGC score. In my calculated controversy score, similar to the previous procedure for RSC calculation, 17 categories of controversy are considered out of the total 23. The exclusion of six controversy categories is consistent with the construction methodology for the original RSC variable. The sum of all controversy scores is then converted to a percentile score based on other firms' controversy statuses; thus, a firm-year controversy score is obtained. This tailor-made controversy score is then compared and adjusted to the calculated RSC score to compute the controversy-adjusted RSC (RSC_Adjusted). The adjustment is executed based on the decision rule suggested by TR. Table B2 presents the controversy measures along with their definition, related category and inclusion status in the RSC_Adjusted variable.

Table B2: TR's ESG controversy scores (Thomson Reuters, 2019, p.17)

Category	Controversy score	Definition	Inclusion status in RSC_Adjusted
Community	Anti-Competition Controversy	Number of controversies published in the media linked to anticompetitive behaviour (e.g., antitrust and monopoly), price-fixing or kickbacks	Included
Community	Business Ethics Controversies	Number of controversies published in the media linked to business ethics in general, political contributions or bribery and corruption	Included
Community	Intellectual Property Controversies	Number of controversies published in the media linked to patents and intellectual property infringements	Included

Category	Controversy score	Definition	Inclusion status in RSC_Adjusted
Community	Critical Countries Controversies	Number of controversies published in the media linked to activities in critical, undemocratic countries that do not respect fundamental human rights principles	Included
Community	Public Health Controversies	Number of controversies published in the media linked to public health or industrial accidents harming the health and safety of third parties (non-employees and non-customers)	Included
Community	Tax Fraud Controversies	Number of controversies published in the media linked to tax fraud, parallel imports or money laundering	Included
Human Rights	Child Labor Controversies	Number of controversies published in the media linked to use of child labour issues	Included
Human Rights	Human Rights Controversies	Number of controversies published in the media linked to human rights issues	Included
Product Responsibility	Consumer Controversies	Number of controversies published in the media linked to consumer complaints or dissatisfaction directly linked to the company's products or services	Included
Product Responsibility	Controversies Customer Health & Safety	Number of controversies published in the media linked to customer health and safety	Included
Product Responsibility	Controversies Privacy	Number of controversies published in the media linked to employee or customer privacy and integrity	Included
Product Responsibility	Controversies Product Access	Number of controversies published in the media linked to product access	Included
Product Responsibility	Controversies Responsible Marketing	Number of controversies published in the media linked to the company's marketing practices, such as over-marketing of unhealthy food to vulnerable consumers	Included
Product Responsibility	Controversies Responsible R&D	Number of controversies published in the media linked to responsible R&D	Included
Resource Use	Environmental Controversies	Number of controversies related to the environmental impact of the company's operations on natural resources or local communities	Included
Workforce	Diversity and Opportunity Controversies	Number of controversies published in the media linked to workforce diversity and opportunity (e.g., wages, promotion, discrimination and harassment)	Included
Workforce	Employee Health & Safety Controversies	Number of controversies published in the media linked to workforce health and safety	Included
Workforce	Wages or Working Condition Controversies Count	Number of controversies published in the media linked to the company's relations with employees or relating to wages or wage disputes	Not included

Category	Controversy score	Definition	Inclusion status in RSC_Adjusted
Workforce	Management Departures	Has an important executive management team member or a key team member announced a voluntary departure (other than for retirement) or been ousted?	Not included
Management	Mgt Compensation Controversies Count	Number of controversies published in the media linked to high executive or board compensation	Not included
Shareholders	Accounting Controversies Count	Number of controversies published in the media linked to aggressive or non-transparent accounting issues	Not included
Shareholders	Insider Dealings Controversies Count	Number of controversies published in the media linked to insider dealings and other share price manipulations	Not included
Shareholders	Shareholder Rights Controversies Count	Number of controversies published in the media linked to shareholder rights infringements	Not included

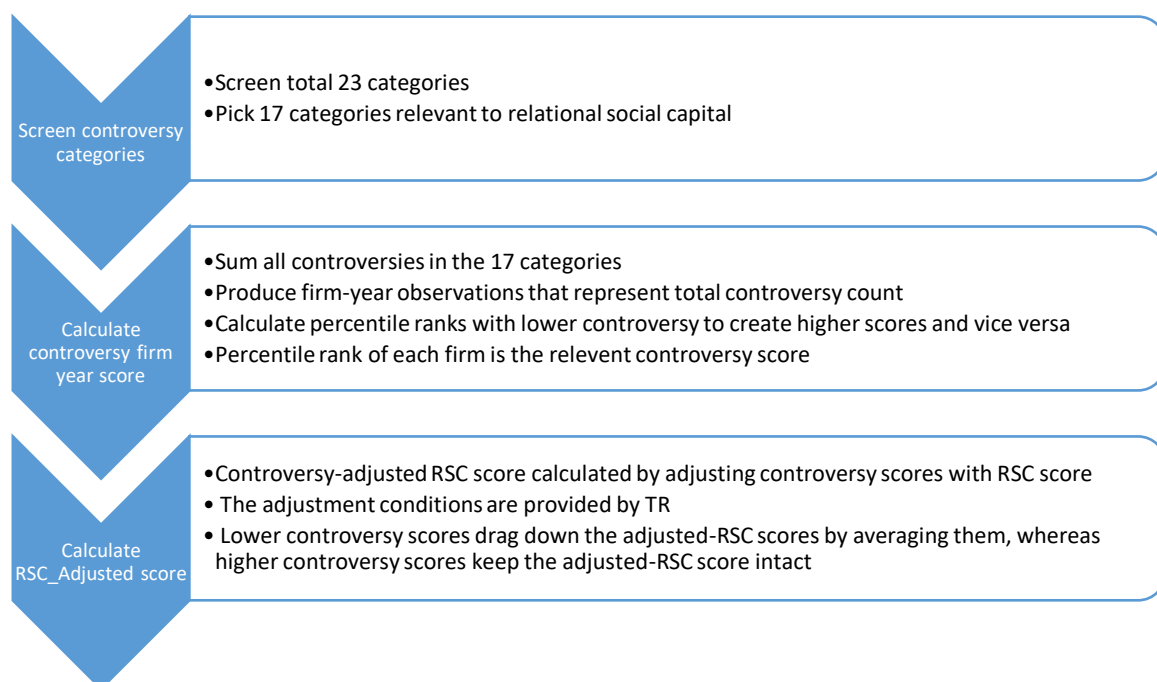


Figure B1: The process for calculating controversy-adjusted RSC (RSC_Adjusted)

Appendix C: Chapter 4 Variable Definitions and Additional Test Results

Variable name	Description	Source
Firm Performance		
ROA	Net income before extraordinary items and preferred dividends divided by total assets	Worldscope
Tobin's Q	Sum of market value of equity, preferred stock and long-term debt divided by total assets	Worldscope, calculation
Social Capital		
RSC	Relational social capital measured as overall CSR score on the weighted average performance of environmental and social dimensions from the ESG pillar. This measure ranges from 0 to 100.	ASSET4 ESG, calculation
SSC	Structural social capital measured as director network size. Firm-level average of the number of individuals with whom the selected director/executive overlaps while in employment, education or other activities at the same company, organisation or institution each year, estimated as 1 plus natural logarithm of this number.	BoardEx, calculation
RSC_Adjusted	The RSC score adjusted for the aggregate controversy score calculated from the number of controversies across 17 categories.	ASSET4 ESG, calculation
ENV Pillar	The environmental pillar measures a company's impact on living and non-living natural systems, including air, land and water, as well as complete ecosystems. It reflects how well a company uses best management practices to avoid environmental risks and capitalise on environmental opportunities to generate long-term shareholder value. This measure ranges from 0 to 100.	ASSET4 ESG, calculation
Social Pillar	The social pillar measures a company's capacity to generate trust and loyalty with its workforce, customers and society, through its use of best management practices. It is a reflection of the company's reputation and the health of its license to operate, which are key factors in determining its ability to generate long-term shareholder value. This measure ranges from 0 to 100.	ASSET4 ESG, calculation
Financial Control variables		
Size	Logarithm of firm total assets	Worldscope
Leverage	Total debt divided by total assets of the company	Worldscope
MTB	Market value of equity over book value of common equity	Worldscope
Sales_Growth	Ratio of total sales to lagged total sales	Worldscope
Governance Control variables		

Board_Size	Number of the directors serving on the board	BoardEx
Board_Independence	Dummy variable equal to 1 if the company strives to maintain a well-balanced board through an adequate number of independent board members; 0 otherwise	ASSET4 ESG
CEO_Duality	Dummy variable equal to 1 if the CEO is also a board chair; 0 otherwise	ASSET4 ESG
CEO_Board_Member	Dummy variable equal to 1 if the CEO is also a board member; 0 otherwise	ASSET4 ESG
Country-level Control variables		
GDP_Per_Capita	Natural logarithm of Gross Domestic Product per capita	World Bank
Anti_Director Rights	Index measuring shareholder rights of a country, ranging from 0 to 5	La Porta et al. (1998)
Additional Control variables		
CAPEX	Capital expenditure estimated as ratio of capital expenditures to total assets	Worldscope
Capital_Intensity	Ratio of total assets to sales revenue	Worldscope
Liquidity	Current ratio calculated as ratio of total current assets to total current liabilities	Worldscope
OCF	Net cash flow from operating activities scaled by total sales	Worldscope
Employees	Natural logarithm of total number of employees	Worldscope
Moderators		
Country_Social_Capital	Responses to the survey question, ‘Generally speaking, would you say that most people can be trusted, or that you can’t be too careful in dealing with people?’ Country-level social capital for each country is the percentage of respondents replying, ‘most people can be trusted’. Calculated as average of the last two surveys (2005-09 & 2010-14).	WVS Website
Civil	National legal system. A dummy indicator valued at 1 if the country is a civil law one; 0 otherwise	La Porta et al. (1998)
FTSE_Developed	Market development classification provided by FTSE Dummy indicator valued at 1 if the country is a developed one; 0 otherwise	FTSE website
WGI	World Governance Indicators measuring country-level governance. Average of six dimensions of WGI: voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption	World Bank

Table C1: Correlation Analysis

This table represents the pairwise correlation matrix along with significance level. *, **, *** denote significance at the 10%, 5% and 1% level, respectively.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) RSC	1.000													
(2) SSC	0.172***	1.000												
(3) Size	0.503***	0.202***	1.000											
(4) Leverage	0.045***	0.020***	0.145***	1.000										
(5) MTB	-0.019***	0.137***	-0.194***	0.037***	1.000									
(6) Sales_Growth	-0.091***	0.008	-0.084***	-0.038***	0.101***	1.000								
(7) Board_Size	0.349***	0.009	0.561***	0.050***	-0.087***	-0.076***	1.000							
(8) CEO_Duality	-0.012*	0.102***	0.130***	0.010	0.058***	-0.014**	0.090***	1.000						
(9) CEO_Board_Member	-0.101***	0.213***	-0.059***	-0.010*	0.057***	0.033***	-0.032***	0.208***	1.000					
(10) Board_Independence	0.013**	0.269***	0.049***	0.052***	0.045***	-0.001	-0.040***	0.151***	0.118***	1.000				
(11) GDP_per_capita	-0.060***	0.215***	-0.036***	-0.034***	0.005	0.013**	-0.179***	0.092***	0.001	0.196***	1.000			
(12) Anti_Director_Right	-0.203***	0.388***	-0.151***	-0.018***	0.112***	0.050***	-0.201***	0.191***	0.533***	0.176***	0.082***	1.000		
(13) Tobin's Q	-0.085***	0.082***	-0.384***	-0.126***	0.605***	0.110***	-0.191***	0.052***	0.045***	0.031***	-0.010	0.109***	1.000	
(14) ROA	0.070***	0.014**	0.000	-0.031***	0.210***	-0.013**	0.009	0.049***	-0.015**	-0.035***	-0.098***	0.027***	0.304***	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table C2: The moderating effect of structural social capital on the relational social capital–performance nexus

The table reports regression results for the full sample. In Column 1, the dependent variable is ROA and in Column 2 it is Tobin's Q. The independent variables of interest are RSC, SSC and their interaction. All variables are defined in Appendix C. Heteroscedasticity-robust *p*-values are in parentheses. The symbols ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

Variable	(1) ROA	(2) Tobin's Q
RSC	0.0002*** (0.0003)	0.0025*** (0.0001)
SSC	-0.0043** (0.0158)	0.0346* (0.0540)
RSC*SSC	0.0003*** (0.0000)	0.0025*** (0.0004)
Size	-0.0041 (0.2230)	-0.5864*** (0.0000)
Leverage	-0.0164** (0.0374)	-0.3670*** (0.0000)
MTB	0.0032*** (0.0000)	0.0896*** (0.0000)
Sales_Growth	0.0118*** (0.0000)	0.1073*** (0.0000)
CEO_Duality	0.0032* (0.0720)	0.0076 (0.6938)
CEO_Board_Member	-0.0047 (0.1523)	-0.0183 (0.5970)
Board_Independence	-0.0017 (0.4021)	-0.0222 (0.2919)
GDP_per_capita	-0.0282*** (0.0000)	0.0441 (0.4951)
Anti_Director_Rights	-0.0173*** (0.0046)	-0.2208*** (0.0001)
Constant	0.4402*** (0.0000)	5.5934*** (0.0000)
Observations	24,980	24,980
Overall R-squared	0.0864	0.4710
Between R-squared	0.1270	0.5380
Number of firms	4,022	4,022
Industry fixed effects	YES	YES
Country fixed effects	YES	YES
Year fixed effects	YES	YES