INDUSTRIAL ORGANIZATION, LAW AND FINANCE

THREE ESSAYS IN

INDUSTRIAL ORGANIZATION, LAW AND FINANCE

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Abstract

This thesis explores three important topics spanning international asset pricing, empirical capital structure, U.S. politics, and corporate law: relationship-specific investment (RSI), contracting environment and financial performance; RSI, contracting environment and the choice of capital structure; and political value and SEC enforcement actions.

Firms that engage in long-term bilateral relationships with their buyers or suppliers are usually required to make relationship-specific investments. We examine how the values of these long-term specific investments are affected by the quality of governmental contract enforcement. We find that firms in relationship-specific industries have higher valuations, measured by Tobin's Q, when their countries of origin are able to strongly enforce contractual agreements. Our finding is robust to a variety of empirical specifications and regression methods. We also show that as legal quality improves, firms with relationship-specific investments exhibit lower operating performance, presumably due to risk or in order to motivate further investments from their stakeholders. Further analysis of the cross-section of stock returns supports a risk-based explanation.

Firms in long-term bilateral relationships with their customers or suppliers are required to make relationship-specific investments in the form of physical equipment, human resources, specific production sites, or brand names. These dedicated assets are usually tied to a particular use or relationship and cannot be

redeployed if the firm is liquidated. In the absence of legal enforcement, firms are required to limit their use of debt financing and, consequently, signal a reduced default risk to encourage investment by their contracting parties. Using a sample of 143,278 firm-year observations, and measures of industry-level relationship-specificity and the quality of legal enforcement across 57 countries, we find strong evidence that good quality contract enforcement mitigates the negative association between relationship-specificity and debt financing.

The Securities and Exchange Commission (SEC) plays a central role in investigating potential violations of securities laws and initiating enforcement actions in the United States. We examine the association between political culture and political connections and the penalties imposed at the end of SEC enforcement actions. Our analysis is based on two key ideas. First, the political culture of a firm indicates its ethical boundaries and explains the propensity of misconduct across different domains, such as securities laws. Second, political connections signal a firm's willingness to challenge SEC's enforcement decisions. We find that the individual defendants associated with Republican firms are less likely to receive a bar or suspension penalty. This finding supports the notion that Republican managers are less likely to commit securities fraud since the Republican ideology stresses market discipline. Moreover, in line with prior research, our results show that political connections and firm size, as a proxy for bargaining power, also reduce penalties imposed in SEC enforcement actions.

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1. Introduction

This thesis explores three important issues in international asset pricing, empirical capital structure, politics, and corporate law. The first two essays link industrial organization to financial policy and performance using an international sample. The third essay, on the other hand, examines the relationship between politics and finance in the United States. The first two essays focus on how the interaction between relationship-specificity, at the industry level, and governmental contract enforcement, at the country level, affects a firm's financial performance and policy. The interaction among product market participants may affect a firm's financing and investment decisions and, in turn, affect its profitability or the riskiness of its cash flows. The study of buyer-supplier relationships, from a finance perspective, can significantly enhance our understanding of the economic determinants of firm value and stock returns and help answer important questions in empirical asset pricing. The third essay examines how political culture and political connections influence the penalties imposed at the end of SEC enforcement actions. The analysis uses corporate political action committee (PAC) contributions to measure political value and political connectedness and investigates two important ideas. Firstly, the political culture of a firm could indicate its ethical boundaries and explain the propensity to misconduct across different domains, such as securities laws. Secondly, political connections could signal a firm's willingness to challenge the SEC's enforcement decisions.

Firms that produce or procure specialized products or services engage in long-term bilateral relationships with their customers or suppliers – their contracting parties. These long-term relationships require the contracting parties to make significant investments. These investments are more valuable inside the unique relationship and cannot be easily redeployed to other uses or users. If one of the contracting parties liquidates or reneges on its contractual obligations, the other party faces significant switching costs. Therefore, the contracting parties require guarantees of a continuing relationship. Without these assurances, underinvestment occurs and firms lose the long-term benefits (Klein, Crawford, & Alchian, 1978; Williamson, 1979). The assurances of a continuing relationship take the form of implicit or explicit contractual guarantees. One way a producer of customized goods could indicate its commitment to a long-term relationship and induce investments from its suppliers is by projecting more stable cash flows or reducing leverage and, in turn, the probability of default (Dou, Hope, & Thomas, 2013; Banerjee, Dasgupta, & Kim, 2008). However, the extent to which firms rely on implicit contractual guarantees depends on the quality of contract enforcement. Prior research shows that legal systems vary in their ability to enforce contracts. In a legal environment where contracts are not strongly enforced, contracting parties would be susceptible to opportunistic behaviour. Therefore, all else equal, a supplier of customized goods would be unwilling to make relationship-specific investment if the required safeguards against opportunistic behaviour are not provided by the legal system. In support of this notion, Nunn (2007) finds that

countries with strong contract enforcement have a cost advantage in the production of goods which require significant relationship-specific investments.

The novel contribution of this thesis in the first two essays is to examine the joint effect of relationship-specific investments and the contracting environment on a firm's financial performance and capital structure policy. The analyses employ an international sample of firms from 58 countries and 30 three-digit North American Industry Classification (NAICS) industries. I measure relationship-specific investments (relationship-specificity) at the industry level following Nunn (2007). The first essay examines the effect of relationship-specificity on firm value and operating performance across different levels of contract enforcement. I find that in countries with a good quality legal system and strong contract enforcement, relationship-specificity is associated with higher firm value, measured by Tobin's Q. The results are robust to a variety of empirical specifications and alternative measures of firm value and legal quality. Additionally, I find that relationship-specificity is negatively associated with operating performance, measured by return on assets (ROA), in countries with strong contract enforcement. This could indicate that in the absence of strong contract enforcement, firms in relationship industries must sustain higher operating performance in order to compensate for the higher risk of specific investments. In support of this risk-based explanation, I find that stocks of firms in relationship industries earn higher average returns in countries with weak contract enforcement. The first essay contributes to the body of literature linking industrial organization to financial performance.

The second essay studies the joint effect of relationship-specificity and the contracting environment on leverage. I find that firms in relationship industries on average reduce their leverage in order to induce relationship-specific investment. However, a good quality contracting environment mitigates this negative association between relationship-specificity and leverage. In other words, lower leverage and strong contract enforcement are substitutes, as either could encourage suppliers to make relationship-specific investments. I consider a variety of robustness tests and alternative explanations for the findings in this study. The main findings remain unaffected by different empirical specifications and alternative measures of leverage, relationship-specificity and contract enforcement. This essay contributes to the empirical capital structure literature. In particular, it extends the literature that links industrial organization to corporate financial policy and provides new evidence to support the transaction-cost view of capital structure. It also highlights the importance of incorporating the effect of the contracting environment in studies that examine the association between relationship-specificity and corporate financial policy.

The third essay examines the effects of political culture and political connections on SEC enforcement actions. Political culture defines the ethical boundaries of a firm and influences financial policy and the tendency to misconduct across different domains (Hutton, Jiang, & Kumar, 2014; Hutton, Jiang, & Kumar, 2015). I hypothesize that in SEC enforcement cases which involve firms with a Republican culture, the intent to violate securities laws is less likely. Consequently,

Republican firms are expected to receive lower penalties. I find strong support for this hypothesis. In particular, I find that individual defendants associated with Republican firms are significantly less likely to receive a bar or suspension penalty at the end of SEC enforcement actions.

My analysis is based on a hand-collected sample of SEC enforcement actions against S&P 500 firms from 1996 to 2014. I measure political culture and political connectedness using long-term corporate PAC contributions to each major party and to all candidates, respectively (Hutton, Jiang, & Kumar, 2015; Correia, 2014). I follow the prior research and control for the size of the harm to investors and complexity of violations. My results also show that firm size is negatively associated with the probability of litigation and the probability of a bar or suspension penalty against individual defendants. Moreover, political connection reduces disgorgement, i.e., the repayment of ill-gotten gain. This essay is related to the research that links finance to politics and corporate law. The main contribution of this essay is to provide evidence on the relationship between political culture and the penalties imposed at the end of SEC enforcement actions.

The rest of this thesis is organized as follows. Chapter 2 examines the relationship between relationship-specific investments, contract enforcement and financial performance. Chapter 3 investigates the effect of relationship-specificity and contracting environment on the choice of capital structure. Chapter 4 examines the association between political culture and connectedness on SEC enforcement actions. Finally, Chapter 5 concludes the thesis.

1.1. References

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2. Relationship-Specific Investment, Contracting Environment and Financial Performance

2.1. Introduction

This study examines how the quality of contract enforcement affects firm value, operating performance and average stock returns in relationship-specific industries. Combining relationship-specificity data with measures of country-level legal quality enables us to study how the need and capacity for enforcing contracts affect performance at the firm level.

We find that relationship-specific investment is associated with higher firm value, measured with Tobin's Q, in countries with better quality contract enforcement. Our finding is robust to a variety of empirical specifications and alternative measures of legal quality. This suggests that the value of investment specific to a particular supplier-buyer relationship is fully realized when it is protected by the legal system. For example, in our main OLS regressions, one standard deviation improvement in our legal quality measure, the rule of law, is associated with an increase of 0.06 to 0.15 in Tobin's Q, in relationship-specific industries. This effect is economically and statistically significant.

Although characteristics that are associated with higher firm value are usually expected to be associated with better operating performance (Gompers, Ishii, & Metrick, 2003; Ferreira & Matos, 2008; Giroud & Mueller, 2011), we find that

operating performance is lower for firms in relationship-specific industries when they are located in countries with better legal quality. A possible explanation for this finding is that in the absence of strong contract enforcement, firms in relationship industries have higher operating performance to allow for higher required returns on their specific investments (Klein, Crawford, & Alchian, 1978; Klein & Leffler, 1981). In favour of this hypothesis, we find evidence that the interaction between relationship-specificity and legal quality is accompanied by lower average stock returns. Another potential explanation is that these firms must maintain higher operating performance in order to appear more stable and persuade their suppliers (customers) to make relationship-specific investment when governmental contract enforcement is weak (Banerjee, Dasgupta, & Kim, 2008; Dou, Hope, & Thomas, 2013).

This paper contributes to the literature that links industrial organization to financial policy and performance. For example, Hou & Robinson (2006) investigate the relationship between market structure and average stock returns. They show that firms in concentrated industries have lower average stock returns and provide risk-based interpretations for their finding. Banerjee, Dasgupta, & Kim (2008), on the other hand, examine the effect of supplier-buyer relationship on capital structure decisions. They find that firms in relationship-specific industries maintain lower leverage.

To our knowledge, this study is the first to explore how long-term supplier-buyer relationships influence the value of relationship-specific investments. We

achieve this by taking advantage of cross-country data provided by Nunn (2007). Nunn studies the relationship between the quality of contract enforcement and comparative advantage in relationship-specific industries. By looking at the pattern of trade and production between countries, he finds that relationship industries have a comparative advantage in countries that are better able to enforce contracts. We focus, instead, on the firm-level effects of the interaction between relationship-specificity and the quality of governmental contract enforcement.

This study is also related to several other strands of the corporate finance literature. La Porta, Lopez-de-Silanes, Shleifer, & Vishny (1997; 1998) argue that countries from different legal origins or 'families' vary fundamentally in terms of the legal protection they provide to equity and bond investors and the quality of the enforcement of such laws. They show that these variations are associated with differences in the structure of corporate ownership and the development of financial markets around the world.[1] The level of investor protection is also linked to efficient capital allocation and reducing overinvestment in declining industries (Wurgler, 2000; Spamann, 2010). The focus of these studies is on equity-holders and creditors as the primary stakeholders of the firm.

[1] The notion that differences in legal origin are associated with significant variation in investor protection and ownership concentration has been challenged by recent studies. See for example Spamann (2010).

Cremers, Nair, & Peyer (2008) examine the monitoring role of suppliers and customers of firms in relationship-specific industries. They argue that the stakeholders of firms in long-term bilateral relationships have incentives to monitor performance. Monitoring by suppliers and customers along with higher product market competition, then, could reduce the exposure to and need for the market for corporate control. Their study follows the influential paper by Gompers, Ishii, & Metrick (GIM, 2003), which studies the implications of shareholders' rights for firm performance in the 1990s and concludes that firms with less takeover protection, so called 'democracy firms', have higher valuations, better operating performance and higher stock returns.

Subsequent work has extended the GIM (2003) study in two major, not mutually exclusive, directions. The first strand of work is focused on the relationship between governance and performance in the presence of other factors; notably, shareholder activism (Cremers & Nair, 2005) and product market competition (Giroud & Mueller, 2011). The second strand of work explores alternative explanations for the association between governance and performance. Recent studies support the negative relationship between takeover defenses, on the one hand, and Tobin's Q and firm profitability, on the other (Bebchuk & Cohen, 2005; Cremers & Nair, 2005; Bebchuk, Cohen, & Ferrell, 2009; Giroud & Mueller, 2011). However, Core, Guay, & Rusticus (2006) hypothesize that for strong (weak) governance firms to yield higher (lower) abnormal returns, investors and analysts should be positively (negatively) surprised by strong (poor) operating performance

of good (weak) governance firms. They show that, although weak corporate governance is accompanied by higher agency costs and poor future operating performance, it is anticipated by analysts and the market.

The rest of this chapter is organized as follows. In the next section, we review the theoretical literature and develop our main hypotheses. The data and study methodology are explained in section 2.3 and the results are discussed in section 2.4. Section 2.5 concludes the chapter.

2.2. Hypothesis Development

Firms that buy or sell customized goods or services enter long-term bilateral relationships where it is necessary to make relationship-specific investments. These investments are in the form of physical assets, human resources, specific production sites, brand names and dedicated assets that are not easily transferable to alternative uses or users and whose value would significantly diminish outside the particular relationship (Williamson, 1983; Tadelis & Williamson, 2013). This would pose contractual hazards when it is impossible or prohibitively costly to write a comprehensive long-term contract that accommodates every possible future contingency (Tadelis & Williamson, 2013).

Firms that are already heavily invested in relationship-specific assets are susceptible to opportunistic behavior and rent extraction (Klein, Crawford, & Alchian, 1978; Williamson, 1979; Grossman & Hart, 1986; Hart, 1988). Future contingencies may motivate one party to ask for a premium or withdraw from the

commitment to provide the agreed-upon goods or services when the stakes are high; whenever contracts limiting such opportunism are not ex-post enforceable, that is, the renegotiation fails and the courts are not able to effectively settle the dispute between the parties[2], the other party would bear significant costs (Tadelis & Williamson, 2013). To the extent that these costs are expected before the relationship-specific investment is made, underinvestment occurs. Therefore, we expect a higher quality of governmental enforcement of contracts to alleviate the underinvestment problem and to increase the value of the firm's specific assets. We formulate this hypothesis as follows:

H1: A firm that both operates in a relationship industry and resides in a country with strong contract enforcement will have a higher value.

The effect of relationship-specificity on operating performance in the presence (absence) of strong governmental contract enforcement is ambiguous. On the one hand, weak contract enforcement may lead to a 'hold-up' problem for firms in relationship-specific industries. These firms would have less incentive to invest in value-enhancing projects or maintain product quality (Goldberg, 1976; Klein, Crawford, & Alchian, 1978; Williamson, 1979; Grossman & Hart, 1986; Hart & Moore, 1990; Maksimovic & Titman, 1991). This 'under-investment effect' is in

[2] Williamson (1979) argues that when a relationship is specific and recurring, parties have an incentive to establish specialized governance mechanisms in order to protect their investment. Klein, Crawford, & Alchian (1978) suggest that arrangements such as reciprocal business relationships and group enforcement are more likely to be made when the government's ability to enforce contracts is lower.

line with our valuation hypothesis. On the other hand, managers may need to achieve or demonstrate higher operating performance in order to portray the ability to fulfill contracts when their suppliers or customers have to make non-salvageable investment in the relationship and the costs of enforcing contracts after implementation are high (Dou, Hope, & Thomas, 2013).

Klein, Crawford, & Alchian (1978) and Klein & Leffler (1981) suggest that whenever governmental contract enforcement does not exist or is too costly, customers must rely on market mechanisms to discourage opportunism and prevent the supplier from defaulting on the relationship. One of the available market mechanisms is to offer a 'premium stream' to compliant firms. Klein and Leffler develop a model which proposes that in the absence of contract enforcement, a price premium above the competitive market price is necessary to persuade producers to continue high quality production as contracted. However, as producers make non-salvageable specific investments, the expected wealth increase from the future premium stream diminishes and the incentive to enter the industry disappears. In other words, the specific investment acts as collateral, the value of which would be lost if the firm 'cheats'.

This suggests that firms with relationship-specific investment may exhibit higher profitability when contract enforcement is weak. This 'apparent' profitability is due to the premium stream which is simply a rate of return on the non-salvageable specific investment (Klein, Crawford, & Alchian, 1978; Klein & Leffler, 1981). This association between relationship-specific investment and

higher profitability in the absence of governmental contract enforcement could also be consistent with lower valuation. If the required premium stream for conforming is a normal rate of return or 'depreciation' rate on the relationship-specific assets, these assets are expected to have lower (higher) value when the rate of return is higher (lower)[3].

A higher required return for specific assets when contracts are not ex-post enforceable also implies a higher hurdle rate for non-salvageable capital investments. Therefore, only non-salvageable investments with very high expected cash flows may be undertaken in countries with weaker contract enforcement. This could reduce the size of relationship industries while driving up their operating performance in such countries[4]. Overall, the theory provides mixed predictions regarding the joint effect of relationship-specificity and contract enforcement on operating performance. We examine this hypothesis, stated as follows:

> *H2: A firm that both operates in a relationship industry and resides in a country with strong contract enforcement will have a lower operating performance.*

[3] For example, Pástor & Stambaugh (2003) introduce a simple model where the current market-to-book ratio (M/B) of a firm is an increasing function of the average growth rate and a decreasing function of the discount rate. M/B is highly correlated with our measure of firm value, Tobin's Q.

[4] Consistent with this prediction, Nunn (2007) finds that countries with better legal quality specialize in the production and the export of goods from relationship-specific industries.

In keeping with the first two hypotheses, firms with valuable specific assets are expected to have lower average unadjusted (raw) stock returns when governmental contract enforcement is available; the average stock return reflects the rate of return on firm's largely non-salvageable assets. In other words, if contract enforcement is strong, lower investment risk and a lower required premium for compliance in relationship industries would lower expected returns[5]. Accordingly, our final hypothesis is as follows:

> *H3: A firm that both operates in a relationship industry and resides in a country with strong contract enforcement will have a lower average stock return.*

Although we hypothesize a negative association between unadjusted stock returns and the interaction between relationship-specificity and governmental contract enforcement, the presence and the direction of the association is unclear when stock returns are adjusted for the common risk factors. Therefore, we do not provide a formal hypothesis regarding risk-adjusted returns, though we do briefly investigate the relationship between risk-adjusted returns and our main interaction variable.

[5] Although it would be in line with our second hypothesis, it is important to note that the higher average returns for relationship-specific firms in the absence of strong enforcement is unlikely to reflect abnormal profitability. Hou & Robinson (2006) argue that an industry characteristic such as large fixed costs could create barriers to entry and, consequently, provide the opportunity for abnormal economic profits. However, for the abnormal profitability to cause higher average stock returns, it should be unexpected by the investors (Core, Guay, & Rusticus, 2006).

2.3. Data and Methodology

Our main sample consists of all firms in the Compustat Global and Compustat North America databases with available accounting information from 1996[6] to 2011 and available stock returns between July 1997 and December 2012 that belong to one of the 222 industries from Nunn (2007). We match the NAICS industry codes from Compustat with the 1997 I-O Industry Classification codes using the US Department of Commerce, Bureau of Economic Analysis' concordance table. The list of I-O industries and the relationship-specificity data are generously provided on Nathan Nunn's website.[7] We follow the empirical asset pricing literature and match accounting information for each fiscal year ending in year $t-1$ with return data from July of year t to June of year $t+1$ to ensure that the accounting information is fully-reflected in stock prices (Fama & French, 1992). In Tables 2-1 and 2-2, we present country and industry distributions of our sample. The full sample consists of 14,343 firms across 58 countries and 29 three-digit NAICS industries. Tables 2-3 and 2-4 report the mean values of our main country and industry variables, respectively.

[6] Our main measure of legal quality, the rule of law, is available from 1996.

[7] Each 6-digit NAICS industry code may correspond to more than one 6-digit I-O industry code and the Compustat NAICS code entries range from two to six digits; therefore, in order to reduce the ambiguity resulting from associating one firm with too many I-O industries, we excluded 2-digit NAICS industries (NAICS codes 11, 21, and 51) and then calculated the ratio of the average 'value of inputs neither sold on organized exchanges nor referenced priced' to the average 'total value of inputs used' across the I-O industries that correspond to each 3-, 4-, 5-, or 6-digit NAICS industry to compute the 'relationship-specificity' values.

Following Nunn (2007) and Dou, Hope, & Thomas (2013), we use the Worldwide Governance Indicators' Rule of Law as our primary measure of legal quality. The data are explained in Kaufmann, Kraay, & Mastruzzi (2004; 2009; 2011).[8] The original index ranges from -2.5 to 2.5. We normalize this measure to have a value between 0 and 1. In all of our panel regressions without country fixed effects, we include the log of GDP per capita and the ratio of total market capitalization to GDP as country-level control variables (Ferreira & Matos, 2008). The GDP and market capitalization data are from the World Bank.[9] We chiefly use Nunn data to measure relationship-specificity of any given industry. Nunn has created a relationship-specificity variable which measures the proportion of intermediate inputs, for every industry, that are neither priced in trade publications nor traded on an organized exchange.

The accounting information is from the Fundamental Annual Global and North American. To be included in our sample, we require every firm to have positive values for total assets, sales, market equity, and book equity. Many of our test specifications also require available data on cash and book leverage. All values are converted to US dollars. For global firms (i.e., outside North America), monthly

[8] According to the definition provided by the World Bank's Worldwide Governance Indicators, the rule of law reflects "perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence." (Kaufmann, Kraay, & Mastruzzi, 2009, p. 6)

[9] The data are accessible through an application provided on the Economic Freedom Network website.

stock returns are retrieved from the Compustat Security Daily table whenever end of month returns were available.[10] Market values at the end of December of each year are also retrieved from the Global Security Daily table, since end-of-December prices and numbers of outstanding shares are not available in the Compustat Global Fundamental Annual table. Monthly stock return data for North American firms are retrieved from the North America Security Monthly table.[11]

In Table 2-5 and Panel A of Table 2-6, we report the average value of the main variables by country and by industry, respectively.[12,13] Tobin's Q is our primary measure of firm value and is calculated as the sum of market equity (the market value of firm) and the book value of total assets minus the book value of common equity and balance sheet deferred taxes, divided by total assets. Market equity is closing price multiplied by the number of shares outstanding at the end of December of each year. Return on equity (ROE) is income before extraordinary items divided by the sum of common equity and balance sheet deferred taxes.

[10] For global firms with multiple common shares, the value-weighted average returns are calculated.

[11] We need to use the Security Monthly table because the Compustat North America Security Daily table does not specify end-of-month returns. Furthermore, due to lack of complete data on the number of shares outstanding at the end of each month in the Monthly table, we use the equal-weighted average returns for North American firms with multiple common shares.

[12] Although we use a different data source from Hou, Karolyi, & Kho (2011), we follow their suggestion and set returns of month $t-1$ (R_{t-1}) and month t (R_t) to 'missing' whenever either R_t or R_{t-1} is greater than 300%, and $(1+R_t)\times(1+R_{t-1})-1$ is smaller than 50%.

[13] We winsorize financial ratios and stock returns at the bottom 1% and top 99% and the bottom 0.1% and top 99.9% levels, respectively.

Return on assets (ROA) is measured as operating income before depreciation[14] divided by total assets. Size is the log (natural logarithm) of market equity. Book-to-market is the ratio of book equity to market equity. Book equity is common equity (stockholders' equity minus the book value of preferred stock) plus deferred taxes and investment tax credits.

Beta (market beta) is the post-ranking beta calculated according to Fama & French (1992) and Hou & Robinson (2006). Post-ranking beta is computed for each of the size × pre-ranking beta-sorted portfolios as the sum of the coefficients from the full-period regressions of equally-weighted portfolio returns on contemporaneous and lagged local (country-level) market returns. MSCI Country index returns are used as local market returns. The number of size and pre-ranking beta portfolios in each country is determined based on the number of firm-month return observations and is a minimum (maximum) of two (ten) size and two (ten) beta portfolios. Firms in countries that have less than ten monthly return observations in each year t are excluded from year t beta calculations. Pre-ranking betas are calculated at the end of June of each year t from the time-series regression estimations of the past 36-month stock returns on contemporaneous and lagged local market returns. We require a minimum of 12 available monthly return data over the past three years to calculate the pre-ranking beta for individual stocks.

[14] Using operating income after depreciation to calculate ROA does not materially change the results or change the conclusions made in this study.

Investment opportunity is the 2-year geometric average of annual growth rate in (net) sales. Leverage is the book value of long-term debt and is calculated as total long-term debt divided by total assets. Cash is the ratio of cash and short term investments to total assets. Earnings are calculated as income before extraordinary items plus total interest and related expenses plus deferred income taxes. Earnings are scaled by total assets. Panel B of Table 3-6 shows the average values of the main variables for relationship industries (industries with above-median relationship-specificity) versus other industries. In Table 2-7, we present the full sample pair-wise Pearson (top)/Spearman (bottom) correlations between the main variables. As expected, Tobin's Q and book-to-market are highly (negatively) correlated. Moreover, the performance variables, ROE, ROA and E/A are highly correlated. Finally, there is moderate negative correlation between cash and leverage.

In our study, we first focus our attention on the association between firm value and contract enforcement in relationship-specific industries. We estimate panel regressions of Tobin's Q on the interaction between relationship-specificity and the quality of contract enforcement. In our primary panel regressions, we include firm characteristics such as size, investment opportunities, leverage and cash to mitigate the concern that these characteristics vary significantly between relationship-specific firms and other firms, which in turn affects firm value in relationship industries. Following Doidge, Karolyi, & Stulz (2007) and Ferreira & Matos (2008), we also include global Q (the median Tobin's Q of firms in each three-digit

NAICS global industry), and country variables, OECD membership, log of GDP per capita, and the market capitalization to GDP ratio.

We employ different measures to alleviate problems with firm-level value (performance) panel regressions (Gompers, Ishii, & Metrick, 2003; Ferreira & Matos, 2008; Petersen, 2009). First, we lag all of our right-hand-side variables (regressors) by one period[15]. Then, we include year fixed effects in our panel regressions. Most of our regressions also include industry fixed effects, country fixed effects or both; however, we exclude from our regression specifications the industry-level relationship-specificity variable when industry fixed effects are present and the country-level contract enforcement variable when country fixed effects are present. Finally, we repeat all of our estimations with median regressions, Fama & MacBeth (1973) cross-sectional regressions and linear regressions with log and inverse negative transformations of Tobin's Q. We use a similar approach to estimate our performance regressions. Performance regressions include (the log of) book-to-market ratio as an additional regressor. The regression results are presented in the next section of the paper.

[15] We obtain stronger results in support of our main hypotheses if we use contemporaneous regressors.

2.4. Results and Discussion

2.4.1. Impact on Firm Value

Table 2-8 and Table 2-9 report results from linear panel Tobin's Q regressions. In Table 2-8, the quality of country-level contract enforcement is measured by the rule of law. In order to test our first hypothesis, we interact the rule of law variable with industry level relationship-specificity similar to Nunn (2007) and Dou, Hope, & Thomas (2013). In the first column of Table 2-8, Tobin's Q is regressed on the measures of rule of law and relationship-specificity and their interaction. No control variable or fixed effects are included except year dummies. In the next two columns, industry and country fixed effects are introduced, respectively. In columns (4)-(7), control variables are included. In columns (5) and (7) industry fixed effects (NAICS 3-digit industries) are included; however, industry-level relationship-specificity variable is omitted.

In Table 2-9, we substitute the relationship-specificity measure with a dummy variable, which is equal to one if the industry-level relationship-specific investment is above its global median value. It enables us to examine the effect of better contract enforcement explicitly for relationship-specific firms which operate in relationship-specific (i.e., contract-intensive) industries. In the last two columns of each table, we include dummy variables corresponding to the legal origins, namely, British common law, French civil law, German civil law, and Scandinavian civil

law. Country fixed effects and country-level variables are excluded from these regressions.

The coefficient estimates of the interaction variable are consistently positive and significant at the 5% level in all but two of the OLS regression specifications. The magnitudes of the coefficients range from 0.07 to 1.76 for the RuleofLaw × RelSpec interaction and from 0.31 to 0.81 for the RuleofLaw × High RelSpec interaction. The coefficients are economically significant compared to the global standard deviation of 1.58 for Tobin's Q. The effect of control variables on Tobin's Q also generally agrees with previous studies. Size, cash and global Q have a positive and statistically significant effect on firm value. The effect of (log of) GDP is negative and also statistically significant. Contrary to the coefficient estimates presented in Ferreira & Matos (2008), the association between investment opportunities (sales growth) and firm value is negative and economically insignificant. Moreover, the effect of leverage is negative and the effect of the ratio of total market capitalization to GDP is positive. Both effects are statistically significant at the 1% level.[16]

We provide several robustness checks, especially to address the dispersion of firm value among international firms. In Tables 2-10 and 2-11 we mirror results of

[16] The differences could stem from the fact that we use a different database (COMPUSTAT versus Datastream/ WorldScope) and a different time period (1997-2011 versus 2000-2005) compared to Ferreira & Matos (2008). We also only focus on production industries with 3-digit NAICS codes ranging from 111 to 519.

the previous two tables by conducting median regressions with similar empirical specifications. The coefficient estimates of the interaction variables remain positive, although their magnitudes and significance levels fall slightly. However, results from Table 2-11, where rule of law is interacted with the relationship-specificity dummy, still strongly support our first hypothesis that relationship-specific firms have higher valuations when contract enforcement is strong; all of the coefficient estimates on the interaction variable are statistically significant at the 1% level.

Next, we conduct the median regressions with additional industry-level and country-level control variables. We include the stocks of human and physical capital (factor endowment) data from Antweiler & Trefler (2002). The 1992 measures, which are used, are obtained from Nunn (2007). We include the factor intensities of production data, obtained from Bartlesman & Gray (1996). Capital intensity is the total real capital stock in an industry divided by value added. Skill intensity is the ratio of nonproduction worker wages to total wages in an industry. Value-added is measured by total value added divided by the total value of shipments in an industry. The 1996 values are for the United States and are obtained from Nunn (2007). Also included are the interaction between factor endowments and factor intensities as well as the interaction between country income (GDP) and value added. This alleviates the concern that higher firm value, for reasons unrelated to contract enforcement, is related to comparative advantage whenever firms with high factor intensities operate in countries with higher factor

endowments or high income countries specialize production in lucrative (high value-added) industries (Nunn, 2007). The results are presented in Table 2-12. The coefficients remain positive and significant, especially for the interaction between the rule of law and the (high) relationship-specificity dummy variable.

In Table 2-13, we conduct the median regressions with alternative measures of legal quality. In columns (1) and (2), the country-average relationship-specificity is interacted with relationship-specificity and its dummy variable, respectively. The average relationship-specificity for each country is calculated as $\sum_{i=1}^{I_c} {x_{ci}}/{x_c} \cdot z_i$; where x_{ci} is the exports in industry i by country c to all other countries, x_c is the total exports by country c to all other countries, z_i is the proportion of industry i's intermediate inputs that are relationship-specific, and I_c is the total number of industries in country c. The export and relationship-specificity data are from Nunn (2007). Nunn shows that countries that are better able to enforce contracts specialize in relationship-specific industries. Therefore, we expect the level of specialization in relationship-specific industries to be a good indicator of legal quality at the country level.

In column (3), legal quality is measured by the Economic Freedom of the World's index of legal structure and security of property rights from 1995 to 2010 (Gwartney, Lawson, & Hall, 2011).[17] The original variable is scaled by 10. In the

[17] Data are retrieved using the Economic Freedom of the World software, available on www.freetheworld.com.

next three columns, we include measures from the enforcing contracts index from Doing Business reports from 2004 to 2011 (World Bank, 2011). The three variables included measure the time, cost and number of procedures for dispute resolution in contracts. We follow Nunn (2007) and normalize these variables.[18] Our results are robust to these alternative measures of legal quality.

Finally, in Table 2-14 we estimate the value regressions with two transformations of Tobin's Q suggested by Ferreira & Matos (2008). Estimates from OLS regressions of log Tobin's Q (Log (Q)) and from OLS regressions of minus the reciprocal of Tobin's Q (-1/Q) are reported in Panels A and B, respectively. The coefficients remain positive and statistically significant at the 1% level, except in Panel A, column (1) and in Panel B, columns (1)-(2) where industry fixed effects are not included. Overall, results from multiple regressions strongly support the notion that relationship-specific investments are associated with higher firm value in countries with better quality of governmental contract enforcement.

2.4.2. Impact on Operating Performance

In this subsection we report the estimates from regressions of operating performance on our main independent variables. Our two measures of operating performance are return on assets (ROA) and return on equity (ROE). Tables 2-15

[18] DBECTime = (1850-Time)/1850, DBECCost = (3-ln[Cost])/4 , and DBECProc = (60-Procedure)/60.

and 2-16 report results from the median panel regressions of ROA and ROE[19] on our main interaction variables and a set of control variables. We follow the finance literature and include the same set of control variables from our firm value regressions in conjunction with (log of) book-to-market ratio (Gompers, Ishii, & Metrick, 2003; Core, Guay, & Rusticus, 2006; Ferreira & Matos, 2008). All of our operating performance regressions include industry fixed effects.

Results from multivariate regressions support the hypothesis that relationship-specificity is negatively associated with operating performance when contract enforcement is strong. Except from the first empirical specification (column (1) in both tables), the coefficient estimates of the interaction variable are negative and significant at the 1% level. This may indicate that in the absence of strong contract enforcement, firms in relationship industries must sustain higher operating performance in order to compensate for the higher risk of specific investments. We investigate this risk-based explanation further in the next section.

2.4.3. Impact on the Cross-Section of Average Returns

We finally turn to cross-sectional return regressions to investigate the implications of relationship-specificity and the contractual environment for stock returns. Table 2-17 presents the comparisons of mean returns between quartile

[19] Using net profit margin, calculated as net income divided by total sales, or the average sales growth over the past three years as the dependent variable in the operating performance regressions yields weaker results. The results are not reported in the paper.

portfolios. Firms are grouped together into four portfolios in June of each year t based on the relationship specificity of their industries and, separately, on the legal quality of their countries at the end of year $t-1$.[20] Panel A in Table 2-17 reports the mean values and their comparison across extreme (the highest minus the lowest) quartiles for unadjusted returns. Firms in countries with the lowest quality legal systems have the highest returns. The average return falls substantially for firms in countries with better legal systems; however, it increases slightly between the two quartile portfolios with the highest rule of law value. The difference between the average returns on the highest and on the lowest quartile portfolios is -1.29 percentage points and is statistically significant at the 1% level. The average returns for the relationship-specificity-sorted portfolios also decrease monotonically between the lowest and the highest quartile portfolios and the difference is -0.35 percentage points and is significant at the 1% level.

The cross-section of stock returns between the 16 double-sorted portfolios provides support for our third hypothesis. The difference between monthly returns on the highest rule of law and the lowest rule of law portfolios is economically and statistically significant for all relationship-specificity quartiles[21]; however, for portfolios with the highest relationship-specificity, unadjusted stock returns fall

[20] Sorting firms into 2, 3, or 5 rule of law and relationship-specificity portfolios reveals similar patterns.

[21] This supports the view that legal enforcement reduces the cost of equity (Bhattacharya & Daouk, 2002).

monotonically as the quality of contract enforcement increases. The 'High-Low' row at the bottom of Table 2-17, Panel A shows that the effect of rule of law on stock return is the strongest for high relationship-specificity firms at -1.46%. Moreover, a global portfolio of firms with the highest rule of law and the highest relationship-specificity values on average earns -1.47% less than a global portfolio of firms in the lowest quartiles and the difference is statistically significant at the 1% level.

Since Fama & French (1993) proposed a three-factor model (FF3) to capture the variation in US average stock returns, common factor models are widely used to adjust returns for known risk factors.[22] Many recent studies have also examined the implications of multi-factor models for international stocks (Griffin, 2002; Fama & French, 2012; Hou, Karolyi, & Kho, 2011). However, since the main focus in this study is on the joint effect of relationship-specificity and legal quality on unadjusted returns, the study uses a simple international variation of CAPM, which incorporates both global and local market returns, to calculate abnormal returns.

Panel B in Table 2-17 reports the adjusted average returns and their differences across quartile portfolios. In order to calculate the adjusted returns, we perform full-sample time-series regressions of excess monthly stock returns on MSCI global and

[22] Additional factors are proposed in the asset pricing literature to capture the patterns in the time-series and cross-section of average returns of US stocks; notably, the momentum effect (Jegadeesh & Titman, 1993; Carhart, 1997), the liquidity factor (Pástor & Stambaugh, 2003), the takeover factor (Cremers, Nair, & John, 2009) and the misvaluation factor (Hirshleifer & Jiang, 2010).

local (country-specific) index return premiums. The Capital Asset Pricing Model (CAPM)-adjusted individual stock returns are the intercepts α from the regressions. Results from the adjusted returns comparisons mirror the results of Panel A. The effects of rule of law, relationship-specificity, and their interaction on the average adjusted returns are negative and statistically significant. However, the magnitudes are smaller, as expected.[23] Next, we turn to multivariate regressions to further examine this relationship.

We follow the conventions of the asset pricing literature by employing monthly Fama & MacBeth (1973) cross-sectional return regressions (Table 2-18). Average returns are measured at the firm-level. Our regression specifications comprise a list of standard firm-level characteristics as control variables plus market capitalization, relationship-specificity and legal quality measures. Our characteristic variables consist of size, book-to-market (B/M), market beta, leverage and earnings-to-asset (E/A) from Hou & Robinson (2006). The first three variables capture the common risk effects. E/A is our primary measure of profitability. The medium-term momentum and one month lagged return are included to capture the momentum[24]

[23] If the asset pricing model can fully explain the time-varying differences in stock returns, the intercept from our time-series regressions of stock return premiums on excess market returns is expected to be equal to zero.

[24] Our medium-term momentum measure is based on Jegadeesh & Titman (1993)'s six-month/six-month strategy. Fama & French (2012) show that the momentum pattern is generally present in international stocks (Japan is an exception, for example); they use prior one year returns to capture the momentum effect. However, Hou, Karolyi, & Kho (2011) assert that a three-factor model of market risk premium, cash flow-to-price (CF/P), and medium-term momentum do better than the FF3 model in explaining the international cross-sectional and time-series variation in average stock returns. Therefore, we use medium-term momentum as our primary momentum

and short-term return reversal effects,[25] respectively. The ratio of market capitalization to GDP is also included as our country information variable (Bekaert & Harvey, 1995). Finally, dummy variables are added (but omitted from the table) to specify firms with negative earnings and zero leverage (Fama & French, 1992; Hou, Karolyi, & Kho, 2011).

The coefficient estimates of the control variables are generally in agreement with the literature. The size effect is negative and statistically significant in regression specifications which exclude country fixed effects. Book-to-market has a positive and one-month lagged return has a negative coefficient estimate and both effects are statistically significant at the 1% level. A medium-term momentum effect is, surprisingly, nonexistent, which is in contrast to the recent findings of Hou, Karolyi, & Kho (2011) and Fama & French (2012).[26] The coefficient on the profitability measure, earnings-to-assets (E/A), has a positive sign and is statistically significant at the 10% level or above. The coefficient estimate of leverage is negative only in models with country-fixed effects.

measure. Substituting long-term momentum for medium-term momentum or CF/P for B/M in our return regressions does not materially change the results.

[25] The stock return reversal effect is documented for long-term and short-term returns in De Bondt & Thaler (1985) and Jegadeesh (1990), respectively.

[26] We use a different dataset and a smaller sample compared to both papers. Hou, Karolyi, & Kho (2011) use return data from Datastream. Fama & French's (2012) data are primarily from Bloomberg, supplemented by Datastream.

The coefficient estimates on the interaction between relationship-specificity and legal quality, measured by rule of law, show that the direction of the effect reverses when we control for variables that are correlated with average returns. The interaction effect in our multivariate regressions is positive and strongly significant, especially when the continuous relationship-specificity measure is used directly (columns (4) and (5) in Table 2-18). The conditional effect of the rule of law, however, is negative, similar to its unconditional effect. This may indicate that our interaction effect is correlated with firm characteristics or country information variables through which it influences the cross-section of average stock returns. Further investigation of this hypothesis is left to future studies.

2.5. Conclusion

This study examines the implications of supplier-buyer relationships for firm value and financial performance. The study shows how the quality of contract enforcement in a country interacts with the relationship-specific investment at the industry level to impact the variation in firm value, operating performance and stock returns. It provides strong support for the hypothesis that the values of firms in relationship-specific industries are higher when they operate in countries with better legal quality. In contrast, firms with relationship-specific investment have higher operating performance in countries with weak contract enforcement, likely to compensate for the higher risk or provide enough incentive for their suppliers or buyers to maintain the relationship. In support of the risk-based explanation, the

study shows that stocks of firms in relationship-specific industries earn higher average returns as the quality of governmental contract enforcement becomes weaker.

Finally, the interaction between legal quality and relationship-specificity is found to positively affect the cross-section of average stock returns when we control for characteristics which explain risk, leverage, profitability and financial market development. This suggests that the risk of long-term specific investments could be correlated with one or several of these control variables.

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Table 2-1: Country distribution of the sample

This table reports the number of firms, firm-year observations and return-month observations for each of the 58 countries in the sample and the number of 6-digit industries in each country. The table also reports the legal origin of each country and whether a country joined the Organisation for Economic Co-operation and Development (OECD) by the 1990s.

Country Code	Legal Origin*	OECD	Country Name	# of Firms	% of Total Firms	# of Firm-Year Obs.	# of Return-Month Obs.	# of 6-digit NAICS Industries
ARE	Br.	N	United Arab Emirates	16	0.11%	82	870	10
ARG	Fr.	N	Argentina	38	0.26%	363	3,938	28
AUS	Br.	Y	Australia	1165	8.12%	7,290	81,156	154
AUT	Ge.	Y	Austria	53	0.37%	413	4,555	46
BEL	Fr.	Y	Belgium	66	0.46%	575	6,479	49
BGD	Br.	N	Bangladesh	29	0.20%	98	1,009	14
BRA	Fr.	N	Brazil	120	0.84%	734	7,621	80
CAN	Br.	Y	Canada	804	5.61%	4,164	46,116	125
CHE	Ge.	Y	Switzerland	102	0.71%	1,012	11,608	69
CHL	Fr.	N	Chile	56	0.39%	493	5,090	41
CHN	So.	N	China	311	2.17%	2,660	29,846	127
COL	Fr.	N	Colombia	12	0.08%	101	1,088	11
CZE	So.	N	Czech Republic	13	0.09%	79	859	12
DEU	Ge.	Y	Germany	344	2.40%	2,966	33,881	153
DNK	Sc.	Y	Denmark	89	0.62%	746	8,372	57
EGY	Fr.	N	Egypt	22	0.15%	144	1,610	15
ESP	Fr.	Y	Spain	71	0.50%	648	7,256	49
FIN	Sc.	Y	Finland	67	0.47%	681	7,767	48
FRA	Fr.	Y	France	369	2.57%	2,975	33,714	180
GBR	Br.	Y	United Kingdom	744	5.19%	5,219	58,772	233
GRC	Fr.	Y	Greece	98	0.68%	874	9,952	53
HKG	Br.	N	Hong Kong	74	0.52%	595	6,672	51
HUN	So.	N	Hungary	16	0.11%	154	1,763	14
IDN	Fr.	N	Indonesia	170	1.19%	1,372	14,928	92
IND	Br.	N	India	1204	8.39%	6,479	70,922	216
IRL	Br.	Y	Ireland	26	0.18%	213	2,439	20
ISR	Br.	N	Israel	85	0.59%	368	3,996	45
ITA	Fr.	Y	Italy	151	1.05%	1,323	15,099	93
JOR	Fr.	N	Jordan	57	0.40%	381	4,226	35
JPN	Ge.	Y	Japan	1329	9.27%	15,667	180,231	279
KEN	Br.	N	Kenya	14	0.10%	93	1,026	10

Country Code	Legal Origin*	OECD	Country Name	# of Firms	% of Total Firms	# of Firm-Year Obs.	# of Return-Month Obs.	# of 6-digit NAICS Industries
KOR	Ge.	N	South Korea	807	5.63%	4,483	49,587	169
KWT	Fr.	N	Kuwait	16	0.11%	88	964	15
LKA	Br.	N	Sri Lanka	83	0.58%	503	5,397	45
MAR	Fr.	N	Morocco	28	0.20%	246	2,778	20
MEX	Fr.	N	Mexico	49	0.34%	443	4,871	27
MYS	Br.	N	Malaysia	412	2.87%	4,026	45,785	167
NGA	Br.	N	Nigeria	35	0.24%	221	2,494	18
NLD	Fr.	Y	Netherlands	70	0.49%	654	7,495	58
NOR	Sc.	Y	Norway	86	0.60%	550	6,053	47
NZL	Br.	Y	New Zealand	53	0.37%	389	4,391	42
OMN	Fr.	N	Oman	20	0.14%	114	1,207	17
PAK	Br.	N	Pakistan	142	0.99%	1,138	12,431	44
PER	Fr.	N	Peru	44	0.31%	298	3,135	26
PHL	Fr.	N	Philippines	68	0.47%	529	5,761	39
POL	So.	N	Poland	167	1.16%	1,026	11,366	91
PRT	Fr.	Y	Portugal	31	0.22%	238	2,672	27
RUS	So.	N	Russia	48	0.33%	86	761	26
SAU	Br.	N	Saudi Arabia	44	0.31%	311	3,451	23
SGP	Br.	N	Singapore	167	1.16%	1,467	16,602	91
SWE	Sc.	Y	Sweden	204	1.42%	1,457	16,421	102
THA	Br.	N	Thailand	199	1.39%	1,811	20,251	114
TUN	Fr.	N	Tunisia	13	0.09%	75	826	10
TUR	Fr.	Y	Turkey	111	0.77%	949	10,745	58
TWN	Ge.	N	Taiwan	846	5.90%	6,115	68,250	153
USA	Br.	Y	United States of America	2619	18.26%	17,552	199,177	307
VNM	So.	N	Vietnam	133	0.93%	441	4,511	56
ZAF	Br.	N	South Africa	133	0.93%	1,081	12,098	64
			Total	14,343		105,253	1,182,341	

* The existing legal origins of the company law or commercial code are British Common Law (Br.), French Civil Law (Fr.), German Civil Law (Ge.), Scandinavian Civil Law (Sc.), and Socialist System (So.).

Table 2-2: Industry distribution of the sample

This table reports the number of firms, firm-year observations and return-month observations for each of the 29 three-digit North American Industry Classification System (NAICS) industries in the sample. The table also reports the number of countries with at least one firm in each industry.

NAICS 3-digit Code	Industry Description	# of Firms	% of Total Firms	# of Firm-Year Obs.	# of Firm-Month Obs.	# of Countries
111	Crop Production	130	0.91%	1,052	11,777	33
112	Animal Production	50	0.35%	390	4,361	21
113	Forestry and Logging	41	0.29%	374	4,257	15
114	Fishing, Hunting and Trapping	12	0.08%	125	1,396	8
211	Oil and Gas Extraction	908	6.33%	5,203	57,821	30
212	Mining (except Oil and Gas)	1278	8.91%	6,987	77,504	42
311	Food Manufacturing	876	6.11%	7,096	79,489	55
312	Beverage and Tobacco Product Manufacturing	360	2.51%	2,952	33,062	54
313	Textile Mills	437	3.05%	3,083	34,228	44
314	Textile Product Mills	62	0.43%	505	5,673	22
315	Apparel Manufacturing	303	2.11%	2,336	26,236	37
316	Leather and Allied Product Manufacturing	92	0.64%	617	6,848	25
321	Wood Product Manufacturing	177	1.23%	1,505	17,045	33
322	Paper Manufacturing	376	2.62%	2,982	33,607	49
323	Printing and Related Support Activities	108	0.75%	915	10,396	27
324	Petroleum and Coal Products Manufacturing	154	1.07%	1,348	15,255	39
325	Chemical Manufacturing	2492	17.37%	18,344	206,625	57
326	Plastics and Rubber Products Manufacturing	457	3.19%	3,803	42,867	42
327	Non-metallic Mineral Product Manufacturing	495	3.45%	3,969	44,511	55
331	Primary Metal Manufacturing	415	2.89%	2,746	30,516	45
332	Fabricated Metal Product Manufacturing	378	2.64%	3,080	34,756	41
333	Machinery Manufacturing	773	5.39%	5,990	67,569	41
334	Computer and Electronic Product Manufacturing	1991	13.88%	14,710	166,038	36
335	Electrical Equipment, Appliance, and Component Manufacturing	529	3.69%	4,290	48,283	49
336	Transportation Equipment Manufacturing	576	4.02%	4,561	51,477	46
337	Furniture and Related Product Manufacturing	53	0.37%	359	3,979	24
339	Miscellaneous Manufacturing	355	2.48%	2,565	28,897	32
511	Publishing Industries	199	1.39%	1,613	18,177	43
519	Other Information Services	266	1.85%	1,753	19,691	25

Table 2-3: Country-level variables

This table summarizes the main country-specific variables for each of the 58 countries in the sample. Rule of Law is the measure of the quality of a country's legal system from The World Bank's Worldwide Governance indicators. We normalize this measure to have a value between 0 and 1 by adding to it 2.5 and dividing the result by 5. The Average Relationship-Specificity for each country is calculated as $\sum_{i=1}^{I_c} {}^{x_{ci}}/_{x_c} \cdot z_i$; where x_{ci} is the exports in industry i by country c to all other countries, x_c is the total exports by country c to all other countries, z_i is the proportion of industry i's intermediate inputs that are relationship-specific, and I_c is the total number of industries in country c. The export and relationship-specificity data are from Nunn (2007). GDP, GDP per capita and market capitalization data are from the World Bank. The average country values from 1996-2010 are reported in the table for the above measures. The stock of Human and Physical Capital (factor endowments) data are from Antweiler & Trefler (2002). The measures, which are used, are from 1992 reported in Nunn (2007).

Country Name	Rule of Law	Average Relationship-Specificity	Log(GDP per capita)	Market Cap./GDP	Human Capital	Physical Capital
United Arab Emirates	0.58	0.25	10.71	0.64		
Argentina	0.41	0.38	8.72	0.40	-1.29	-4.50
Australia	0.85	0.42	10.26	1.06	-0.21	-3.31
Austria	0.87	0.55	10.40	0.24	-1.05	-3.32
Belgium	0.76	0.51	10.35	0.64	-0.73	-3.24
Bangladesh	0.34	0.68	6.29	0.10	-2.51	-7.23
Brazil	0.43	0.43	8.48	0.46	-2.02	-4.52
Canada	0.85	0.56	10.30	1.08	0.18	-3.14
Switzerland	0.88	0.55	10.75	2.38		
Chile	0.75	0.36	8.78	1.03	-1.23	-4.52
China	0.42	0.56	7.31	0.58		
Colombia	0.36	0.33	8.07	0.27	-1.64	-4.37
Czech Republic	0.66	0.53	9.19	0.24		
Germany	0.83	0.60	10.34	0.46	-1.38	-2.96
Denmark	0.88	0.53	10.62	0.60	-0.55	-3.44
Egypt	0.49	0.27	7.32	0.49	-1.73	-6.23
Spain	0.75	0.58	9.95	0.80	-1.32	-3.51
Finland	0.89	0.53	10.38	1.18	-0.46	-3.16
France	0.78	0.58	10.30	0.79	-1.17	-3.31
United Kingdom	0.84	0.60	10.33	1.38	-1.03	-3.85
Greece	0.66	0.43	9.76	0.54	-1.01	-3.74
Hong Kong	0.76	0.60	10.18	3.89	-0.80	-4.25
Hungary	0.67	0.59	8.95	0.22		
Indonesia	0.36	0.41	7.11	0.28	-2.29	-4.92
India	0.53	0.47	6.45	0.56	-2.14	-6.22

Country Name	Rule of Law	Average Relationship-Specificity	Log(GDP per capita)	Market Cap./GDP	Human Capital	Physical Capital
Ireland	0.82	0.59	10.48	0.54	-0.78	-3.83
Israel	0.69	0.57	9.93	0.72	-0.26	-3.72
Italy	0.62	0.57	10.16	0.41	-1.33	-3.41
Jordan	0.57	0.34	7.85	1.47		
Japan	0.76	0.69	10.52	0.75	-0.74	-3.21
Kenya	0.31	0.32	6.35	0.32		
South Korea	0.67	0.59	9.58	0.60	-0.45	-3.74
Kuwait	0.62	0.15	10.40	1.10		
Sri Lanka	0.52	0.60	7.07	0.16	-1.65	-4.68
Morocco	0.49	0.40	7.50	0.49	-2.27	-6.22
Mexico	0.40	0.62	8.80	0.27	-1.92	-4.32
Malaysia	0.60	0.61	8.54	1.52	-1.60	-3.89
Nigeria	0.24	0.19	6.68	0.21	-3.50	-7.40
Netherlands	0.85	0.52	10.42	1.05	-0.82	-3.41
Norway	0.88	0.31	10.87	0.49	-0.36	-3.10
New Zealand	0.87	0.43	9.94	0.38	0.18	-3.44
Oman	0.61	0.29	9.50	0.33		
Pakistan	0.34	0.44	6.45	0.21	-2.64	-5.99
Peru	0.37	0.35	7.94	0.40	-1.04	-4.78
Philippines	0.42	0.58	7.14	0.49	-0.80	-5.62
Poland	0.62	0.50	8.79	0.23		
Portugal	0.73	0.61	9.65	0.39	-1.92	-4.35
Russia	0.34	0.32	9.26	0.68		
Saudi Arabia	0.53	0.19	9.44	0.92		
Singapore	0.80	0.68	10.21	1.80	-1.68	-3.08
Sweden	0.87	0.59	10.48	1.05	-0.04	-3.25
Thailand	0.54	0.57	7.89	0.58	-2.06	-5.02
Tunisia	0.53	0.53	8.22	0.15	-2.08	-5.14
Turkey	0.50	0.50	8.58	0.26	-2.06	-4.92
Taiwan	0.68	0.61	10.71	0.64		
United States of America	0.81	0.62	8.72	0.40	0.93	-3.37
Vietnam	0.41	0.49	10.26	1.06		
South Africa	0.52	0.38	10.40	0.24	-3.05	-4.79

Table 2-4: Industry-level variables

This table summarizes the main industry-specific variables for each of the 29 three-digit NAICS industries in the sample. Relationship-Specificity is the proportion of an industry's intermediate inputs that is neither sold on an organized exchange nor reference priced. The 1997 measure is obtained from Nunn (2007). Capital intensity is the total real capital stock in an industry divided by value added. Skill intensity is the ratio of nonproduction worker wages to total wages in an industry. Value-added is measured by total value added divided by the total value of shipments in an industry. The factor intensities of production data are from Bartlesman & Gray (1996). The 1996 values are for the United States and are obtained from Nunn (2007). The mean values are reported in the table.

Industry Description	Relationship-Specificity (Contract-Intensity)	Skill Intensity	Capital Intensity	Value-Added
Crop Production	0.36			
Animal Production	0.27			
Forestry and Logging	0.48	0.22	0.76	0.37
Fishing, Hunting and Trapping	0.52	0.32	0.58	0.34
Oil and Gas Extraction	0.17			
Mining (except Oil and Gas)	0.40			
Food Manufacturing	0.29	0.35	0.94	0.37
Beverage and Tobacco Product Manufacturing	0.55	0.42	0.50	0.64
Textile Mills	0.29	0.31	1.00	0.42
Textile Product Mills	0.57	0.32	0.43	0.45
Apparel Manufacturing	0.74	0.29	0.25	0.52
Leather and Allied Product Manufacturing	0.65	0.32	0.42	0.51
Wood Product Manufacturing	0.55	0.25	0.67	0.41
Paper Manufacturing	0.35	0.31	1.34	0.43
Printing and Related Support Activities	0.61	0.41	0.37	0.65
Petroleum and Coal Products Manufacturing	0.04	0.41	2.35	0.17
Chemical Manufacturing	0.32	0.46	1.16	0.49
Plastics and Rubber Products Manufacturing	0.41	0.31	0.78	0.52
Non-metallic Mineral Product Manufacturing	0.39	0.34	0.80	0.63
Primary Metal Manufacturing	0.19	0.30	1.63	0.33
Fabricated Metal Product Manufacturing	0.46	0.33	0.78	0.57
Machinery Manufacturing	0.71	0.47	0.73	0.52
Computer and Electronic Product Manufacturing	0.84	0.63	0.72	0.51
Electrical Equipment, Appliance, and Component Manufacturing	0.54	0.32	0.70	0.49
Transportation Equipment Manufacturing	0.80	0.38	0.64	0.40
Furniture and Related Product Manufacturing	0.56			
Miscellaneous Manufacturing	0.64	0.46	0.51	0.60

Industry Description	Relationship-Specificity (Contract-Intensity)	Skill Intensity	Capital Intensity	Value-Added
Publishing Industries (except Internet)	0.68	0.79	0.40	0.74
Other Information Services	0.64	0.79	0.40	0.74

Table 2-5: Variable means by country

This table reports the simple average of the main firm-level variables for firms in each 58 countries in the sample. The sample includes all firms in the Compustat Global and Compustat North America databases with available market value, book value and stock returns data between July 1997 and December 2012 that belong to one of the 222 industries from Nunn (2007). Accounting data for each fiscal year ending in year $t-1$ are matched with returns data from July of year t to June of year $t+1$. Tobin's Q is calculated as the sum of the market value of equity (market equity) and the book value of total asset minus the book value of common equity and balance sheet deferred taxes scaled by total assets. Market equity is closing price in US dollars multiplied by the number of shares outstanding at the end of December each year. Return on equity is income before extraordinary items divided by the sum of common equity and balance sheet deferred taxes. Return on assets is measured as operating income before depreciation divided by total assets. Size is the log of market equity. Book-to-market is the log of the ratio of book equity to market equity. Book equity is common equity (stockholders' equity minus the book value of preferred stock) plus deferred taxes and investment tax credit. The beta values reported in the table are post-ranking betas calculated for size × pre-ranking beta-sorted portfolios as the sum of the coefficients from full-period regressions of equally-weighted portfolio returns on contemporaneous and lagged local (country-level) market returns following (Fama & French, 1992). Pre-ranking betas are calculated at the end of June of each year t from time-series regression estimations of the past 36-month individual stock returns on contemporaneous and lagged local market returns. Investment Opportunities is the 2-year geometric average of annual growth rate in net sales. Leverage is measured as book value of total long-term debt divided by total assets. Cash is the ratio of cash and short term investments to total assets. E/A is earnings divided by total assets. Earnings are calculated as income before extraordinary items plus total interest and related expenses plus deferred income taxes. A dummy variable is included to specify firms with zero leverage and negative earnings. Monthly returns are presented in percentages.

Country Name	Tobin's Q	ROE	ROA	Size	Log(B/M)	Beta	Investment Opportunities	Leverage	Cash	E/A	Monthly Return
United Arab Emirates	1.3023	0.0886	0.0762	5.2643	-0.1755	0.5091	0.1859	0.0446	0.1407	0.0694	-0.0632
Argentina	1.5329	-0.0062	0.1211	4.6270	-0.1327	0.6911	0.3163	0.1156	0.0677	0.0748	2.0967
Australia	2.6315	-0.3552	-0.1372	3.3460	-0.6984	1.0490	6.0690	0.0601	0.2939	0.0330	1.2763
Austria	1.2377	-0.0174	0.0863	4.6278	-0.1683	0.4525	1.4987	0.1209	0.1245	0.0527	0.3458
Belgium	1.5485	0.0159	0.1012	5.1240	-0.4262	0.5461	1.1500	0.1156	0.1455	0.0562	0.3450
Bangladesh	3.0276	0.1761	0.1534	4.7834	-1.4616	0.9594	0.3272	0.0818	0.1160	0.1226	1.3080
Brazil	3.4406	0.0313	0.1063	6.9998	-0.6856	0.5580	2.0264	0.1532	0.1390	0.0923	1.9945
Canada	1.6649	-0.1498	0.0353	4.7101	-0.3539	0.7670	4.6840	0.1325	0.1314	0.0514	0.9135
Switzerland	1.5377	0.0294	0.0957	5.7905	-0.3913	0.7993	1.4104	0.1458	0.1746	0.0623	0.6085

Country Name	Tobin's Q	ROE	ROA	Size	Log(B/M)	Beta	Investment Opportunities	Leverage	Cash	E/A	Monthly Return
Chile	1.1734	0.0811	0.1151	4.8939	-0.0623	0.5542	0.4354	0.1159	0.0525	0.0700	1.5765
China	2.0833	0.0197	0.0731	6.3114	-0.9748	0.2154	0.7327	0.0656	0.1538	0.0507	1.6600
Colombia	1.0749	0.0557	0.0910	5.9089	0.3166	0.7753	0.4775	0.0944	0.0768	0.0663	1.9986
Czech Republic	0.7613	-0.0163	0.0830	3.9936	0.9835	0.4386	27.3322	0.0913	0.0744	0.0392	0.7402
Germany	1.5453	-0.0496	0.0768	5.0388	-0.4761	0.5167	1.6842	0.1038	0.1328	0.0485	0.2023
Denmark	1.8763	-0.0128	0.0806	4.9177	-0.5348	0.6802	0.9724	0.1297	0.1649	0.0646	0.3613
Egypt	1.5805	0.2049	0.1557	5.6597	-0.4864	0.7064	0.2162	0.0756	0.1800	0.1374	1.6843
Spain	1.4027	0.0666	0.1057	5.7540	-0.3702	0.5733	0.3577	0.1228	0.0908	0.0625	0.0700
Finland	1.5250	0.0554	0.1257	5.6163	-0.4322	0.3581	0.9240	0.1695	0.1065	0.0735	0.4585
France	1.4805	-0.0115	0.0887	5.0162	-0.3755	0.6745	2.0513	0.1238	0.1493	0.0519	0.3484
United Kingdom	1.8907	-0.1048	0.0302	4.4807	-0.5827	0.8893	3.0434	0.0971	0.1715	0.0564	0.4829
Greece	1.2240	-0.0243	0.0683	4.1869	-0.0110	0.7091	0.4709	0.1403	0.0703	0.0409	0.2835
Hong Kong	1.1652	0.0323	0.0534	4.6971	0.1177	1.0089	0.4474	0.0652	0.1983	0.0649	1.2329
Hungary	1.3072	0.0587	0.1177	5.2992	-0.2304	0.4820	1.3653	0.0693	0.1113	0.0836	0.4556
Indonesia	1.3916	-0.0417	0.1259	3.7826	-0.1019	0.6448	0.9307	0.1422	0.1157	0.0808	2.5511
India	1.4362	0.0657	0.1153	3.7515	-0.0542	0.8554	1.7558	0.1885	0.0766	0.0817	1.9458
Ireland	1.6956	-0.0758	0.0792	5.5542	-0.6251	0.8778	1.8564	0.2365	0.0999	0.0567	0.9650
Israel	1.5768	-0.0750	0.0294	4.3357	-0.4589	0.8838	0.7939	0.1326	0.1765	0.0623	1.1134
Italy	1.2755	-0.0449	0.0828	5.5265	-0.2521	0.7129	0.8897	0.1244	0.1105	0.0408	-0.1351
Jordan	1.3724	0.0044	0.0433	3.0204	-0.2550	0.5293	0.9570	0.0468	0.0879	0.0583	0.6835
Japan	1.0899	-0.0065	0.0764	5.2773	0.0503	0.8270	0.6035	0.0954	0.1575	0.0279	0.4248
Kenya	1.8234	0.1766	0.1722	4.2382	-0.4429	0.6370	0.3069	0.0563	0.0971	0.1217	1.9255
South Korea	1.0361	-0.0608	0.0768	4.3399	0.2677	0.8168	0.6194	0.1046	0.1372	0.0504	1.3570
Kuwait	1.4504	0.0774	0.0399	5.7151	-0.3877	0.7120	0.1345	0.0783	0.1119	0.0745	0.3675

Country Name	Tobin's Q	ROE	ROA	Size	Log(B/M)	Beta	Investment Opportunities	Leverage	Cash	E/A	Monthly Return
Sri Lanka	1.3950	0.0619	0.1077	2.2913	-0.2451	0.6066	0.8481	0.0916	0.0716	0.0817	2.6857
Morocco	2.0298	0.0956	0.1489	5.3168	-0.8990	0.4800	0.4964	0.0646	0.1044	0.1004	0.9146
Mexico	1.0992	0.0493	0.1277	5.8883	0.2240	0.6877	42.2142	0.1682	0.0753	0.0765	1.4657
Malaysia	1.1515	-0.0077	0.0782	3.5161	0.0888	0.7960	0.5503	0.0735	0.1161	0.0585	0.7185
Nigeria	2.3132	0.2045	0.1838	4.9156	-1.1318	0.7301	0.4810	0.0492	0.1115	0.1308	1.8930
Netherlands	1.5078	0.0576	0.1175	6.1513	-0.5581	0.7328	3.9482	0.1485	0.0902	0.0660	0.1040
Norway	1.8696	-0.1186	0.0166	5.0156	-0.5631	0.6848	2.8989	0.1696	0.1863	0.0500	0.6030
New Zealand	1.9930	-0.1490	0.0146	4.2441	-0.4910	0.6159	4.5156	0.1540	0.1313	0.0602	0.7746
Oman	1.3349	0.1360	0.1252	3.9875	-0.2401	0.8427	0.4263	0.0827	0.1356	0.0982	1.8504
Pakistan	1.3047	0.1125	0.1576	3.3135	-0.0369	0.6549	0.3428	0.1262	0.1010	0.1064	2.4480
Peru	1.2214	0.1062	0.1649	4.0296	0.3723	0.6162	0.3048	0.0989	0.0874	0.0973	2.7484
Philippines	1.3320	-0.0427	0.0516	3.6677	0.1808	0.9601	1.7526	0.1003	0.1137	0.0567	2.2785
Poland	1.4778	-0.0432	0.0879	3.8574	-0.2157	0.5545	1.1600	0.0690	0.0884	0.0630	0.7336
Portugal	1.1398	0.0199	0.1059	5.0251	-0.1277	0.5208	0.3177	0.2031	0.0634	0.0475	0.2774
Russia	1.3533	0.1291	0.0955	6.6764	-0.2504	0.5175	1.1855	0.1514	0.1076	0.1068	-0.5364
Saudi Arabia	2.4604	0.1161	0.0972	6.6716	-0.9069	0.8316	0.7771	0.0772	0.1095	0.0975	1.5055
Singapore	1.2297	0.0128	0.0850	3.9935	-0.0991	0.9493	0.5860	0.0603	0.1768	0.0598	1.3135
Sweden	1.8897	-0.1339	0.0180	4.8092	-0.6226	0.6624	2.4984	0.1388	0.1574	0.0584	0.5151
Thailand	1.1198	0.0368	0.1178	3.6368	0.0190	0.5681	0.4925	0.1014	0.0925	0.0778	1.9370
Tunisia	1.7044	0.0667	0.1285	4.1202	-0.6334	0.3567	0.0761	0.0619	0.1274	0.0833	1.4431
Turkey	1.5757	0.0221	0.1170	5.2388	-0.4462	0.8026	11.8889	0.0765	0.1068	0.0979	2.4837
Taiwan	1.3443	0.0249	0.0813	4.6260	-0.2456	1.0095	0.6154	0.0788	0.1779	0.0556	0.9213
United States of America	2.3265	-0.2666	-0.0140	5.3170	-0.8486	1.3010	5.2004	0.1514	0.2500	0.0535	1.1138
Vietnam	1.2341	0.1393	0.1405	2.7800	-0.0379	0.9575	0.2971	0.0745	0.1244	0.1113	0.0840

Country Name	Tobin's Q	ROE	ROA	Size	Log(B/M)	Beta	Investment Opportunities	Leverage	Cash	E/A	Monthly Return
South Africa	1.4688	0.0512	0.1201	4.9367	-0.3006	0.4724	7.3916	0.0809	0.1124	0.0970	1.8781
Full Sample	1.6534	-0.0767	0.0506	4.7096	-0.3421	0.8669	2.6559	0.1130	0.1655	0.0546	1.0008

Table 2-6: Variable means by industry

This table reports the simple average of the main firm-level variables at the industry level for each 29 of the industries in the sample. The sample includes all firms in the Compustat Global and Compustat North America databases with available market value, book value and stock returns data between July 1997 and December 2012 that belong to one of the 222 industries from Nunn (2007). The variables are explained in Table 3-5. Panel A presents the variable means for each of the 3-digit NAICS industries in the sample. Panel B presents the variable means separately for relationship industries and other industries. Relationship industries are industries with above median relationship-specificity. The last row of the table reports the *t*-statistics for the difference in means between the two types of industries.

Panel A: Industry means

Industry Description	Tobin's Q	ROE	ROA	Size	Log(B/M)	Beta	Investment Opportunities	Leverage	Cash	E/A	Monthly Return
Crop Production	1.3807	0.0125	0.0791	4.5540	-0.1641	0.7432	2.6989	0.0955	0.1135	0.0659	1.0509
Animal Production	1.5371	-0.0958	0.0632	3.7795	-0.1449	0.7473	1.0151	0.1356	0.0929	0.0570	1.2499
Forestry and Logging	1.3530	-0.0042	0.0467	3.9696	-0.1305	0.7554	3.9489	0.1401	0.1149	0.0535	1.0548
Fishing, Hunting and Trapping	1.1721	0.0683	0.1218	4.8159	-0.1315	0.7013	0.1233	0.1245	0.0835	0.0774	1.6143
Oil and Gas Extraction	1.7870	-0.1329	0.0425	4.9178	-0.4863	0.9863	4.5456	0.1609	0.1422	0.0555	1.3951
Mining (except Oil and Gas)	2.3002	-0.2364	-0.0666	3.8893	-0.5532	0.9800	7.8450	0.0704	0.2481	0.0424	1.5068
Food Manufacturing	1.3246	0.0311	0.0973	4.6307	-0.1767	0.7301	1.1177	0.1182	0.1040	0.0616	1.1041
Beverage and Tobacco Product Manufacturing	1.6732	0.0299	0.1173	5.3719	-0.5109	0.6754	2.1975	0.1308	0.1045	0.0720	1.1392
Textile Mills	1.0506	-0.0405	0.0713	3.5548	0.3394	0.8040	0.9521	0.1530	0.0783	0.0471	1.0520
Textile Product Mills	1.1098	-0.0598	0.0832	3.9641	0.0166	0.8228	0.2486	0.1364	0.0820	0.0468	0.4210
Apparel Manufacturing	1.2902	-0.0446	0.0815	4.1115	-0.0077	0.8228	1.1655	0.1012	0.1164	0.0604	0.7225
Leather and Allied Product Manufacturing	1.5636	-0.0329	0.0961	4.1066	-0.1507	0.7902	0.5170	0.0709	0.1218	0.0654	0.6832
Wood Product Manufacturing	1.0688	-0.0636	0.0749	4.0875	0.0944	0.8230	0.4817	0.1625	0.0745	0.0479	0.6966
Paper Manufacturing	1.1397	-0.0027	0.0902	4.9115	0.0789	0.7745	3.7014	0.1842	0.0759	0.0492	0.7758
Printing and Related Support Activities	1.2112	-0.0071	0.1119	4.5174	-0.1039	0.8526	0.4043	0.1369	0.1114	0.0538	0.6439

Panel A: Industry means											
Industry Description	Tobin's Q	ROE	ROA	Size	Log(B/M)	Beta	Investment Opportunities	Leverage	Cash	E/A	Monthly Return
Petroleum and Coal Products Manufacturing	1.4492	0.0766	0.1155	7.4321	-0.3961	0.7952	7.3703	0.1572	0.0751	0.0738	1.4345
Chemical Manufacturing	2.1737	-0.1778	-0.0115	5.0382	-0.6435	0.8985	4.5397	0.1046	0.2551	0.0527	1.1183
Plastics and Rubber Products Manufacturing	1.2069	0.0047	0.1048	4.2291	-0.0589	0.8304	1.0614	0.1290	0.1006	0.0577	1.1526
Non-metallic Mineral Product Manufacturing	1.3688	0.0230	0.1058	5.0287	-0.1197	0.7594	1.9362	0.1513	0.0944	0.0687	1.2008
Primary Metal Manufacturing	1.2751	0.0005	0.0862	4.9095	0.0144	0.7976	2.0309	0.1420	0.0868	0.0550	0.9565
Fabricated Metal Product Manufacturing	1.2738	0.0279	0.1010	4.5586	-0.1123	0.8597	0.9825	0.1175	0.1238	0.0593	0.8775
Machinery Manufacturing	1.4222	-0.0057	0.0814	4.7968	-0.2998	0.8401	1.0636	0.1024	0.1369	0.0535	0.7896
Computer and Electronic Product Manufacturing	1.7331	-0.1343	0.0324	4.5993	-0.4555	0.9810	1.4247	0.0826	0.2170	0.0479	0.6981
Electrical Equipment, Appliance, and Component Manufacturing	1.4060	-0.0169	0.0734	4.4774	-0.2414	0.8473	0.9897	0.0843	0.1414	0.0520	0.8707
Transportation Equipment Manufacturing	1.3264	0.0005	0.0874	5.3203	-0.2331	0.8378	1.7703	0.1269	0.1223	0.0542	1.0105
Furniture and Related Product Manufacturing	1.1736	0.0197	0.1076	3.7991	-0.0481	0.7965	0.2608	0.0951	0.1144	0.0641	0.7247
Miscellaneous Manufacturing	1.8712	-0.1033	0.0620	4.7124	-0.5618	0.9163	1.4684	0.1131	0.1704	0.0595	0.5808
Publishing Industries (except Internet)	1.5304	0.0239	0.1011	5.2428	-0.4562	0.7541	0.8777	0.1353	0.1257	0.0667	0.6637
Other Information Services	2.6557	-0.2121	0.0259	4.6023	-0.9396	0.9730	2.9862	0.0558	0.3450	0.0564	0.9480
Crop Production	1.3807	0.0125	0.0791	4.5540	-0.1641	0.7432	2.6989	0.0955	0.1135	0.0659	1.0509

Panel A: Industry means											
Industry Description	Tobin's Q	ROE	ROA	Size	Log(B/M)	Beta	Investment Opportunities	Leverage	Cash	E/A	Monthly Return
Panel B: Comparison of mean variables across relationship-specificity median split industries											
Relationship-specific industries	1.8080	-0.1055	0.0392	4.7950	-0.4786	0.8966	2.0874	0.0995	0.2005	0.0537	0.8770
Other industries	1.4751	-0.0435	0.0637	4.6112	-0.1847	0.8326	3.3112	0.1286	0.1251	0.0556	1.1444
Difference	-0.3329	0.0620	0.0245	-0.1838	0.2939	-0.0640	1.2238	0.0291	-0.0754	0.0019	0.2674
Mean-difference *t*-statistics	(34.60)	(-17.93)	(-20.44)	(14.03)	(-49.85)	(30.66)	(-3.69)	(-35.37)	(65.82)	(-5.40)	(-8.24)

Table 2-7: Firm characteristic variables' full sample pair-wise correlations

This table presents the pair-wise Spearman and Pearson correlations between the firm characteristic variables for the full sample. The firm-level variables are used in our regression specifications. Pearson correlations are presented above the main diagonal and Spearman (rank) correlations are presented below. The variables are defined according to Table 2-5.

Variable	Tobin's Q	ROE	ROA	Size	Log(B/M)	Beta	Investment Opportunities	Leverage	Cash	E/A
Tobin's Q	-	-0.2020	-0.2790	0.2075	-0.7559	0.1423	0.0040	-0.1276	0.3731	0.1291
ROE	0.1778	-	0.6710	0.2529	0.1993	-0.1663	0.0149	-0.0277	-0.1833	0.4208
ROA	0.1508	0.7986	-	0.2972	0.1388	-0.2243	0.0224	0.1164	-0.4050	0.5148
Size	0.3965	0.3501	0.3519	-	-0.3854	-0.0436	0.0659	0.1438	-0.0239	0.2380
Log(B/M)	-0.9673	-0.1779	-0.1438	-0.4051	-	-0.1069	-0.0173	0.0137	-0.2763	-0.2114
Beta	0.0879	-0.1839	-0.1764	-0.0713	-0.0795	-	0.0054	0.0561	0.2353	-0.1064
Investment Opportunities	0.0308	0.2205	0.2526	0.4096	-0.0367	-0.0333	-	0.0245	-0.0131	0.0228
Leverage	-0.1049	0.0643	0.1343	0.1896	0.0681	-0.0153	0.1846	-	-0.3000	-0.0238
Cash	0.2437	-0.0645	-0.1615	0.0656	-0.2143	0.1487	-0.0855	-0.4037	-	-0.0594
E/A	0.1874	0.9307	0.8143	0.2957	-0.1746	-0.1722	0.1930	0.0606	-0.0814	-

Table 2-8: OLS regressions of Tobin's Q on rule of law × relationship-specificity interaction

This table presents results from firm-level OLS panel regressions of Tobin's Q on the interaction between rule of law and relationship-specificity variables and several firm-, industry-, and country-level control variables. The specifications are similar to the firm value regressions of Ferreira & Matos (2008). Country and industry variables are defined according to Table 2-3 and Table 2-4. Tobin's Q, Size, and Book Debt are defined previously. Global Q is the median Tobin's Q of firms in each three-digit NAICS global industry. Specifications (8) and (9) include dummy variables for legal origin (we drop the dummy for Social System origin). The regression coefficients and t-statistics (appearing below in parentheses) are reported. *, **, *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
RuleofLaw × RelSpec	0.2544*	1.7589***	1.2873***	0.0661**	0.9412***	0.1536	0.8321***	0.2634***	0.5575***
	(1.72)	(28.61)	(21.65)	(2.41)	(16.49)	(1.11)	(13.65)	(3.74)	(12.17)
Rule of Law	0.7417***	-0.3938***				0.8746***	0.4195***		
	(9.88)	(-8.41)				(8.87)	(5.08)		
Relationship-Specificity	0.0508					-0.1042		-0.0860	
	(0.47)					(-1.02)		(-1.57)	
Size				0.1119***	0.1177***	0.1175***	0.1200***	0.1209***	0.1227***
				(49.34)	(50.37)	(50.79)	(50.43)	(55.85)	(55.11)
Investment Opportunities				-0.0002	-0.0004***	-0.0003*	-0.0004***	-0.0005***	-0.0007***
				(-1.61)	(-2.96)	(-1.83)	(-3.01)	(-3.71)	(-4.72)
Leverage				-0.4960***	-0.5072***	-0.5423***	-0.5238***	-0.6386***	-0.6256***
				(-13.22)	(-13.48)	(-14.38)	(-13.87)	(-17.76)	(-17.36)
Cash				2.5246***	2.3896***	2.5285***	2.3948***	2.3562***	2.2210***
				(94.33)	(87.53)	(94.55)	(87.67)	(92.64)	(85.59)
Global Q				0.6056***	0.1364***	0.5931***	0.1376***	0.5095***	0.1267***
				(33.74)	(5.13)	(32.98)	(5.17)	(29.72)	(4.97)
OECD				0.4705***	0.3821***	0.3854***	0.3516***		
				(25.16)	(19.97)	(19.29)	(17.54)		
Log(GDP)				-0.2268***	-0.2404***	-0.2897***	-0.2668***		
				(-31.78)	(-33.30)	(-32.69)	(-29.99)		
Market Cap. /GDP				0.1916***	0.1607***	0.1452***	0.1430***		
				(19.65)	(16.27)	(13.86)	(13.65)		
Legal Origin Dummies	No	No	No	No	No	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	No	Yes	No	Yes	No	Yes
Country FE	No	No	Yes	No	No	No	No	No	No
Adjusted R^2	3.04%	9.58%	17.20%	19.72%	20.81%	19.86%	20.84%	22.15%	22.91%
N	89,771	89,771	89,771	84,509	84,509	84,509	84,509	89,760	89,760

Table 2-9: OLS regressions of Tobin's Q on rule of law × high relationship-specificity interaction

This table presents results from firm-level OLS panel regressions of Tobin's Q on the interaction between the rule of law variable and the relationship-specificity dummy (high relationship-specificity) and firm-, industry-, and country-level control variables. The regression specifications and variable definitions are according to Table 2-5. The regression coefficients and t-statistics (appearing below in parentheses) are reported. *, **, *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RuleofLaw × High RelSpec	0.5845***	0.8070***	0.6642***	0.3384***	0.4353***	0.3084***	0.3740***
	(8.61)	(39.67)	(33.50)	(5.30)	(21.42)	(6.07)	(20.18)
Rule of Law	0.5296***	0.0343		0.8214***	0.6442***		
	(11.76)	(0.93)		(10.14)	(8.30)		
High Relationship-Specificity	-0.1386***			-0.1666***		-0.1096***	
	(-2.80)			(-3.56)		(-2.91)	
Size				0.1167***	0.1201***	0.1196***	0.1227***
				(50.43)	(50.62)	(55.32)	(55.49)
Investment Opportunities				-0.0002*	-0.0005***	-0.0005***	-0.0007***
				(-1.70)	(-3.16)	(-3.63)	(-4.80)
Leverage				-0.5328***	-0.5447***	-0.6355***	-0.6374***
				(-14.16)	(-14.45)	(-17.73)	(-17.72)
Cash				2.4903***	2.3341***	2.3113***	2.1708***
				(92.34)	(84.82)	(90.18)	(83.33)
Global Q				0.5933***	0.1449***	0.5027***	0.1339***
				(32.95)	(5.45)	(29.43)	(5.26)
OECD				0.3812***	0.3425***		
				(19.09)	(17.12)		
Log(GDP)				-0.2939***	-0.2681***		
				(-33.20)	(-30.21)		
Market Cap. /GDP				0.1430***	0.1367***		
				(13.66)	(13.06)		
Legal Origin Dummies	No	No	No	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	No	Yes	No	Yes
Country FE	No	No	Yes	No	No	No	No
Adjusted R^2	3.87%	10.32%	17.80%	19.94%	21.09%	22.28%	23.13%
N	89,771	89,771	89,771	84,509	84,509	89,760	89,760

Table 2-10: Median regressions of Tobin's Q on rule of law × relationship-specificity interaction

This table presents results from firm-level median panel regressions of Tobin's Q on the interaction between rule of law and relationship-specificity variables and firm-, industry-, and country-level control variables. The regression specifications and variable definitions are according to Table 2-5. The regression coefficients and t-statistics (appearing below in parentheses) are reported. *, **, *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
RuleofLaw × RelSpec	-0.0117	0.7570***	0.5929***	0.1309***	0.5298***	-0.0589	0.4537***	0.2280***	0.3819***
	(-0.20)	(32.17)	(24.56)	(12.22)	(23.68)	(-1.03)	(17.99)	(7.62)	(17.50)
Rule of Law	0.3671***	-0.1234***				0.5585***	0.2783***		
	(12.93)	(-7.38)				(13.55)	(8.66)		
Relationship-Specificity	0.1580***					0.1194***		-0.0449**	
	(3.77)					(2.86)		(-2.06)	
Size				0.0736***	0.0762***	0.0761***	0.0776***	0.0767***	0.0773***
				(73.89)	(68.72)	(68.34)	(71.30)	(79.47)	(68.61)
Investment Opportunities				0.0000	0.0000	0.0001	0.0000	-0.0001	-0.0001
				(0.30)	(0.43)	(0.51)	(0.03)	(-1.36)	(-1.33)
Leverage				0.0005	-0.0097	-0.0221	-0.0238*	-0.0555***	-0.0551***
				(0.04)	(-0.73)	(-1.62)	(-1.81)	(-4.26)	(-4.38)
Cash				1.1788***	1.1596***	1.1859***	1.1601***	1.1710***	1.1291***
				(53.11)	(54.35)	(51.87)	(54.25)	(57.30)	(49.35)
Global Q				0.3952***	0.1663***	0.3887***	0.1762***	0.3297***	0.1513***
				(32.19)	(7.27)	(33.08)	(7.51)	(31.06)	(7.05)
OECD				0.2329***	0.2029***	0.1994***	0.1883***		
				(37.66)	(31.48)	(29.79)	(26.19)		
Log(GDP)				-0.1166***	-0.1268***	-0.1525***	-0.1459***		
				(-47.80)	(-50.72)	(-44.52)	(-42.59)		
Market Cap. /GDP				0.1129***	0.0974***	0.0892***	0.0854***		
				(27.70)	(21.85)	(19.06)	(16.75)		
Legal Origin Dummies	No	No	No	No	No	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	No	Yes	No	Yes	No	Yes
Country FE	No	No	Yes	No	No	No	No	No	No
N	89,771	89,771	89,771	84,509	84,509	84,509	84,509	89,760	89,760

Table 2-11: Median regressions of Tobin's Q on rule of law × high relationship-specificity interaction

This table presents results from firm-level median panel regressions of Tobin's Q on the interaction between the rule of law variable and the relationship-specificity dummy (high relationship-specificity) and firm-, industry-, and country-level control variables. The regression specifications and variable definitions are according to Table 2-5. The regression coefficients and t-statistics (appearing below in parentheses) are reported. *, **, *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RuleofLaw × High RelSpec	0.1093***	0.3410***	0.2767***	0.0761***	0.2261***	0.1700***	0.2108***
	(3.74)	(34.39)	(33.02)	(2.87)	(23.82)	(7.80)	(28.78)
Rule of Law	0.3032***	0.0831***		0.4980***	0.4151***		
	(17.05)	(6.30)		(17.20)	(14.02)		
High Relationship-Specificity	0.0504**			0.0128		-0.0436***	
	(2.46)			(0.66)		(-2.75)	
Size				0.0764***	0.0782***	0.0767***	0.0783***
				(69.90)	(71.85)	(88.44)	(74.93)
Investment Opportunities				0.0000	0.0000	-0.0001	-0.0001
				(0.42)	(0.10)	(-0.98)	(-1.44)
Leverage				-0.0156	-0.0311**	-0.0569***	-0.0646***
				(-1.13)	(-2.27)	(-4.36)	(-5.16)
Cash				1.1682***	1.1309***	1.1545***	1.0987***
				(53.26)	(51.67)	(50.96)	(47.34)
Global Q				0.3787***	0.1726***	0.3236***	0.1515***
				(37.31)	(7.25)	(28.89)	(7.49)
OECD				0.1971***	0.1823***		
				(31.62)	(26.01)		
Log(GDP)				-0.1518***	-0.1467***		
				(-46.34)	(-45.91)		
Market Cap. /GDP				0.0868***	0.0834***		
				(20.59)	(17.70)		
Legal Origin Dummies	No	No	No	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	No	Yes	No	Yes
Country FE	No	No	Yes	No	No	No	No
N	89,771	89,771	89,771	84,509	84,509	89,760	89,760

Table 2-12: Median firm value regressions with additional control variables

This table reports results from firm-level median panel regressions of Tobin's Q on the interaction between rule of law and relationship-specificity. Regression specifications include additional country- and industry-level control variables defined according to Table 2-3 and Table 2-4, respectively. The regression coefficients and t-statistics (appearing below in parentheses) are reported. *, **, *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
RuleofLaw × RelSpec	0.1207**		-0.0264		0.1494***	
	(2.09)		(-0.40)		(6.06)	
RuleofLaw × High RelSpec		0.1231***		0.0996***		0.1606***
		(4.56)		(3.61)		(16.79)
Rule of Law	0.4920***	0.4752***	0.5329***	0.4644***	0.4334***	0.4484***
	(12.50)	(14.39)	(13.93)	(15.02)	(12.05)	(13.09)
Relationship-Specificity	-0.1205***		-0.0638			
	(-2.72)		(-1.33)			
High Relationship-Specificity		-0.0569***		-0.0503**		
		(-2.82)		(-2.39)		
Size	0.0802***	0.0796***	0.0802***	0.0800***	0.0771***	0.0773***
	(72.58)	(63.68)	(75.39)	(67.68)	(60.41)	(62.36)
Investment Opportunities	0.0001	0.0002	0.0000	0.0001	0.0001	0.0001
	(0.90)	(1.48)	(0.41)	(1.00)	(1.28)	(1.53)
Leverage	-0.0487***	-0.0364***	-0.0704***	-0.0575***	-0.0527***	-0.0561***
	(-3.44)	(-2.63)	(-5.03)	(-3.98)	(-3.23)	(-3.26)
Cash	1.0432***	1.0322***	0.9523***	0.9515***	0.9685***	0.9513***
	(44.23)	(42.56)	(36.31)	(38.87)	(37.38)	(43.19)
Global Q	0.3809***	0.3623***	0.1885***	0.1712***	0.1025***	0.0926***
	(24.59)	(24.88)	(10.24)	(8.76)	(3.19)	(2.89)
OECD	0.2127***	0.2099***	0.1696***	0.1712***	0.1650***	0.1613***
	(30.96)	(26.63)	(23.28)	(22.74)	(19.25)	(21.40)
Log(GDP)			-0.0347***	-0.0344***	0.0168**	0.0148**
			(-4.57)	(-4.57)	(2.28)	(2.06)
Market Cap. /GDP			-0.1019***	-0.1088***	-0.1036***	-0.1016***
			(-12.91)	(-14.63)	(-14.12)	(-14.40)
Human Capital × Skill Intensity	-0.2251***	-0.2194***	-0.1719***	-0.1711***	-0.1610***	-0.1584***
	(-65.60)	(-64.28)	(-18.41)	(-19.69)	(-22.13)	(-26.88)
Capital Stock × Capital Intensity	0.0682***	0.0679***	0.0530***	0.0535***	0.0551***	0.0541***
	(13.15)	(12.80)	(9.15)	(10.13)	(9.17)	(8.85)
GDP × Value-Added			0.5701***	0.5397***		
			(22.91)	(19.74)		
Human Capital	0.1837***	0.1823***	0.2808***	0.2760***	0.1570***	0.1588***
	(28.66)	(26.43)	(16.91)	(16.53)	(10.45)	(10.81)
Physical Capital			0.0629***	0.1261***		
			(3.33)	(6.45)		
Skill Intensity	0.0198***	0.0152***	0.0382***	0.0463***	0.0297***	0.0295***
	(16.61)	(11.64)	(8.24)	(9.90)	(16.49)	(17.72)
Capital Intensity			-0.4730***	-0.4231***		
			(-3.37)	(-3.26)		
Value-Added	0.0468***	0.0444***	0.0807***	0.0763***	0.0740***	0.0658***
	(20.83)	(24.64)	(5.54)	(5.76)	(26.30)	(23.49)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No	Yes	Yes
Country FE	No	No	No	No	No	No
N	65,783	65,783	65,783	65,783	65,783	65,783

Table 2-13: Median firm value regressions with alternative measures of legal quality

This table reports results from firm-level median panel regressions of Tobin's Q on the interaction between relationship-specificity and different measures of legal quality. Regression specifications and variable definitions are similar to column (7) in Table 2-10 and Table 2-11. In columns (1) and (2), the country-average relationship-specificity is interacted with industry relationship-specificity (RelSpec) and the relationship-specificity dummy, respectively. In the next four columns, relationship-specificity is interacted with the Economic Freedom of the World's index of legal structure and the measures of time, cost and the number of procedures for dispute resolution in contracts from the World Bank's Doing Business index (available from 2004), respectively. All legal quality measures are normalized to have a value between zero and one. The regression coefficients and t-statistics (appearing below in parentheses) are reported. *, **, *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	RelSpec	Hi. RelSpec	EFW Legal	DBEC Time	DBEC Cost	DBEC Proc.
Legal Quality × Relationship Specificity	0.3932***	0.2472***	0.4636***	0.3041***	0.9518***	0.5144***
	(15.74)	(26.32)	(19.17)	(9.31)	(16.52)	(10.70)
Legal Quality	-1.4174***	-1.3522***	0.4612***	-0.1822***	1.3203***	-0.7601***
	(-55.75)	(-56.57)	(17.16)	(-7.40)	(21.69)	(-16.67)
Size	0.0764***	0.0768***	0.0762***	0.0777***	0.0747***	0.0762***
	(82.66)	(72.68)	(69.11)	(44.78)	(50.44)	(51.35)
Investment Opportunities	-0.0000	-0.0000	0.0000	0.0000	0.0000	0.0001
	(-0.39)	(-0.40)	(0.16)	(0.32)	(0.00)	(0.97)
Leverage	-0.0305***	-0.0344**	-0.0138	0.0060	-0.0202	-0.0346*
	(-2.58)	(-2.55)	(-1.09)	(0.31)	(-1.01)	(-1.70)
Cash	1.1707***	1.1442***	1.1774***	1.2671***	1.2326***	1.2713***
	(59.60)	(53.51)	(58.23)	(40.62)	(45.03)	(44.46)
Global Q	0.1664***	0.1616***	0.1659***	-0.0515	-0.0448	-0.0647**
	(7.63)	(7.80)	(8.23)	(-1.63)	(-1.58)	(-2.21)
OECD	0.2035***	0.2023***	0.1744***	0.1141***	0.2486***	0.1032***
	(31.17)	(30.46)	(24.10)	(11.00)	(25.87)	(11.49)
Log(GDP)	-0.0582***	-0.0586***	-0.1450***	-0.0784***	-0.1473***	-0.0530***
	(-19.99)	(-20.16)	(-49.16)	(-17.23)	(-40.28)	(-13.08)
Market Cap. /GDP	0.1196***	0.1195***	0.0679***	0.0265***	0.0585***	0.0448***
	(26.39)	(27.07)	(12.70)	(4.76)	(10.45)	(7.22)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	No	No
N	87,978	87,978	87,755	47,077	47,077	47,077

Table 2-14: OLS firm value regressions with alternative measures of value

This table reports results from firm-level OLS panel regressions of Tobin's Q on the interaction between rule of law and relationship-specificity. Regression specifications and variable definitions are similar to columns (6) and (7) in Table 2-5 and Table 2-9. Control variables (Size, Inv. Op., Leverage, Cash, Global Q, OECD, log (GDP), Market Cap) are not tabulated; however, their coefficients and significance are similar to previous firm value regressions. Panel A reports estimates of OLS regressions of log Tobin's Q (log (Q)). Panel B reports estimates of OLS regressions of minus the reciprocal of Tobin's Q (-1/Q). The regression coefficients and t-statistics (appearing below in parentheses) are reported. *, **, *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

	Panel A				Panel B			
	Log(Q)				-1/Q			
Variable	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
RuleofLaw × RelSpec	0.0102		0.4471***		-0.0414		0.3110***	
	(0.19)		(19.54)		(-1.07)		(18.24)	
RuleofLaw × High RelSpec		0.0952***		0.2080***		0.0189		0.1330***
		(3.96)		(27.28)		(1.06)		(23.39)
RuleofLaw	0.5144***	0.4906***	0.2467***	0.3777***	0.4052***	0.3874***	0.2044***	0.3002***
	(13.85)	(16.10)	(7.95)	(12.97)	(14.66)	(17.08)	(8.85)	(13.82)
Relationship-Specificity	0.0753**				0.1316***			
	(1.96)				(4.61)			
High Relationship-Specificity		0.0020				0.0527***		
		(0.11)				(4.01)		
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	Yes	Yes	No	No	Yes	Yes
Country FE	No	No	No	No	No	No	No	No
Adjusted R^2	27.19%	27.43%	28.58%	28.89%	25.72%	25.97%	27.03%	27.21%
N	84,509	84,509	84,509	84,509	84,509	84,509	84,509	84,509

Table 2-15: Median return-on-assets regressions

This table presents results from firm-level median panel regressions of return-on-assets (ROA) on the rule of law × relationship-specificity interaction and firm-, industry-, and country-level control variables. The regression specifications are similar to the performance regressions of Ferreira & Matos (2008). All variables are defined previously. The regression coefficients and t-statistics (appearing below in parentheses) are reported. *, **, *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
RuleofLaw × RelSpec	0.0051		-0.0102**		-0.0891***	
	(1.27)		(-2.38)		(-25.48)	
RuleofLaw × High RelSpec		-0.0006		-0.0020		-0.0133***
		(-0.39)		(-1.43)		(-9.74)
Rule of Law			0.0592***	0.0554***		
			(9.89)	(11.45)		
Size	0.0149***	0.0149***	0.0151***	0.0151***	0.0127***	0.0120***
	(69.54)	(68.44)	(70.11)	(68.33)	(58.71)	(56.97)
Leverage	-0.0327***	-0.0327***	-0.0342***	-0.0342***	-0.0399***	-0.0386***
	(-12.12)	(-13.25)	(-12.96)	(-13.28)	(-15.69)	(-15.58)
Cash	-0.2262***	-0.2261***	-0.2234***	-0.2234***	-0.2116***	-0.2147***
	(-63.33)	(-60.30)	(-60.27)	(-69.92)	(-52.09)	(-54.76)
Log(B/M)	-0.0061***	-0.0062***	-0.0061***	-0.0060***	-0.0094***	-0.0092***
	(-11.78)	(-11.91)	(-11.30)	(-11.62)	(-18.54)	(-16.61)
OECD	-0.0072***	-0.0071***	-0.0108***	-0.0108***		
	(-5.76)	(-6.40)	(-9.62)	(-8.85)		
Log(GDP)	-0.0121***	-0.0119***	-0.0159***	-0.0160***		
	(-24.48)	(-25.41)	(-26.03)	(-26.68)		
Market Cap. /GDP	-0.0011*	-0.0010*	-0.0034***	-0.0034***		
	(-1.88)	(-1.79)	(-5.03)	(-4.61)		
Legal Origin Dummies	No	No	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	No	No
N	84,509	84,509	84,509	84,509	89,760	89,760

Table 2-16: Median return-on-equity regressions

This table presents results from firm-level median panel regressions of return-on-equity (ROE) on the rule of law × relationship-specificity interaction and firm-, industry-, and country-level control variables. The regression specifications are similar to the performance regressions of Ferreira & Matos (2008). All variables are defined previously. The regression coefficients and t-statistics (appearing below in parentheses) are reported. *, **, *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
RuleofLaw × RelSpec	0.0003		-0.0208***		-0.1539***	
	(0.05)		(-3.50)		(-31.87)	
RuleofLaw × High RelSpec		-0.0104***		-0.0129***		-0.0353***
		(-5.07)		(-6.91)		(-17.13)
Rule of Law			0.0873***	0.0816***		
			(10.51)	(10.40)		
Size	0.0195***	0.0195***	0.0201***	0.0200***	0.0159***	0.0149***
	(70.93)	(67.69)	(59.78)	(67.17)	(55.72)	(52.57)
Leverage	-0.0749***	-0.0752***	-0.0788***	-0.0793***	-0.0849***	-0.0826***
	(-15.26)	(-16.39)	(-15.26)	(-17.10)	(-19.14)	(-18.58)
Cash	-0.2193***	-0.2164***	-0.2148***	-0.2144***	-0.2094***	-0.2103***
	(-44.60)	(-44.39)	(-42.47)	(-44.33)	(-38.18)	(-39.11)
Log(B/M)	-0.0181***	-0.0184***	-0.0174***	-0.0177***	-0.0248***	-0.0243***
	(-25.41)	(-23.87)	(-21.75)	(-21.40)	(-30.21)	(-27.93)
OECD	-0.0176***	-0.0169***	-0.0231***	-0.0232***		
	(-10.25)	(-9.64)	(-11.68)	(-12.71)		
Log(GDP)	-0.0186***	-0.0183***	-0.0244***	-0.0240***		
	(-26.82)	(-25.93)	(-27.11)	(-26.61)		
Market Cap. /GDP	0.0008	0.0009	-0.0026**	-0.0025**		
	(1.01)	(1.01)	(-2.40)	(-2.50)		
Legal Origin Dummies	No	No	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	No	No
N	84,509	84,509	84,509	84,509	89,760	89,760

Table 2-17: Mean comparisons of average returns across different quartile portfolios

This table reports the average monthly stock returns for different relationship-specificity and rule of law-quartile portfolios. Panel A presents the raw (unadjusted) returns. Panel B presents International CAPM-adjusted returns that are the intercepts from full-sample regressions of individual stock excess returns on country and world (excluding the US index for firms in the United States) MSCI Index excess returns. The excess returns are the premium over the risk-free rate (i.e., US Treasury bill rates, which are obtained from the Fama-French factors database). All stocks are sorted into four quartile portfolios based on the relationship-specificity of their industry and separately sorted each year into four quartile portfolios based on the value of rule of law in their country of origin. The difference in mean values and the t-statistics for the mean difference tests are also reported. Moreover, the difference in the average monthly returns between the high/high and low/low portfolios are reported at the bottom right-hand corner of each table. *, **, *** denote the statistical significance of the mean difference tests at the 10%, 5%, and 1% levels, respectively.

Panel A: Unadjusted monthly stock returns

		Rule of Law					
		Low	2	3	High	High-Low	t-stat
		2.1317	1.3015	0.7145	0.8440	-1.2877***	(-19.95)
		Relationship-Specificity					
		Low	2	3	High	High-Low	t-stat
		1.1629	1.1206	0.8689	0.8092	-0.3537***	(-8.02)
		Relationship-Specificity					
		Low	2	3	High	High-Low	t-stat
Rule of Law	Low	2.0962	2.3636	1.9951	2.0900	-0.0061	(-0.04)
	2	1.4144	1.4364	1.0767	1.1854	-0.2290**	(-2.02)
	3	0.7090	0.5616	0.8450	0.7008	-0.0081	(-0.13)
	High	1.0311	1.1529	0.6245	0.6304	-0.4007***	(-4.59)
	High-Low	-1.0651***	-1.2107***	-1.3707***	-1.4597***	-1.4658***	
	t-stat	(-9.99)	(-7.98)	(-10.01)	(-10.53)	(-13.89)	

Table 2-17 – Continued

Panel B: International CAPM-adjusted monthly stock returns							
		Rule of Law					
		Low	2	3	High	High-Low	t-stat
		1.2914	0.7384	0.5174	0.6139	-0.6775***	(-39.30)
		Relationship-Specificity					
		Low	2	3	High	High-Low	t-stat
		0.7762	0.6646	0.5467	0.3395	-0.4367***	(-9.01)
		Relationship-Specificity					
		Low	2	3	High	High-Low	t-stat
Rule of Law	Low	1.2470	1.4576	1.1708	1.3301	0.0832**	(-2.07)
	2	0.8634	0.8365	0.5151	0.6397	-0.2237***	(-6.55)
	3	0.5194	0.4376	0.6445	0.4676	-0.0518***	(-3.11)
	High	0.7597	0.6598	0.5877	0.4729	-0.2868***	(-11.26)
	High-Low	-0.4873***	-0.7978***	-0.5831***	-0.8572***	-0.7741***	
	t-stat	(-15.82)	(-21.10)	(-16.74)	(-23.67)	(-26.96)	

Table 2-18: Fama-MacBeth regressions of monthly returns

This table presents results from firm-level Fama & MacBeth (1973) regressions of monthly returns on the rule of law × relationship-specificity interaction and firm-level control variables. The regression specifications are extensions to the return regressions of Hou & Robinson (2006). A cross-sectional regression is estimated every month. Control variables are defined according to Table 2-5. Momentum is based on Jegadeesh & Titman's (1993) six-month/six-month strategy (medium-term) and is calculated for each month t as the cumulative return from month $t-6$ to month $t-2$. The time-series mean of monthly regression coefficients and the time-series (Newey & West, 1987) t-statistics (appearing below in parentheses) are reported. *, **, *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RuleofLaw × RelSpec				1.1496***	1.5713***		
				(3.13)	(3.44)		
RuleofLaw × High RelSpec						0.3912*	0.5315**
						(1.88)	(2.41)
Rule of Law	-2.4929				-3.2517**		-2.7425*
	(-1.62)				(-2.16)		(-1.80)
Relationship Specificity		-0.1141					
		(-0.37)					
High Relationship Specificity			0.0458				
			(0.34)				
Size	-0.0938**	-0.0546	-0.0532	-0.0757*	-0.0958**	-0.0735*	-0.0933**
	(-2.42)	(-1.42)	(-1.38)	(-1.86)	(-2.46)	(-1.81)	(-2.40)
Log(B/M)	0.5023***	0.4304***	0.4410***	0.4865***	0.5167***	0.4904***	0.5211***
	(4.31)	(4.68)	(4.90)	(5.94)	(4.47)	(6.10)	(4.55)
Momentum	0.0015	0.0023	0.0024	0.0009	0.0014	0.0008	0.0014
	(0.56)	(0.97)	(0.98)	(0.37)	(0.54)	(0.36)	(0.53)
Lagged Return	-0.0428***	-0.0513***	-0.0512***	-0.0544***	-0.0430***	-0.0545***	-0.0431***
	(-6.38)	(-8.35)	(-8.34)	(-8.55)	(-6.39)	(-8.57)	(-6.40)
Beta	0.4513	-0.1120	-0.1241	-0.1152	0.4329	-0.1154	0.4223
	(1.29)	(-0.25)	(-0.28)	(-0.28)	(1.25)	(-0.28)	(1.22)
E/A	4.7672***	1.8206*	1.8431*	1.9608**	4.7903***	1.9527**	4.7979***
	(3.21)	(1.87)	(1.90)	(2.00)	(3.21)	(2.00)	(3.22)
Leverage	-0.0027	-0.8640*	-0.8122*	-0.7887*	0.0508	-0.7887*	0.0468
	(-0.01)	(-1.91)	(-1.82)	(-1.84)	(0.10)	(-1.87)	(0.09)
Market Cap. /GDP	0.0520				0.0532		0.0487
	(0.26)				(0.26)		(0.24)
Industry FE	Yes	No	No	Yes	Yes	Yes	Yes
Country FE	No	Yes	Yes	Yes	No	Yes	No
Adjusted R^2	6.29%	12.13%	12.10%	13.19%	6.31%	13.21%	6.33%
N	995,502	1,101,669	1,101,669	1,052,763	995,502	1,052,763	995,502

3. Relationship-Specific Investment, Contracting Environment and the Choice of Capital Structure

3.1. Introduction

A firm that produces or procures customized goods requires its suppliers or customers to make relationship-specific investments. These investments, which take the form of physical equipment, human resources, specific production sites, or other dedicated assets, are more valuable inside the unique relationship between the firm and its contracting parties. If the firm liquidates or reneges on its contractual obligations, the other parties face significant switching costs since their investments in relationship-specific assets are generally not redeployable to other uses or users. Consequently, the contracting parties require implicit or explicit assurances of a continuing relationship with the firm in order to invest in specific assets and, in turn, recognize long-term economic benefits (Klein, Crawford, & Alchian, 1978; Williamson, 1979).

One way a purchaser of customized products or services could induce relationship-specific investments from its suppliers is through reduced leverage. Lower leverage reduces the firm's probability of default and conveys its ability to maintain a long-standing relationship with its contracting parties. Titman & Wessels (1988) show that firms in durable goods industries, which can potentially impose high costs on their suppliers in the event of default, choose lower debt

ratios. More recently, Banerjee, Dasgupta, & Kim (2008) find that a firm has lower debt ratios when it is a major customer for its suppliers and this effect is stronger if the firm or its dependent suppliers produce customized products. While these studies present the evidence on how a firm's relationship with its contacting parties influence its choice of capital structure, they generally ignore the role of the environment in which the contracting process takes place. In this study, we exploit the variation in legal systems across countries to provide stronger support for the view that firms adjust their leverage to respond to the importance of contracts in their industry.

Legal systems vary in their ability to enforce contracts (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998). The legal system in some countries provides better means to protect contracting parties from reneging and opportunistic behaviour compared to others. A supplier of customized products would be reluctant to make relationship-specific investment if the required safeguards are not provided by the legal system. This, in turn, would lead to 'under-investment' in relationship-specific assets in countries with weak contract enforcement. Empirical evidence for this notion comes from Nunn (2007), who finds that countries with weak contract enforcement have a cost disadvantage in the production of goods which require significant relationship-specific investments.

Absent governmental contract enforcement, suppliers are more likely to rely on implicit contractual guarantees when they are required to invest in non-redeployable specialized assets. Moreover, they would be more sensitive to the

uncertainty over the cash flows of their customer. Therefore, the customer firm could induce relationship-specific investment by reducing its cash flow uncertainty. In support of this notion, Dou, Hope, & Thomas (2013) find that firms which both reside in countries with weak contract enforcement and operate in industries in which significant relationship-specific investments are required from suppliers, employ 'informational' income smoothing to portray more stable cash flows. In line with this argument, we predict that the need for a firm to reduce its debt ratios to induce relationship-specific investment becomes relatively more (less) important when the suppliers are less (more) likely to rely on contract enforcement provided by the country's legal system. In other words, we expect that firms which both operate in relationship industries and reside in countries with a weak legal system to have significantly lower debt ratios compared to other firms.

In order to test this hypothesis, we examine the joint effect of relationship-specificity and the contracting environment on leverage. Our tests employ an international sample of firms from 57 countries and 30 three-digit North American Industry Classification System (NAICS) industries. We use a relationship-specificity variable constructed by Nunn (2007) to proxy for the relative importance of long-term contracting (contract-intensity) across industries. This variable measures, at the industry level, the proportion of 'specialized' intermediate inputs for each product. We obtain information on the country-level quality of contract enforcement from the World Bank's World Governance Indicator (WGI). We use the WGI's rule of law index as our primary measure of the quality of contract

enforcement. Our regressions include both explanatory variables and their interaction to examine the joint effect. Our final data consist of a large panel of 143,278 firm-year observations representing 17,364 unique firms over the 1996-2013 period.

The main finding in this paper is that firms in industries in which relationship-specificity is important have higher debt ratios when they reside in countries with good quality contract enforcement. That is, strong contract enforcement mitigates the negative effect of relationship-specificity on leverage. For example, in panel regressions with the two primary explanatory variables, their interaction, and a large set of country- and firm-specific control variables, a one standard deviation increase in rule of law is associated with a 1.71 percentage point increase in the long-term market debt ratio for firms that operate in industries with above median relationship-specificity. This effect is economically significant compared to the average long-term market debt ratio of 12.55 percent in the sample.

We explore a variety of robustness tests to rule out chance or spurious correlation as potential explanations for findings in this study. Specifically, we include country fixed effects in place of country-level variables, use alternative measures of leverage, relationship-specificity and contract enforcement, and employ different regression methods. The main findings remain unaffected. Moreover, we show that relationship-specificity affects the probability of maintaining positive debt and the cost of debt negatively, while the interaction between relationship-specificity and contract enforcement affects both variables

positively. This provides additional support for the notion that firms in relationship industries maintain lower debt levels, but only in countries with weak legal enforcement.

Another possible explanation is that countries with stronger contract enforcement also provide better access to debt financing and firms in relationship industries are more affected by the increased availability of external financing, including debt. To control for this explanation, we examine the relationship between creditor protection, relationship-specificity and leverage. Our analysis shows that higher credit protection impacts debt ratios negatively while the joint effect of credit protection and relationship-specificity on debt ratios is positive. However, including credit protection in our regressions has little effect on the coefficient of the relationship-specificity variable or the main interaction variable. This suggests that although strong creditor rights likely increase the availability of debt financing to firms in relationship industries, it cannot explain the positive association between debt ratios and the interaction of relationship-specificity and the quality of contract enforcement.

This study contributes to a growing literature that investigates how a firm's relationship with its contracting parties affects its operating decisions, including the choice of capital structure. It builds on Titman & Wessels (1988) and Banerjee, Dasgupta, & Kim (2008) by showing that the variation in the quality of contract enforcement is an important factor that shapes corporate capital structure in conjunction with the degree of relationship-specificity. Our evidence suggests that

it is important to consider the contracting environment in studies that examine the association between supplier-buyer relationships and overall corporate strategy.

The rest of this chapter is organized as follows. Section 3.2 provides a brief review of the related literature and develops our main hypotheses. Section 3.3 explains the data and the study methodology. Section 3.4 discusses the main results, robustness tests, and alternative explanations. Section 3.5 concludes the chapter.

3.2. Hypothesis Development

There is a large body of economics literature that examines how relationship-specific investments affect the governance form of supplier-buyer transactions, such as relational contracting and vertical integration (Klein, Crawford, & Alchian, 1978; Williamson, 1979; Grossman & Hart, 1986; Hart & Moore, 1990). The nature of contracts between parties in long-term bilateral relationships is complex, which makes it prohibitively costly to write a complete contract that foresees all possible future contingencies (Williamson, 1983). When assets are tied to specific relationships and contracts are incomplete, contracting parties are susceptible to *ex post* opportunism and 'hold-up' problems.

One way to curb *ex post* opportunistic renegotiations and avoid hold-up problems is to provide the prospective cheating firm with a 'premium' stream. This premium, which could be rewarded through promises of preferred pricing or trading terms in future transactions, is a return on the firm's 'reputation' or 'brand-name' capital and a guarantee for contractual performance (Klein, Crawford, & Alchian,

1978; Klein & Leffler, 1981; MacLeod, 2007). In so far as suppliers cannot observe the firm's private information regarding its future performance, they rely on their perception of the firm's reputation or its ability to maintain long-term relationships. On the one hand, the firm could find it favourable to withdraw from a contract provided that the present value of the future premium stream is less than the one-time gains from reneging (Klein, Crawford, & Alchian, 1978). On the other hand, the firm could be forced to terminate its relationships and default on its contractual obligations as a result of liquidation. In either case, the firm's contracting parties (i.e., suppliers of specialized intermediate goods) face high switching costs due to the difficulty of redeploying their relationship-specific assets. In order to mitigate suppliers' concerns regarding its future performance, the firm could signal its willingness to fulfill its contractual obligations and maintain long-term relationships by reducing the uncertainty of its cash flow distribution.

In support of this notion, Raman & Shahrur (2008) and Dou, Hope, & Thomas (2013) show that firms use income smoothing to signal lower cash flow risk and, in turn, induce relationship-specific investments. Moreover, Dou, Hope, & Thomas demonstrate that firms in relationship industries engage in 'informational' income smoothing, particularly in countries where governmental contract enforcement is weak. Banerjee, Dasgupta, & Kim (2008) assert that firms in durable goods industries rely on capital structure to signal less risky cash flows. They argue that not only does a supplier of customized goods maintain lower leverage to reduce its own risk, it also prefers its customers to be less levered to avoid the possible

substantial loss of non-redeployable assets in the event that a customer is liquidated. They find that suppliers and customers in durable goods industries, which are required to make significant relationship-specific investments, maintain lower leverage compared to similar firms in non-durable goods industries. Similarly, Kale & Shahrur (2007) show that a firm's leverage is negatively related to the R&D intensities, a proxy for the degree of relationship-specificity of its suppliers and customers, and to the degree to which strategic alliances and joint ventures are prevalent in supplier or customer industries.

Banerjee, Dasgupta, & Kim and Kale & Shahrur build on the work by Titman & Wessels (1988), who show that a firm in a bilateral relationship chooses a capital structure policy that takes into consideration the effect of its liquidation on suppliers and customers and is used to induce relationship-specific investment.[27] We re-examine this hypothesis and formulate it as follows:

H1: A firm that operates in a relationship industry will have a lower debt ratio.

As discussed above, contracts between suppliers and buyers in long-term bilateral relationships are inherently incomplete and firms mostly rely on implicit

[27] In contrast, Graham & Harvey (2001) find no evidence that high-tech firms, which are assumed to produce unique products and, therefore, have dependent suppliers or customers, are less likely to limit their leverage. However, their findings are based on a survey of CFOs and there is no strong reason to believe that the high-tech firms included in their sample are representative of firms with relationship-specific assets.

guarantees or projections of financial stability to persuade their contracting parties to undertake relationship-specific investments. However, explicit contracts, when enforced, remain an effective mechanism to prevent *ex post* opportunistic behaviour and reduce the risks of having specific assets tied to a customer (or supplier) firm. Bergman & Nicolaievsky (2007) assert that each legal system is characterized by its set of enforceable contracts. Therefore, contracting parties take the ability of the government in contract enforcement into account when they write explicit contracts. Put differently, contracting parties rely more on implicit safeguards, such as a lower debt ratio, when the legal system is inept at enforcing explicit contracts. That is, lower debt ratios and strong enforcement become substitutes, as either could encourage suppliers to make relationship-specific investments. Accordingly, we formulate our second and main hypothesis as follows:

> *H2:* A firm that both operates in a relationship industry and resides in a country with strong contract enforcement will have a higher debt ratio.

Bessler, Drobetz, Haller, & Meier (2013) examine the global zero-leverage phenomenon. They find that the healthcare, information technology, and energy industries have the highest concentration of zero-leverage firms around the world. This is, particularly for healthcare and information technology sectors, consistent with the notion that industries with non-redeployable specialized assets are more likely to adopt 'debt conservatism'. Accordingly, we expect that the probability of a firm maintaining positive leverage to be affected by relationship-specificity and

contract enforcement in a manner that is consistent with our primary hypotheses. That is, in the absence of strong contract enforcement, firms in relationship industries would be more likely to have zero leverage in order to signal lower probability of default to their suppliers. We test this supplementary hypothesis, stated as follows:

> *H3a:* A firm that both operates in a relationship industry and resides in a country with strong contract enforcement will have a higher probability of maintaining positive leverage.

Williamson (1988) argues that the value of specialized assets, which debtholders are expected to partially recover in the event that the firm is liquidated, declines as the degree of relationship-specificity increases. He introduces a model in the context of a firm seeking financing for investment in different types of assets. Williamson's model predicts that debt is mainly used to finance redeployable assets while equity is issued to finance non-redeployable relationship-specific assets. In other words, if debt is used to finance relationship-specific assets, it would be on adverse terms. However, stronger contract enforcement could increase creditors' willingness to take risk and extend credit even to finance specialized assets.[28] Therefore, while the degree of relationship-specificity could be positively associated with the cost of debt (or the terms of debt financing), the interaction

[28] For example, Bae & Goyal (2009) find that better contract enforcement results in bank loans with larger size, longer maturity and lower spread.

between relationship-specificity and the quality of contract enforcement could reduce the cost of debt.

In contrast, if firms with specialized assets reduce their leverage to signal a lower probability of default, the cost of debt would subsequently decrease. Moreover, the joint effect of the degree of relationship-specificity and the quality of contract enforcement on the cost of debt would be positive, since, for reasons discussed above, firms with specialized assets (i.e., firms in relationship industries) borrow more and increase their debt ratios when governmental contract enforcement is strong. Higher debt ratios, in turn, increase the cost of debt. In order to determine the net effect of the interaction between relationship-specificity and contract enforcement on the cost of debt, we test our second supplementary hypothesis, stated as follows:

H3b: A firm that both operates in a relationship industry and resides in a country with strong contract enforcement will have a higher cost of debt.

The role of institutional environment and country-specific factors in capital structure policy is extensively studied in the corporate finance literature. In an important paper, Rajan & Zingales (1995) find that firms in countries in which bankruptcy laws are strongly enforced have the least leverage. They argue that strong creditor protection could discourage borrowing since it enables creditors to penalize managers if the firm enters financial distress. This is in line with recent findings of Vig (2013), who shows that a reform in India, which improved creditor protection, led to a reduction in the size and maturity of corporate debt. Similarly,

Bessler, Drobetz, Haller, & Meier (2013) and Cho, Ghoul, Guedhami, & Suh (2014) report that stronger creditor rights are associated with a higher percentage of zero-leverage firms and lower debt ratios, respectively.

In contrast, La Porta, Lopez-de-Silanes, Shleifer, & Vishny (1997) assert that the quality of the legal system positively affects the ability of firms to use external finance. They find some evidence that stronger creditor rights are associated with higher aggregate debt. Several other studies provide evidence in support of this argument. That is, stronger creditor rights promote greater risk taking by the banks (Houston, Lin, Lin, & Ma, 2010) and result in longer debt maturities and lower spreads (Qian & Strahan, 2007), while better enforcement of creditor rights also increases the size of bank loans to firms (Bae & Goyal, 2009). These findings raise the concern that what we are capturing in our regressions is the association between better contract enforcement and more bank risk taking and greater availability of debt financing, [29] particularly to firms with specialized assets. Although we do not formally hypothesize the expected effect of creditor protection on leverage, we examine whether creditor rights could explain the reported relationship between debt ratios and the quality of contract enforcement as well as its interaction with relationship-specificity.

[29] It is worth highlighting that the correlation between our primary measure of contract enforcement, rule of law, and the creditor rights index is only 2.86%.

3.3. Data and Methodology

Our main sample consists of all firms in the Compustat Global and Compustat North America databases with available accounting information from 1996 to 2013[30] that belong to one of the 222 four-digit U.S. Department of Commerce, Bureau of Economic Analysis' (BEA) I-O industries from Nunn (2007). We match the NAICS industry codes from Compustat with the 1997 I-O Industry Classification codes using the BEA's concordance table. The list of I-O industries and the relationship-specificity data are generously provided on Nathan Nunn's website.[31] In Tables 3-1 and 3-2, we present country and industry distributions of our sample. The full sample consists of 17,364 unique firms across 57 countries and 30 three-digit NAICS industries. Tables 3-3 and 3-4 report the mean values of our main country and industry variables, respectively.

Following Nunn (2007), we use the Worldwide Governance Indicators' Rule of Law (the 2014 update) as our primary measure of legal quality (Kaufmann, Kraay, & Mastruzzi, 2009; 2011).[32] The original index ranges from -2.5 to 2.5. We

[30] Our main measures of legal quality are available from 1996-2013.

[31] Each 6-digit NAICS industry code may correspond to more than one 6-digit I-O industry code and the Compustat NAICS code entries (for each firm) range from two to six digits; therefore, to reduce the ambiguity resulting from associating one firm with too many I-O industries, we have excluded 2-digit NAICS industries (NAICS codes 11, 21, and 51) and then calculated the ratio of the average 'value of inputs neither sold on organized exchanges nor referenced priced' to the average 'total value of inputs used' across the I-O industries that correspond to each 3-, 4-, 5-, or 6-digit NAICS industry to compute the 'relationship-specificity' values.

[32] According to the definition provided by the World Bank's Worldwide Governance Indicators, the rule of law reflects "perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights,

normalize this measure to obtain a value between 0 and 1. Bergman & Nicolaievsky (2007) suggest that legal systems are characterized by their ability to enforce particular sets of contracts, which determines the types of contracts that would be employed by firms under each system. Therefore, we believe that rule of law, which particularly focuses on the quality of contract enforcement and the availability of the court, is a suitable proxy for how well the supplier-buyer contracts are carried out at the country level. In all of our panel regressions without country fixed effects, we include the growth in real GDP and the rate of inflation as country-level control variables (Cho, Ghoul, Guedhami, & Suh, 2014). The GDP and inflation data are from the World Bank.[33]

We chiefly use Nunn's data to capture the level of relationship-specificity (i.e., the intensity of supplier-buyer contractual relationship) in any given industry. Nunn uses the 1997 U.S. industry Input-Output Use tables and the data on internationally traded goods from Rauch (1999) to create a relationship-specificity variable which measures the proportion of intermediate inputs, for every industry, that are neither priced in trade publications nor traded on an organized exchange. To the extent that the production technology in the U.S., which determines the proportion of intermediate trade between industries, is a good proxy for the production

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the police, and the courts, as well as the likelihood of crime and violence." (Kaufmann, Kraay, & Mastruzzi, 2009, p. 6)

[33] Data are retrieved from the World Bank's World Development Indicators website: data.worldbank.org/data-catalog/world-development-indicators.

technology internationally, it is reasonable to use U.S. I-O tables for cross-country analysis. Moreover, combining the U.S. I-O tables with the international trade data provides a better exogenous measure of the equilibrium industry-level demand for relationship-specific investment across different countries (Rajan & Zingales, 1998; Francis, Khurana, & Pereira, 2005; Dou, Hope, & Thomas, 2013). In summary, relationship-specificity, the measure of contract intensity at the industry level, rule of law, the measure of contract enforcement at the country level, and the interaction between the two variables at the firm level comprise our main explanatory variables. The use of the interaction variable enables us to identify a direct channel through which relationship-specific investment influences capital structure policy (Rajan & Zingales, 1998). That is, when contract enforcement is weak at the country level, firms in relationship industries choose a more conservative capital structure policy to signal lower probability of default and encourage their suppliers to invest in specialized assets.

The accounting information is obtained from the Compustat Fundamental Annual tables separately for Global and North American firms. To be included in our sample, we require every firm to have positive values for total assets, sales, market equity, and book equity. All values are converted to U.S. dollars. For global firms (i.e., outside North America), market values at the end of December of each year are retrieved from the Global Security Daily table, since end-of-December prices and numbers of outstanding shares are not available in the Compustat Global Fundamental Annual table.

In Table 3-5 and Panel A of Table 3-6, we report the average values for our dependent variables and the set of primary control variables, at the country and industry levels, respectively.[34] We follow the capital structure literature and use three different variables to measure leverage, namely, market, book, and total leverage. Market leverage is long-term (book) debt divided by the total market value of the firm. Total market value is calculated as market value of equity (market equity) plus total assets minus book value of equity (book equity). Market equity is closing price multiplied by the number of shares outstanding at the end of December of each year. Book equity is common equity (stockholders' equity minus the book value of preferred stock) plus deferred taxes and investment tax credits. Book leverage is long-term (book) debt divided by total assets. Total leverage is the sum of long-term debt and debt in current liabilities scaled by total assets.

We employ a large set of firm-specific control variables to mitigate the concern that these characteristics vary significantly based on the intensity of contracts or the level of contract enforcement, which, in turn, affects capital structure at the firm level. Return on assets (ROA), our proxy for profitability, is calculated as operating income before depreciation divided by total assets. Market-to-book, our growth measure, is the ratio of market equity to book equity. Size is measured as the log of total sales. Tangibility is the ratio of property, plant and equipment to total assets.

[34] We winsorize financial ratios at the bottom and top 1% levels of their sample distributions each year.

Research and development (R&D) expenses are scaled by total assets. Additionally, missing R&D values are set equal to zero and a dummy variable is created to specify observations with missing R&D values. Tax is calculated as the ratio of income taxes to pre-tax income. Moreover, negative tax rates are treated as missing values. Finally, liquidity is calculated as the ratio of current assets to current liabilities.

Panel B of Table 3-6 compares the average values of the main variables between relationship industries (industries with above-median relationship-specificity values) and other industries. The panel also reports the difference between the average values and the corresponding Cochran *t*-statistics. Firms with higher contract intensity – firms in relationship industries – have significantly lower debt in their capital structure. They also have higher growth, higher liquidity and considerably higher R&D expenditures. On the other hand, they have lower ROA and lower tangibility compared to firms in other industries. We also present the full sample pair-wise Pearson (above the diagonal)/Spearman (below the diagonal) correlations between the main firm-level variables in Table 3-7.

In this study, we are mainly interested in the association between capital structure and relationship-specificity in different contracting environments. We estimate univariate and multivariate linear panel regressions of leverage on the interaction between relationship-specificity and the quality of contract enforcement. We use long-term market leverage as our primary measure of capital structure for a firm. We also test the robustness of our results by considering the

two other measures of capital structure explained above.[35] In order to provide further support for our findings, we test the effect of our explanatory variables on the probability of maintaining positive debt (the probability of borrowing) and the cost of debt. The effects of the explanatory variables on the probability of borrowing are estimated using logistic regressions with specifications similar to the debt ratio regressions. The linear panel regressions of the cost of debt include long-term book leverage, market capitalization (market equity), tangibility, growth, and cash flow control variables as well as a dummy variable which is set to one if the firm pays a dividend and zero otherwise. The realized cost of debt is total interest expenses divided by total debt. The cost of debt for each year t is the average of the costs for year t and $t-1$. Cash flow is calculated as income before extraordinary items plus depreciation, scaled by total assets. Moreover, a dummy variable is included to specify firms with negative or missing cash flows.

We employ different methods to allow for the cross-correlations and the serial correlation in the error terms in our firm-level panel regressions (Petersen, 2009). First, we include year fixed effects in all of our panel regressions. Some of our regressions also include country fixed effects; however, we exclude from our regression specifications the country-level contract enforcement variable (as well as the country-level control variables) when country fixed effects are present.

[35] It has been argued that the long-term debt ratio is better able to capture a firm's capital structure policy, since short-term debt is largely used to finance current assets (Cho, Ghoul, Guedhami, & Suh, 2014).

Finally, in our regressions, we allow for clustering of error terms at the firm or industry level. The regression results are presented in the next section of the paper.

3.4. Results and Discussion

3.4.1. Main Evidence

In order to investigate the implications of relationship-specific investment and the legal environment for capital structure policy, we first look at the mean values of firm-specific leverage variables at different levels of industry-level relationship-specificity and country-level legal quality. Table 3-8 presents the comparisons of mean leverage values between quartile portfolios. Firms are grouped together into four portfolios based on the relationship-specificity of their industries and, separately, on the legal quality (i.e., rule of law) of their countries at the end of each year.

Panel A of Table 3-8 reports the mean values and their comparisons across extreme (the highest minus the lowest) quartiles for long-term market leverage. The leverage ratio falls substantially as the degree of relationship-specificity increases. The difference between the mean values of the highest and the lowest quartile portfolios is -5.15 percentage points and is statistically significant at the 1% level. The mean leverage values for the portfolios sorted based on the quality of legal system also decrease between the lowest and the highest quartile portfolios; the difference is -1.87 percentage points and is significant at the 1% level. The results of the mean value comparisons support our first hypothesis; that is, a firm's

leverage is decreasing in the degree of relationship-specificity. The cross-section of long-term market leverage between the 16 double-sorted portfolios provides support for our second hypothesis. For firms with significant relationship-specific assets – that is, firms that operate in industries with the highest degree of relationship-specificity (the 'High' quartile) – the mean leverage value increases from 3.70% to 8.15%. The difference of 4.45 percentage points is both economically significant compared to the sample mean of 12.55% and statistically significant at the 1% level.

Panel B of Table 3-8 presents the mean values and comparisons for long-term book leverage. It shows a pattern comparable to, and even stronger than, the results reported in Panel A. Once more, leverage ratios are negatively associated with relationship-specificity and the decrease in debt ratios are monotonic. More importantly, the long-term book ratio increases significantly for firms with relationship-specific assets as contract enforcement, measured by rule of law, improves. The difference of 5.32 percentage points is again statistically significant at the 1% level and economically significant compared to the sample mean long-term book ratio of 14.44%.

Next, we turn to linear panel regressions. Panel A of Table 3-9 shows the results from the simple linear regressions of our main dependent variable, the long-term market debt ratio, on our explanatory variables. Control variables are not included in the simple regressions. In columns (1) and (2), the coefficient estimates from the univariate regressions of market leverage on relationship-specificity and rule of law

variables support the results from quartile-portfolio comparison tests. Both coefficients are negative and statistically significant at the 1% level. However, when we include both variables in the same specification in column (3), rule of law becomes positive, while the coefficient of relationship-specificity remains virtually unchanged. This explains, to some extent, the mixed empirical evidence on the association between contract enforcement and firm-level leverage. That is, the effect of contract enforcement on the availability of debt financing could be contingent on the type of investment which is financed with external funds. The results presented in column (4) support our view of capital structure policy for firms with relationship-specific investment: when the interaction between the two main independent variables is included in the regression model, the coefficient of relationship-specificity remains negative and statistically significant. Moreover, the coefficient of the interaction variable is positive and statistically significant, as predicted by our second hypothesis. The coefficient of rule of law also becomes negative once again.

Panel B of Table 3-9 reports the results from linear regressions of market leverage when several control variables are included in the specifications. We follow the capital structure literature and include control variables that measure firm-specific profitability, growth opportunities, size, asset tangibility, R&D expenditure, tax, and liquidity. It has been shown in the literature that these variables are important determinants of capital structure for firms both in the U.S. and globally (De Jong, Kabir, & Nguyen, 2008; Fan, Titman, & Twite, 2012; Cho,

Ghoul, Guedhami, & Suh, 2014). We also include OECD membership, inflation, and GDP growth as the country-specific control variables. In our multivariate linear regressions with control variables, the direction of the relationship-specificity and interaction variables remain unchanged. However, the coefficient estimate of rule of law becomes positive and significant in all specifications. This suggests that 1) the effect of legal quality on capital structure is correlated with other firm- or country-specific characteristics; and 2) the effect varies in relation to the type of asset financed by external funds. In the last column, we include country fixed effects and drop the country-level variables to examine whether our results are driven by omitted country-specific factors which are not captured by our country characteristic variables. Additionally, we allow for clustering of error terms at the industry level. Our findings are robust to this alternative specification, although the significance of the interaction variable drops below the 5% level.

The coefficient estimates of the firm characteristic control variables are largely consistent with the literature. The pecking-order theory suggests that more profitable firms and firms with more liquidity use lower debt ratios, since they have more internal funds available for new investments. Size is expected to be positively related to leverage, since larger firms have less information asymmetry. Tangibility can be viewed as a proxy for the availability of collateral, which is expected to affect leverage positively. On the one hand, firms with more growth opportunities and higher R&D intensity experience higher costs of financial distress; therefore, we expect these firms to have lower debt ratios to maintain future financial

flexibility and avoid debt overhang. On the other hand, firms with more growth opportunities face lower borrowing costs to the extent that they have more potential profitability and debt capacity (Chen & Zhao, 2006). Finally, taxation is expected to influence leverage positively. In our primary regressions, we find that ROA, R&D, and liquidity have a negative effect on leverage, while growth opportunities, size, tangibility, and tax positively affect leverage. Most of the coefficient estimates of firm-level control variables are statistically significant at the 1% level or above. Additionally, OECD membership and inflation have positive coefficients while GDP growth has a negative coefficient. The coefficients of the country-level control variables are also statistically significant at the 1% level.

3.4.2. Robustness Tests

In this subsection, we examine the sensitivity of our results for the association between leverage and the cross-section of relationship-specificity and contract enforcement, to alternative specifications and different regression methods. In Table 3-10 we replace our dependent variable with two other measures of leverage; that is, the ratio of long-term debt to the book value of assets and the ratio of total (long-term plus short-term) debt to the book value of assets. Our regression specifications are similar to Table 3-9, Panel B. The coefficients of relationship-specificity are consistently negative in all specifications while the coefficients of the interaction variable remain positive and mostly significant. This supports our primary hypotheses, even when alternative measures of leverage are used.

In Panel A of Table 3-10 in which book leverage is substituted for market leverage, the coefficient of rule of law is positive and statistically significant at the 1% level. But, unlike market leverage regressions, book leverage regressions yield positive coefficient estimates for growth, which is consistent with the agency conflicts between shareholders and creditors and the asset-substitution hypothesis (De Jong, Kabir, & Nguyen, 2008). This could also suggest that in regressions in which the market debt ratio is used as the dependent variable, the effect of growth opportunities on debt is dominated by the positive association between growth opportunities and firm value.[36]

Substituting total book debt ratio for our leverage measure in Panel B of Table 3-10 does not change the direction or significance of the effect of the relationship-specificity or interaction variable. On the other hand, the coefficients of rule of law become negative. This finding may indicate that the demand for short-term debt financing falls significantly in countries where contracts are strongly enforced. Moreover, similar to the long-term book leverage regressions, the coefficients for growth opportunities are positive. Finally, the coefficient of the OECD variable is negative across all total leverage regression specifications, but not statistically

[36] If growth opportunities are considered as real options on cash flows from a firm's assets in place, then the firm with more valuable growth opportunities (and thus, more volatile cash flows) should have a higher market value (Shin & Stulz, 2000).

significant. This could suggest that the use of debt financing, especially short-term debt, declines in more developed countries.

Next, we examine whether our findings are sensitive to the country-specific measure of legal quality. In Table 3-11, Panel A, we present results from linear panel regressions of long-term market debt ratio with alternative measures of legal quality. In the first column, we follow Dou, Hope, & Thomas (2013) and calculate the average country scores across the World Governance Indicators' Regulatory Quality, Rule of Law, and Control of Corruption variables (1996-2013) as the proxy for the quality of the legal system. The scores are normalized to have a value between zero and one. The average score measures the quality of broader aspects of a country's legal system which encompass the quality of legal enforcement. In the second column, legal quality is measured by the Economic Freedom of the World's index of legal structure and security of property rights from 1996 to 2012 (Gwartney, Lawson, & Hall, 2014).[37] The original variable is scaled by 10 in our regressions. In the next three columns, we include measures incorporated in the enforcing contracts index from the World Bank's Doing Business reports between 2004 and 2013 (World Bank, 2013). The three variables measure the time, cost and number of procedures for dispute resolution in contracts. We follow Nunn (2007)

[37] Data are retrieved from the Economic Freedom of the World website: www.freetheworld.com.

and normalize these variables.[38] Our results are robust to these alternative measures of legal quality; that is, the regressions yield positive and significant coefficients for the interaction variable and negative and significant coefficients for the relationship-specificity variable. The coefficients of the legal quality variables are also negative. All of the coefficients are statistically significant at the 1% level.

In Panel B of Table 3-11, we present results from linear panel regressions of the long-term market debt ratio with alternative measures of relationship-specificity. The first three columns show the regression coefficients with the three alternative relationship-specificity variables from Nunn (2007). First, we use an alternative calculation of the relationship-specificity variable based on Rauch (1999)'s more conservative estimates of the value of inputs to each industry which are traded on an exchange or referenced in trade publications. Next, we include the inputs that are reference-priced as relationship-specific inputs. In other words, only inputs to a given industry that are traded on organized exchanges are treated as common, non-specific inputs.[39] Next, a relationship-specificity dummy variable is created, and set equal to 1 when the industry-level relationship-specificity is above its sample median, and 0 otherwise. In the last specification, a dummy variable is created which is set equal to 1 when an industry belongs to one of the Cremers,

[38] DBECTime = (1850-Time)/1850, DBECCost = (3-ln[Cost])/4 , and DBECProc = (60-Procedure)/60.

[39] Once more, two separate relationship-specificity variables are calculated based on liberal and conservative estimates from Rauch (1999), respectively.

Nair, & Peyer (2008)'s relationship industries, and 0 otherwise.[40] The coefficients for the relationship-specificity variable remain negative and the coefficients for the interaction variable remain positive. The coefficients are also highly significant for all five alternative measures of relationship-specificity.[41]

In Panel C of Table 3-11, we employ the Fama & MacBeth (1973) regression approach to address a possible fixed time effect in our panel data (i.e., as an alternative to including year fixed effects). In the first column, we include all three explanatory variables along with the country-level and firm-level control variables. In the second column, we drop the country-specific variables and include country fixed-effects instead. Our findings are robust to this alternative regression method.

3.4.3. Additional Analysis

Thus far, our results consistently suggest that firms which require their suppliers to make specialized investments limit their borrowing to induce such relationship-specific investments; however, this effect is significantly mitigated in countries with a high quality legal environment and strong contract enforcement. In this

[40] Cremers, Nair, & Peyer (2008) define "relationship industries as durable goods industries plus long-term services", which include two-digit Standard Industry Classification (SIC) codes 15-17, 34-39, 42, 47, 50, 51, 55, 60-65, 67, 75, 76, and 87.

[41] In untabulated analyses we limit our regressions to the durable and non-durable goods industries following Cremers, Nair, & Peyer (2008) and Banerjee, Dasgupta, & Kim (2008). We create and use dummy variables, as proxies for the level relationship-specificity, which are set equal to 1 for durable industries, and 0 otherwise. We find similar, but weaker, results using these alternative specifications. However, we believe that the measure of relationship-specificity used in this study is better able to capture the intensity of contracts between a firm and its suppliers and customers in a given industry.

subsection, we attempt to provide more conclusive evidence in support of this notion and rule out alternative explanations.

In Table 3-12 we examine whether the interaction between relationship-specificity and contract enforcement increases the probability of a firm maintaining positive leverage (H3a). Panel A and Panel B report the results from logistic panel regressions of a long-term leverage dummy and a total leverage dummy on the main explanatory variables and the set of control variables, respectively. The long-term (total) leverage dummy takes the value of one when the firm has positive long-term (total) debt, and is set to zero otherwise. The coefficient estimates presented in Table 3-12 closely follow the estimates from the OLS panel regressions with the market debt ratio as the dependent variable (Table 3-9, Panel B).

The probability of maintaining positive leverage is negatively associated with relationship-specificity and positively associated with the interaction variable. This indicates that firms which both operate in relationship industries and reside in countries with weak contract enforcement are highly likely to adopt debt conservatism (Bessler, Drobetz, Haller, & Meier, 2013). Once again, the direction of the effect of the rule of law variable changes according to the dependent variable used in the regression. That is, its coefficient estimates are positive for the long-term leverage dummy and negative for the total leverage dummy. This suggests a negative association between the quality of governmental contract enforcement and the ability of firms to raise short-term debt.

Next, we investigate whether there is an association between relationship-specificity and the cost of debt and how it is influenced by the quality of contract enforcement. We estimate linear panel regressions of the cost of debt on the main explanatory variables and a set of control variables employed in the capital structure literature (van Binsbergen, Graham, & Yang, 2010). The results are provided in Table 3-13. The coefficient estimates are consistent with the leverage regressions. In column (4) of the table, the coefficient of the relationship-specificity is negative and the coefficient of the interaction variable is positive. Both coefficients are statistically significant at the 5% level. This supports the hypothesis that firms in relationship industries generally have a lower realized cost of debt since they limit their borrowing and adopt debt conservatism. However, as these firms increase their leverage ratios in countries with better quality contract enforcement, their cost of debt rises accordingly (H3b).

The coefficients for other firm- and country-level variables also have the expected signs and are significant, with the exception of cash flow. Rule of law and GDP growth negatively affect the realized cost of debt. This is consistent with the notion that countries with strong law enforcement and more developed countries provide better access to external financing, including debt financing (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997). On the other hand, OECD membership has a positive, but smaller, effect on the cost of debt. Moreover, larger firms, firms with more tangible assets and dividend-paying firms have a lower cost of debt. In contrast, growth firms and firms with negative cash flows have a higher

cost of debt. Lastly, the effect of book debt ratio on the cost of debt is negative, which indicates that firms with higher debt capacity tend to have a lower cost of debt.

Finally, in Table 3-14 we test an alternative explanation for our findings. That is, firms in countries with stronger contract enforcement have access to more developed equity and debt markets, which, in turn, could reduce their cost of debt financing. Moreover, compared to firms with non-specialized assets, firms in relationship industries could be more affected by the availability of improved debt markets. In column (1) of the table, we substitute creditor rights for our legal quality variable, as it specifically measures the protection provided to creditors in a given country. Our creditor rights data are from Djankov, McLiesh, & Shleifer (2007) and Cho, Ghoul, Guedhami, & Suh (2014). Consistent with the findings of Cho, Ghoul, Guedhami, & Suh, we find that leverage is negatively associated with creditor protection. However, the coefficient of the interaction between the creditor protection variable and relationship-specificity is positive and statistically significant. The results indicate that although better credit protection could be generally associated with less borrowing at the firm level, the relationship is reversed for firms with specific assets.

In the next three columns of the table, we include creditor rights and its interaction with relationship-specificity as additional variables in our main regressions. Although the coefficients on creditor rights remain virtually unchanged, they have no effect on the direction or significance of the coefficient of

the interaction between relationship-specificity and rule of law. This could indicate that our contract enforcement variable measures aspects of a country's contracting environment which are not captured by the creditor protection variable, and these aspects are essential for the decision by a firm with relationship-specific assets to raise debt. Taken together with the cost of debt regressions, these findings suggest that firms in relationship industries attempt to increase their suppliers' willingness to invest in relationship-specific assets through limiting their leverage and reducing their probability of default, in so far as the suppliers perceive that their specialized investments are not protected by explicit contracts.

3.5. Conclusion

This study examines the implications of supplier-buyer relationships and the contracting environment for capital structure policy. The study shows how the quality of country-specific governmental contract enforcement interacts with relationship-specific investment at the industry level to impact the variation in firm leverage. We show that firms in relationship industries commit to lower debt levels in order to induce investment from their stakeholders (i.e., suppliers and customers). However, better governmental contract enforcement can reduce the stakeholders' perceived costs of financial distress or default. Accordingly, firms in relationship industries are inclined to increase their leverage in the presence of strong contract enforcement, without threatening the relationships with their stakeholders. This is also consistent with the trade-off theory of capital structure

(Kraus & Litzenberger, 1973) which states that firms consider the costs and benefits of raising debt to determine the optimal level of leverage.

The current study expands the empirical capital structure literature in a few important ways. First, it provides new evidence to support the transaction-cost view of capital structure. Second, it highlights the importance of incorporating the effect of the contracting environment in studies that examine the association between relationship-specificity and corporate strategy. Third, it employs a proxy for relationship-specificity, introduced by Nunn (2007), which measures the degree of contract intensity in a given industry. The results of the study are subjected to numerous controls, empirical specifications, and analysis methods; however, the reported statistical associations do not necessarily establish causal relations.

3.6. References

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Table 3-1: Country distribution of the sample

This table reports the number of unique firms and firm-year observations for each of the 57 countries in the sample and the number of 6-digit industries (based on the North American Industry Classification System) in each country. The table also reports the legal origin of each country and whether the country joined the Organisation for Economic Co-operation and Development (OECD) by the 1990s (Nunn, 2007).

Country Code	Country Name	Legal Origin*	OECD	# of Firms	% of Total Firms	# of Firm-Year Obs.	# of 6-digit NAICS Industries
ARE	United Arab Emirates	Br.	N	15	0.09%	114	9
ARG	Argentina	Fr.	N	37	0.21%	425	26
AUS	Australia	Br.	Y	1,208	6.96%	8,668	134
AUT	Austria	Ge.	Y	41	0.24%	422	34
BEL	Belgium	Fr.	Y	55	0.32%	607	38
BGD	Bangladesh	Br.	N	35	0.20%	165	11
BRA	Brazil	Fr.	N	106	0.61%	847	62
CAN	Canada	Br.	Y	1,172	6.75%	6,686	123
CHE	Switzerland	Ge.	Y	99	0.57%	1,166	65
CHL	Chile	Fr.	N	53	0.31%	540	37
CHN	China	So.	N	1,326	7.64%	10,638	216
COL	Colombia	Fr.	N	11	0.06%	117	10
DEU	Germany	Ge.	Y	338	1.95%	3,221	138
DNK	Denmark	Sc.	Y	77	0.44%	826	44
EGY	Egypt	Fr.	N	52	0.30%	382	25
ESP	Spain	Fr.	Y	61	0.35%	679	37
FIN	Finland	Sc.	Y	59	0.34%	747	41
FRA	France	Fr.	Y	349	2.01%	3,211	147
GBR	United Kingdom	Br.	Y	722	4.16%	5,657	187
GRC	Greece	Fr.	Y	94	0.54%	1,009	50
HKG	Hong Kong	Br.	N	36	0.21%	509	26
HUN	Hungary	So.	N	14	0.08%	163	12
IDN	Indonesia	Fr.	N	161	0.93%	1,545	73
IND	India	Br.	N	1,437	8.28%	8,955	200
IRL	Ireland	Br.	Y	21	0.12%	220	16
ISR	Israel	Br.	N	90	0.52%	511	40
ITA	Italy	Fr.	Y	135	0.78%	1,398	73
JOR	Jordan	Fr.	N	57	0.33%	483	32
JPN	Japan	Ge.	Y	1,358	7.82%	17,688	268
KEN	Kenya	Br.	N	15	0.09%	134	10
KOR	South Korea	Ge.	N	869	5.00%	5,864	145
KWT	Kuwait	Fr.	N	17	0.10%	131	15

Country Code	Country Name	Legal Origin*	OECD	# of Firms	% of Total Firms	# of Firm-Year Obs.	# of 6-digit NAICS Industries
LKA	Sri Lanka	Br.	N	81	0.47%	652	42
MAR	Morocco	Fr.	N	27	0.16%	286	19
MEX	Mexico	Fr.	N	49	0.28%	501	24
MYS	Malaysia	Br.	N	410	2.36%	4,610	155
NGA	Nigeria	Br.	N	36	0.21%	295	17
NLD	Netherlands	Fr.	Y	55	0.32%	660	41
NOR	Norway	Sc.	Y	77	0.44%	635	38
NZL	New Zealand	Br.	Y	47	0.27%	425	34
OMN	Oman	Fr.	N	15	0.09%	135	12
PAK	Pakistan	Br.	N	172	0.99%	1,474	40
PER	Peru	Fr.	N	38	0.22%	336	21
PHL	Philippines	Fr.	N	63	0.36%	585	30
POL	Poland	So.	N	170	0.98%	1,311	87
PRT	Portugal	Fr.	Y	22	0.13%	244	19
RUS	Russia	So.	N	49	0.28%	160	14
SAU	Saudi Arabia	Br.	N	48	0.28%	404	22
SGP	Singapore	Br.	N	158	0.91%	1,631	81
SWE	Sweden	Sc.	Y	201	1.16%	1,703	80
THA	Thailand	Br.	N	185	1.07%	2,051	93
TUN	Tunisia	Fr.	N	14	0.08%	117	12
TUR	Turkey	Fr.	Y	139	0.80%	1,378	59
TWN	Taiwan	Ge.	N	891	5.13%	7,789	145
USA	United States of America	Br.	Y	4,041	23.27%	30,292	316
VNM	Vietnam	So.	N	132	0.76%	650	49
ZAF	South Africa	Br.	N	124	0.71%	1,226	54
Total				17,364		143,278	

* The existing legal origins of the company law or commercial code are British Common Law (Br.), French Civil Law (Fr.), German Civil Law (Ge.), Scandinavian Civil Law (Sc.), and Socialist System (So.).

Table 3-2: Industry distribution of the sample

This table reports the number of unique firms and firm-year observations for each of the 30 three-digit North American Industry Classification System (NAICS) industries in the sample. The table also reports the number of 6-digit industries and the number of countries with at least one firm in each 3-digit industry.

NAICS 3-digit Code	Industry Description	# of Firms	% of Total Firms	# of Firm-Year Obs.	# of 6-digit NAICS Industries	# of Countries
111	Crop Production	156	0.90%	1,450	30	28
112	Animal Production	49	0.28%	475	14	18
113	Forestry and Logging	45	0.26%	457	4	16
114	Fishing, Hunting and Trapping	15	0.09%	186	5	9
211	Oil and Gas Extraction	1,129	6.50%	6,962	3	28
212	Mining (except Oil and Gas)	1,520	8.75%	9,545	30	40
221	Utilities	4	0.02%	49	4	4
311	Food Manufacturing	998	5.75%	9,369	50	53
312	Beverage and Tobacco Product Manufacturing	393	2.26%	3,787	12	52
313	Textile Mills	565	3.25%	4,393	13	39
314	Textile Product Mills	56	0.32%	564	9	21
315	Apparel Manufacturing	365	2.10%	3,051	20	37
316	Leather and Allied Product Manufacturing	90	0.52%	759	12	21
321	Wood Product Manufacturing	178	1.03%	1,722	11	31
322	Paper Manufacturing	377	2.17%	3,520	17	46
323	Printing and Related Support Activities	138	0.79%	1,316	7	26
324	Petroleum and Coal Products Manufacturing	166	0.96%	1,612	1	36
325	Chemical Manufacturing	3,116	17.95%	25,499	40	56
326	Plastics and Rubber Products Manufacturing	549	3.16%	4,883	15	40
327	Nonmetallic Mineral Product Manufacturing	542	3.12%	5,182	21	52
331	Primary Metal Manufacturing	469	2.70%	3,547	19	44
332	Fabricated Metal Product Manufacturing	428	2.46%	3,964	26	38
333	Machinery Manufacturing	914	5.26%	7,994	42	40
334	Computer and Electronic Product Manufacturing	2,589	14.91%	21,407	27	36
335	Electrical Eqpt., Appliance, and Component Mfg.	654	3.77%	6,026	21	48
336	Transportation Equipment Manufacturing	692	3.99%	6,318	28	44
337	Furniture and Related Product Manufacturing	58	0.33%	497	4	21
339	Miscellaneous Manufacturing	440	2.53%	3,663	20	32
511	Publishing Industries (except Internet)	214	1.23%	1,999	4	42
519	Other Information Services	455	2.62%	3,082	2	28

Table 3-3: Country-level variables

This table summarizes the main country-specific variables for each of the 57 countries in the sample. Rule of law is the measure of the quality of a country's legal system from The World Bank's Worldwide Governance indicators. The original measure ranges from -2.5 to 2.5. We normalize this measure to have a value between 0 and 1 by adding to it 2.5 and dividing the result by 5. The creditor rights index is the country-level measure of creditor protection from Djankov, McLiesh, & Shleifer (2007); the 2002 values are used following Cho, Ghoul, Guedhami, & Suh (2014). The annual inflation rate, the growth rate in Gross Domestic Product (GDP), and the log of GDP per capita are from the World Bank. The average country values from 1996-2013 are reported in the table. The average relationship-specificity value for each country is calculated as $\sum_{i=1}^{I_c} {x_{ci}}/{x_c} \cdot z_i$; where x_{ci} is the exports in industry i by country c to all other countries, x_c is the total exports by country c to all other countries, z_i is the proportion of industry i's intermediate inputs that are relationship-specific, and I_c is the total number of industries in country c. The export and relationship-specificity data are obtained from Nunn (2007). Countries are sorted in descending order based on the value of the rule of law variable.

Country Name	Rule of Law	Creditor Rights	Inflation	GDP Growth	ln(GDP Per Capita)	Average Relationship -Specificity
Finland	0.888	0.25	0.017	0.024	10.485	0.530
Norway	0.882	0.50	0.020	0.021	10.980	0.309
Denmark	0.878	0.75	0.021	0.012	10.709	0.532
Switzerland	0.872	0.25	0.007	0.019	10.918	0.546
Sweden	0.872	0.25	0.012	0.024	10.615	0.587
Austria	0.869	0.75	0.019	0.019	10.495	0.554
New Zealand	0.869	1.00	0.022	0.027	10.063	0.433
Netherlands	0.850	0.75	0.021	0.019	10.548	0.519
Australia	0.849	0.75	0.026	0.033	10.404	0.418
Canada	0.845	0.25	0.019	0.025	10.403	0.561
United Kingdom	0.834	1.00	0.022	0.021	10.430	0.601
Germany	0.827	0.75	0.015	0.013	10.430	0.604
Ireland	0.824	0.25	0.024	0.042	10.571	0.586
United States of America	0.809	0.25	0.024	0.025	10.635	0.616
Singapore	0.808	0.75	0.018	0.056	10.365	0.679
France	0.780	0.00	0.016	0.016	10.387	0.576
Belgium	0.761	0.50	0.020	0.018	10.439	0.511
Hong Kong	0.760	1.00	0.014	0.036	10.256	0.599
Japan	0.758	0.50	-0.001	0.008	10.511	0.690
Chile	0.749	0.50	0.024	0.042	8.944	0.361
Spain	0.741	0.50	0.027	0.022	10.038	0.582
Portugal	0.727	0.25	0.025	0.012	9.733	0.609
Israel	0.690	0.75	0.034	0.039	10.055	0.566
South Korea	0.677	0.75	0.033	0.045	9.695	0.591
Taiwan	0.675	0.50				0.614

Country Name	Rule of Law	Creditor Rights	Inflation	GDP Growth	ln(GDP Per Capita)	Average Relationship -Specificity
Hungary	0.663	0.25	0.080	0.021	9.062	0.588
Greece	0.647	0.25	0.034	0.010	9.865	0.432
Poland	0.621		0.056	0.041	8.921	0.501
Italy	0.616	0.50	0.023	0.005	10.272	0.568
Oman	0.613		0.029	0.035	9.585	0.287
Kuwait	0.612		0.037	0.056	10.478	0.153
Malaysia	0.596	0.75	0.025	0.048	8.660	0.607
United Arab Emirates	0.595		0.029	0.042	10.614	0.249
Jordan	0.568	0.25	0.039	0.051	7.926	0.343
Saudi Arabia	0.533		0.030	0.056	9.633	0.190
Thailand	0.529	0.50	0.031	0.031	8.015	0.565
India	0.520	0.50	0.073	0.068	6.613	0.466
South Africa	0.518	0.75	0.061	0.032	8.414	0.378
Sri Lanka	0.518	0.50	0.097	0.055	7.208	0.596
Turkey	0.503	0.50	0.324	0.042	8.710	0.498
Tunisia	0.501		0.036	0.041	8.106	0.529
Morocco	0.490	0.25	0.018	0.046	7.578	0.401
Egypt	0.478	0.50	0.073	0.045	7.466	0.265
Brazil	0.443	0.25	0.068	0.029	8.648	0.430
Philippines	0.421	0.25	0.050	0.046	7.259	0.579
China	0.415	0.50	0.023	0.096	7.548	0.564
Vietnam	0.406		0.117	0.059	7.223	0.494
Argentina	0.398	0.25		0.037	8.959	0.377
Mexico	0.395	0.00	0.086	0.029	8.893	0.616
Colombia	0.372	0.00	0.079	0.035	8.213	0.326
Peru	0.370	0.00	0.038	0.049	8.031	0.353
Indonesia	0.361	0.50	0.110	0.042	7.267	0.406
Russia	0.335	0.50	0.115	0.008	9.123	0.316
Pakistan	0.334	1.00	0.086	0.038	6.566	0.437
Bangladesh	0.327		0.072	0.059	6.356	0.678
Kenya	0.310	1.00	0.097	0.039	6.434	0.322
Nigeria	0.253	1.00	0.131	0.078	6.849	0.187

Table 3-4: Industry-level relationship-specificity

This table reports the relationship-specificity variable for each of the 30 three-digit NAICS industries in the sample. Relationship-specificity is the proportion of an industry's intermediate inputs that is neither sold on an organized exchange nor reference-priced. It is a proxy for the degree of contract-intensity of an industry. The 1997 values are obtained from Nunn (2007). The industry mean values are reported in the table. Industries are sorted in descending order based on the value of the relationship-specificity variable.

Industry Description	Relationship-Specificity	Industry Description	Relationship-Specificity
Computer and Electronic Product Manufacturing	0.838	Forestry and Logging	0.483
Transportation Equipment Manufacturing	0.801	Fabricated Metal Product Manufacturing	0.467
Apparel Manufacturing	0.743	Plastics and Rubber Products Manufacturing	0.413
Machinery Manufacturing	0.707	Mining (except Oil and Gas)	0.400
Publishing Industries (except Internet)	0.682	Nonmetallic Mineral Product Manufacturing	0.394
Leather and Allied Product Manufacturing	0.655	Crop Production	0.363
Other Information Services	0.644	Paper Manufacturing	0.354
Printing and Related Support Activities	0.609	Chemical Manufacturing	0.328
Miscellaneous Manufacturing	0.594	Food Manufacturing	0.293
Textile Product Mills	0.560	Textile Mills	0.292
Furniture and Related Product Manufacturing	0.558	Utilities	0.285
Wood Product Manufacturing	0.550	Animal Production	0.271
Beverage and Tobacco Product Manufacturing	0.540	Primary Metal Manufacturing	0.191
Electrical Eqpt., Appliance, and Component Mfg.	0.539	Oil and Gas Extraction	0.171
Fishing, Hunting and Trapping	0.517	Petroleum and Coal Products Manufacturing	0.036

Table 3-5: Variable means by country

This table reports the simple average of the main firm-specific variables for firms in each of the 57 countries in the sample. The sample includes all firms in the Compustat Global and Compustat North America databases with available market value, book value and net sales data between 1996 and 2013 that belong to one of the 222 industries (based on the I-O Industry Classification codes of the Bureau of Economic Analysis, U.S. Department of Commerce) from Nunn (2007). Market leverage is book value of long-term debt divided by market value of the firm. Book leverage is book value of long-term debt divided by total assets. Total debt is the sum of long-term debt and debt in current liabilities scaled by total assets. Market value of the firm is calculated as the sum of the market value of equity (market equity) and book liabilities. Market equity is closing price in U.S. dollars multiplied by the number of shares outstanding at the end of December each year. Book liabilities are measured as the book value of total assets minus the book value of equity (book equity). Book equity is common equity (stockholders' equity minus the book value of preferred stock) plus deferred taxes and investment tax credit. Return on assets is measured as operating income before depreciation divided by total assets. Growth is measured using the market-to-book ratio or the ratio of market equity to book equity. Size is the log of net sales in U.S. dollars. Tangibility is the ratio of fixed assets (property, plant & equipment) to total assets. R&D is research and development expense scaled by total assets. Tax is income taxes divided by pre-tax income. Liquidity is the ratio of current assets to current liabilities. Financial ratios are winsorized at the lower and upper 1% levels of their sample distributions each year. Firms with non-positive long-term debt, non-positive total debt, and negative or missing R&D values are omitted from the average calculations of the respective variables. The full sample means are also provided at the bottom of the table.

Country Name	Market Leverage	Book Leverage	Total Book Leverage	Return-On-Assets	Growth (M/B)	Size (log of Sales)	Tangibility	R&D	Tax	Liquidity
Argentina	0.130	0.135	0.237	0.120	2.486	5.078	0.413	0.004	0.307	1.736
Australia	0.110	0.136	0.175	-0.153	3.513	0.771	0.400	0.115	0.120	6.814
Austria	0.127	0.131	0.238	0.093	1.566	5.397	0.315	0.034	0.279	2.397
Bangladesh	0.071	0.112	0.310	0.141	4.846	3.900	0.404	0.001	0.222	1.729
Belgium	0.111	0.128	0.219	0.099	2.172	5.120	0.299	0.087	0.288	2.210
Brazil	0.135	0.170	0.294	0.104	8.156	6.194	0.356	0.015	0.325	2.020
Canada	0.129	0.180	0.216	0.001	2.497	3.210	0.528	0.140	0.264	3.306
Chile	0.139	0.142	0.214	0.117	1.518	4.983	0.463	0.002	0.194	2.212
China	0.056	0.088	0.233	0.070	3.950	5.102	0.352	0.012	0.194	2.383
Colombia	0.123	0.110	0.136	0.092	1.093	5.919	0.458		0.233	2.086
Denmark	0.118	0.138	0.241	0.076	2.735	4.985	0.290	0.115	0.285	2.345

Country Name	Market Leverage	Book Leverage	Total Book Leverage	Return-On-Assets	Growth (M/B)	Size (log of Sales)	Tangibility	R&D	Tax	Liquidity
Egypt	0.081	0.098	0.193	0.130	1.994	4.738	0.414	0.017	0.171	1.881
Finland	0.153	0.173	0.260	0.120	2.088	6.133	0.291	0.041	0.280	1.777
France	0.114	0.131	0.219	0.083	2.253	5.487	0.198	0.068	0.335	2.107
Germany	0.112	0.127	0.209	0.074	2.530	5.518	0.250	0.065	0.361	2.860
Greece	0.172	0.169	0.341	0.063	1.556	4.531	0.397	0.006	0.373	1.663
Hong Kong	0.103	0.090	0.187	0.045	1.303	4.682	0.288	0.014	0.179	2.701
Hungary	0.084	0.087	0.150	0.116	1.423	5.486	0.428	0.050	0.197	2.837
India	0.198	0.193	0.327	0.112	1.909	4.196	0.371	0.010	0.286	1.990
Indonesia	0.174	0.183	0.331	0.126	2.179	4.370	0.419	0.004	0.318	2.479
Ireland	0.193	0.256	0.298	0.092	3.389	6.046	0.393	0.015	0.200	1.577
Israel	0.139	0.164	0.277	0.025	2.613	4.205	0.230	0.124	0.246	2.316
Italy	0.119	0.131	0.259	0.081	1.816	6.002	0.240	0.030	0.457	1.689
Japan	0.112	0.110	0.237	0.076	1.282	6.108	0.312	0.026	0.457	2.072
Jordan	0.109	0.111	0.226	0.045	1.559	2.611	0.375	0.004	0.080	2.956
Kenya	0.081	0.100	0.150	0.177	2.450	4.141	0.471	0.003	0.320	2.239
Kuwait	0.110	0.133	0.209	0.050	1.552	3.694	0.199	0.001	0.009	4.762
Malaysia	0.100	0.092	0.236	0.078	1.402	3.784	0.402	0.011	0.247	2.912
Mexico	0.210	0.200	0.265	0.134	1.258	6.527	0.534	0.002	0.360	2.290
Morocco	0.073	0.109	0.183	0.151	3.088	5.036	0.342	0.012	0.297	2.062
Netherlands	0.128	0.163	0.255	0.109	2.411	6.481	0.279	0.065	0.292	1.775
New Zealand	0.178	0.198	0.241	0.008	2.957	3.736	0.358	0.080	0.247	2.874
Nigeria	0.078	0.112	0.204	0.178	4.586	4.778	0.468	0.064	0.307	1.457
Norway	0.172	0.198	0.259	0.011	2.676	4.679	0.248	0.070	0.294	2.364
Oman	0.080	0.090	0.200	0.118	1.587	3.742	0.436	0.008	0.118	3.160

Country Name	Market Leverage	Book Leverage	Total Book Leverage	Return-On-Assets	Growth (M/B)	Size (log of Sales)	Tangibility	R&D	Tax	Liquidity
Pakistan	0.168	0.161	0.319	0.156	1.751	4.195	0.444	0.005	0.330	1.521
Peru	0.152	0.130	0.232	0.161	1.405	4.781	0.457	0.017	0.301	1.995
Philippines	0.154	0.154	0.235	0.073	1.920	3.416	0.376	0.006	0.242	3.016
Poland	0.087	0.094	0.201	0.084	1.850	4.195	0.376	0.009	0.227	2.181
Portugal	0.214	0.228	0.358	0.103	1.551	5.825	0.398	0.002	0.269	1.305
Russia	0.175	0.167	0.243	0.091	1.276	6.939	0.397	0.021	0.254	3.143
Saudi Arabia	0.145	0.204	0.273	0.121	2.959	5.320	0.505	0.003	0.095	2.881
Singapore	0.071	0.073	0.183	0.077	1.569	4.365	0.309	0.015	0.243	2.266
South Africa	0.091	0.102	0.172	0.119	2.028	4.918	0.390	0.005	0.274	2.175
South Korea	0.122	0.115	0.303	0.075	1.215	5.389	0.365	0.023	0.281	1.764
Spain	0.126	0.143	0.238	0.103	1.924	5.891	0.354	0.023	0.259	1.675
Sri Lanka	0.111	0.121	0.236	0.108	2.050	2.882	0.454	0.001	0.255	1.937
Sweden	0.135	0.169	0.238	0.010	3.030	4.409	0.216	0.097	0.238	2.527
Switzerland	0.137	0.157	0.222	0.090	1.999	5.899	0.301	0.069	0.246	2.960
Taiwan	0.104	0.113	0.230	0.076	1.621	4.734	0.323	0.027	0.219	2.410
Thailand	0.130	0.135	0.300	0.115	1.456	4.414	0.423	0.014	0.178	2.265
Tunisia	0.081	0.104	0.232	0.118	2.044	3.742	0.316	0.001	0.137	2.359
Turkey	0.092	0.106	0.208	0.101	2.383	5.020	0.354	0.008	0.244	2.388
United Arab Emirates	0.083	0.097	0.118	0.070	1.464	4.451	0.330	0.006	0.000	4.262
United Kingdom	0.106	0.132	0.189	0.025	3.058	4.041	0.264	0.087	0.258	2.673
United States of America	0.144	0.194	0.230	-0.005	3.937	4.479	0.255	0.125	0.248	3.627
Vietnam	0.113	0.111	0.300	0.136	1.236	3.664	0.286	0.007	0.184	2.011
Full Sample	0.126	0.144	0.241	0.046	2.609	4.552	0.331	0.069	0.271	2.868

Table 3-6: Variable means by industry

This table reports the simple average of the main firm-specific variables for firms in each of the 30 industry classes in the sample. The sample includes all firms in the Compustat Global and Compustat North America databases with available market value, book value and net sales data between 1996 and 2013 that belong to one of the 222 I-O industries from Nunn (2007). The variables are explained in Table 3-5. Panel A presents the variable means for each of the 3-digit NAICS industries in the sample. Panel B presents the variable means separately for relationship industries and other industries. Relationship industries are defined as industries with above median relationship-specificity. The last two rows of the table report the difference in average values between the two types of industries and the *t*-statistics for the Cochran mean difference *t* tests, respectively.

Panel A: Industry means										
Industry Description	Market Leverage	Book Leverage	Total Book Debt	Return-On-Assets	Growth (M/B)	Size (log of Sales)	Tangibility	R&D	Tax	Liquidity
Crop Production	0.129	0.134	0.221	0.077	2.073	4.133	0.443	0.026	0.270	3.136
Animal Production	0.173	0.175	0.315	0.071	2.282	4.343	0.463	0.011	0.215	2.412
Forestry and Logging	0.164	0.178	0.272	0.049	2.154	3.141	0.482	0.009	0.208	4.157
Fishing, Hunting and Trapping	0.153	0.147	0.306	0.098	1.542	5.292	0.350	0.003	0.321	2.208
Oil and Gas Extraction	0.183	0.241	0.254	0.026	2.638	3.010	0.661	0.033	0.255	3.229
Mining (except Oil and Gas)	0.109	0.135	0.185	-0.078	3.212	1.609	0.483	0.034	0.151	5.959
Utilities	0.187	0.196	0.246	0.074	2.140	8.232	0.440	0.002	0.270	1.660
Food Manufacturing	0.130	0.144	0.272	0.098	2.005	5.418	0.377	0.011	0.310	1.920
Beverage and Tobacco Product Manufacturing	0.135	0.170	0.251	0.118	2.933	5.381	0.381	0.006	0.312	1.930
Textile Mills	0.189	0.174	0.340	0.076	1.392	4.448	0.414	0.009	0.298	2.030
Textile Product Mills	0.145	0.148	0.292	0.084	1.401	4.800	0.347	0.012	0.303	2.407
Apparel Manufacturing	0.127	0.132	0.255	0.083	1.989	4.962	0.240	0.011	0.313	2.367
Leather and Allied Product Manufacturing	0.085	0.092	0.241	0.106	2.415	5.103	0.213	0.014	0.288	2.509
Wood Product Manufacturing	0.173	0.175	0.306	0.073	1.433	4.786	0.456	0.006	0.309	2.028
Paper Manufacturing	0.209	0.208	0.324	0.090	1.499	5.536	0.494	0.007	0.305	1.776

Panel A: Industry means										
Industry Description	Market Leverage	Book Leverage	Total Book Debt	Return-On-Assets	Growth (M/B)	Size (log of Sales)	Tangibility	R&D	Tax	Liquidity
Printing and Related Support Activities	0.146	0.156	0.240	0.108	1.869	4.972	0.365	0.015	0.379	1.890
Petroleum and Coal Products Manufacturing	0.154	0.178	0.258	0.110	2.232	8.101	0.471	0.006	0.302	1.473
Chemical Manufacturing	0.104	0.137	0.223	-0.013	3.651	4.241	0.267	0.134	0.238	3.551
Plastics and Rubber Products Manufacturing	0.138	0.146	0.277	0.099	1.723	4.897	0.392	0.020	0.294	1.900
Nonmetallic Mineral Product Manufacturing	0.167	0.175	0.275	0.104	1.976	5.087	0.474	0.014	0.278	2.006
Primary Metal Manufacturing	0.162	0.158	0.317	0.078	1.818	5.398	0.398	0.010	0.296	1.926
Fabricated Metal Product Manufacturing	0.125	0.137	0.242	0.100	1.816	5.113	0.304	0.014	0.321	2.395
Machinery Manufacturing	0.108	0.123	0.219	0.078	2.174	5.198	0.243	0.033	0.320	2.279
Computer and Electronic Product Manufacturing	0.093	0.113	0.198	0.030	2.753	4.567	0.204	0.086	0.257	3.108
Electrical Eqpt., Appliance, and Component Mfg.	0.094	0.105	0.223	0.070	2.243	4.988	0.254	0.033	0.290	2.410
Transportation Equipment Manufacturing	0.129	0.142	0.252	0.088	2.156	5.990	0.322	0.028	0.309	1.778
Furniture and Related Product Manufacturing	0.109	0.116	0.231	0.096	1.808	4.670	0.317	0.007	0.304	2.086
Miscellaneous Manufacturing	0.112	0.146	0.235	0.060	3.009	4.547	0.217	0.054	0.298	3.165
Publishing Industries (except Internet)	0.131	0.165	0.230	0.097	2.608	5.222	0.253	0.020	0.324	1.894
Other Information Services	0.067	0.099	0.140	-0.004	4.793	3.491	0.088	0.086	0.250	3.458

Table 3-6 – Continued

Panel B: Comparisons of mean variables across relationship-specificity median split industries										
Industry Description	Market Leverage	Book Leverage	Total Book Debt	Return-On-Assets	Growth (M/B)	Size (log of Sales)	Tangibility	R&D	Tax	Liquidity
Relationship industries	0.105	0.129	0.217	0.036	2.985	4.630	0.246	0.089	0.272	2.961
Other industries	0.150	0.163	0.269	0.058	2.145	4.455	0.436	0.020	0.270	2.753
Difference	-0.044	-0.034	-0.052	-0.022	0.840	0.175	-0.190	0.070	0.002	0.208
Mean-difference t-statistics	(-56.85)	(-41.10)	(-53.19)	(-20.65)	(38.93)	(12.55)	(-174.91)	(93.67)	(1.17)	(10.11)

Table 3-7: Firm characteristic variables' full sample pair-wise correlations

This table presents the pair-wise Spearman and Pearson correlations between the firm characteristic variables for the full sample. Pearson correlations are presented above the main diagonal and Spearman (rank) correlations are presented below it. The variables are defined according to Table 3-5.

Variable	Market Leverage	Book Leverage	Total Book Debt	ROA	Growth	Size	Tangibility	R&D	Tax	Liquidity
Book Leverage	-	0.8718	0.6658	0.0446	-0.1779	0.11	0.2774	-0.2095	0.0661	-0.1303
Market Leverage	0.9178	-	0.7181	0.0391	0.0757	0.126	0.2403	-0.0823	0.0267	-0.0989
Total Book Debt	0.7022	0.7222	-	0.0232	0.0286	0.1249	0.2279	-0.1878	0.0521	-0.3306
Return-On-Assets	-0.0112	0.0626	-0.0516	-	-0.2535	0.5409	0.1578	-0.6894	0.2451	-0.2002
Growth (M/B)	-0.3173	0.0077	-0.0846	0.115	-	-0.1665	-0.128	0.3681	-0.1289	0.0366
Size (log of Sales)	0.1724	0.1854	0.1386	0.4409	-0.0321	-	0.0301	-0.4512	0.276	-0.3933
Tangibility	0.2894	0.2472	0.2542	0.1597	-0.2005	0.0969	-	-0.3329	0.0229	-0.238
R&D	-0.2963	-0.1699	-0.2869	-0.2652	0.3725	-0.2961	-0.4684	-	-0.2653	0.22
Tax	0.1094	0.062	0.0506	0.3646	-0.1719	0.424	0.055	-0.2755	-	-0.1437
Liquidity	-0.2058	-0.1664	-0.5099	-0.0359	0.0949	-0.2401	-0.3848	0.3833	-0.1144	-

Table 3-8: Mean comparisons of the average leverage across different quartile portfolios

This table presents the average leverage values for different relationship-specificity- and rule of law-quartile portfolios. Panels A and B present the long-term market debt ratio and long-term book debt ratio, respectively. All firms in the sample are sorted into four quartile portfolios based on the relationship-specificity of the industry in which they operate, and separately sorted each year into four quartile portfolios based on the value of rule of law in their country of origin. The difference in mean values and the *t*-statistics for the Cochran mean difference tests are also reported. Moreover, the difference in the average debt ratios between the high/high and low/low portfolios are reported at the bottom right-hand corner of each table. *, **, and *** denote the statistical significance of the mean difference tests at the 10%, 5%, and 1% levels, respectively.

Panel A: Long-Term Market Leverage

		Relationship-Specificity					
		Low	2	3	High	High-Low	t-stat
		0.1288	0.0968	0.0743	0.0773	-0.0515***	(-55.39)
		Rule of Law					
		Low	2	3	High	High-Low	t-stat
		0.0637	0.1198	0.0980	0.0824	0.0187***	(18.31)
		Relationship-Specificity					
		Low	2	3	High	High-Low	t-stat
Rule of Law	Low	0.1001	0.0707	0.0290	0.0370	-0.0631***	(-29.14)
	2	0.1507	0.1129	0.1023	0.0893	-0.0614***	(-24.22)
	3	0.1423	0.1213	0.0771	0.0802	-0.0621***	(-44.56)
	High	0.1049	0.0738	0.0732	0.0815	-0.0234***	(-12.36)
	High-Low	0.0048**	0.0031	0.0442***	0.0445***	-0.0186***	
	t-stat	(2.10)	(1.53)	(28.88)	(25.77)	(-8.80)	

Panel B: Long-Term Book Leverage

		Relationship-Specificity					
		Low	2	3	High	High-Low	t-stat
		0.1388	0.1078	0.0948	0.0915	-0.0473***	(-48.64)
		Rule of Law					
		Low	2	3	High	High-Low	t-stat
		0.0764	0.1201	0.1142	0.1024	0.0260***	(23.70)
		Relationship-Specificity					
		Low	2	3	High	High-Low	t-stat
Rule of Law	Low	0.1131	0.0826	0.0420	0.0497	-0.0634***	(-27.92)
	2	0.1442	0.1125	0.1089	0.0959	-0.0484***	(-19.84)
	3	0.1552	0.1337	0.1015	0.0936	-0.0616***	(-40.76)
	High	0.1254	0.0888	0.0975	0.1028	-0.0226***	(-10.71)
	High-Low	0.0123***	0.0062***	0.0555***	0.0532***	-0.0103***	
	t-stat	(5.15)	(2.89)	(29.94)	(26.88)	(-4.69)	

Table 3-9: OLS regressions of long-term market leverage

This table reports the results from firm-level Ordinary-Least Square (OLS) linear panel regressions of the long-term market debt ratio on the main explanatory variables (relationship-specificity, rule of law, and the interaction between them) and several firm- and country-level control variables. The specifications are similar to the leverage regressions of Cho, Ghoul, Guedhami, & Suh (2014). Country-, industry-, and firm-specific variables are defined according to Tables 3-3, 3-4 and 3-5, respectively. In Panel A, only the explanatory variables are included. All of the specifications in Panel B include the set of control variables and year dummies. In columns (1)-(4), we allow for clustering of error terms at the firm-level (Petersen, 2009). In column (5), we include country fixed effects and drop the country level variables; we also allow for clustering at the industry-level (Dou, Hope, & Thomas, 2013). The regression coefficients and *t*-statistics (appearing below in parentheses) are reported. *, **, and *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

	Panel A - Simple Regressions				Panel B - Regressions with Control Variables				
Variable	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(5)
Relationship-Specificity	-0.0814***		-0.0816***	-0.1631***	-0.0313***		-0.0313***	-0.1426***	-0.0929**
	(-59.95)		(-60.26)	(-25.76)	(-8.49)		(-8.58)	(-9.80)	(-2.69)
Rule of Law		-0.0121***	0.0032	-0.0510***		0.1006***	0.1007***	0.0249*	
		(-5.51)	(1.49)	(-9.89)		(10.43)	(10.46)	(1.74)	
RSI × RoL				0.1160***				0.1616***	0.0997*
				(13.15)				(7.84)	(2.04)
ROA					-0.0743***	-0.0781***	-0.0747***	-0.0763***	-0.0968***
					(-23.05)	(-23.98)	(-23.05)	(-23.47)	(-5.68)
Growth					-0.0033***	-0.0033***	-0.0033***	-0.0033***	-0.0034***
					(-27.60)	(-27.73)	(-27.76)	(-27.51)	(-6.92)
Size					0.0109***	0.0116***	0.0115***	0.0115***	0.0120***
					(30.16)	(31.40)	(31.19)	(31.25)	(9.93)
Tangibility					0.1153***	0.1282***	0.1147***	0.1185***	0.1320***
					(28.11)	(32.71)	(28.06)	(28.70)	(7.43)
R&D					-0.0805***	-0.0852***	-0.0819***	-0.0869***	-0.1270***
					(-14.42)	(-15.00)	(-14.61)	(-15.42)	(-5.37)

	Panel A - Simple Regressions				Panel B - Regressions with Control Variables				
Variable	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(5)
R&D Missing					-0.0001	0.0024	0.0010	0.0020	0.0115***
					(-0.07)	(1.36)	(0.55)	(1.14)	(4.86)
Tax					0.0134***	0.0154***	0.0152***	0.0153***	0.0130***
					(7.77)	(8.94)	(8.87)	(8.90)	(4.81)
Liquidity					-0.0024***	-0.0023***	-0.0025***	-0.0024***	-0.0019***
					(-18.18)	(-17.57)	(-18.82)	(-18.24)	(-3.36)
OECD					0.0058**	-0.0202***	-0.0190***	-0.0178***	
					(2.25)	(-5.63)	(-5.30)	(-5.02)	
Inflation					0.2179***	0.2932***	0.2841***	0.2753***	
					(7.15)	(8.98)	(8.83)	(8.77)	
GDP Growth					-0.1995***	-0.1494***	-0.1349***	-0.1162***	
					(-8.03)	(-5.78)	(-5.23)	(-4.52)	
Clustering	-	-	-	-	Firm	Firm	Firm	Firm	Industry
Industry Fixed Effects	No	No	No	No	No	No	No	No	No
Country Fixed Effects	No	No	No	No	No	No	No	No	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	4.06%	1.65%	4.06%	4.17%	17.99%	18.13%	18.41%	18.64%	25.51%
N	143,277	143,277	143,277	143,277	115,626	115,626	115,626	115,626	122,702

Table 3-10: OLS regressions of alternative leverage variables

This table reports the results from firm-level OLS linear panel regressions of the alternative debt ratios on the main explanatory variables and the set of firm- and country-level control variables. The specifications are similar to Panel B of Table 3-9. Variables are as defined previously. Panel A reports the coefficient estimates and *t*-statistics (appearing below in parentheses) for the long-term book debt ratio. Panel B reports the coefficient estimates and *t*-statistics for the total book debt ratio. *, **, and *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

	Panel A - Long-Term Book Leverage				
Variable	(1)	(2)	(3)	(4)	(5)
Relationship-Specificity	-0.0341***		-0.0342***	-0.1297***	-0.0764**
	(-8.40)		(-8.56)	(-8.49)	(-2.05)
Rule of Law		0.1610***	0.1611***	0.0960***	
		(15.66)	(15.70)	(6.31)	
RSI × RoL				0.1387***	0.0747
				(6.27)	(1.35)
ROA	-0.0445***	-0.0489***	-0.0452***	-0.0465***	-0.0708***
	(-11.70)	(-12.80)	(-11.84)	(-12.16)	(-4.73)
Growth	0.0021***	0.0020***	0.0021***	0.0021***	0.0017***
	(10.33)	(10.38)	(10.50)	(10.56)	(4.66)
Size	0.0137***	0.0149***	0.0147***	0.0147***	0.0156***
	(33.94)	(35.76)	(35.54)	(35.60)	(12.05)
Tangibility	0.1292***	0.1429***	0.1283***	0.1315***	0.1433***
	(28.63)	(33.30)	(28.61)	(29.04)	(8.51)
R&D	-0.0492***	-0.0550***	-0.0514***	-0.0557***	-0.1187***
	(-6.31)	(-7.03)	(-6.60)	(-7.13)	(-4.28)
R&D Missing	-0.0012	0.0021	0.0006	0.0015	0.0077**
	(-0.61)	(1.09)	(0.29)	(0.74)	(2.46)
Tax	0.0032*	0.0063***	0.0062***	0.0062***	0.0075***
	(1.79)	(3.53)	(3.46)	(3.47)	(2.97)
Liquidity	-0.0022***	-0.0021***	-0.0023***	-0.0022***	-0.0019***
	(-14.35)	(-14.16)	(-15.36)	(-14.91)	(-3.21)
OECD	0.0236***	-0.0174***	-0.0160***	-0.0151***	
	(8.89)	(-4.75)	(-4.39)	(-4.14)	
Inflation	0.2089***	0.3247***	0.3147***	0.3072***	
	(6.60)	(9.39)	(9.23)	(9.18)	
GDP Growth	-0.0679***	0.0196	0.0355	0.0515*	
	(-2.59)	(0.73)	(1.32)	(1.92)	
Clustering	Firm	Firm	Firm	Firm	Industry
Industry Fixed Effects	No	No	No	No	No
Country Fixed Effects	No	No	No	No	Yes

	Panel A - Long-Term Book Leverage				
Variable	(1)	(2)	(3)	(4)	(5)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	16.45%	17.08%	17.37%	17.51%	24.36%
N	115,626	115,626	115,626	115,626	122,702

Table 3-10 - Continued

	Panel B - Total Book Leverage				
Variable	(1)	(2)	(3)	(4)	(5)
Relationship-Specificity	-0.0565***		-0.0564***	-0.2505***	-0.2194***
	(-9.85)		(-9.83)	(-10.63)	(-3.82)
Rule of Law		-0.0645***	-0.0643***	-0.1965***	
		(-4.49)	(-4.49)	(-9.18)	
RSI × RoL				0.2818***	0.2363***
				(8.66)	(3.12)
ROA	-0.1129***	-0.1188***	-0.1126***	-0.1154***	-0.1379***
	(-19.42)	(-20.47)	(-19.41)	(-19.86)	(-4.91)
Growth	0.0016***	0.0016***	0.0016***	0.0016***	0.0020***
	(6.30)	(6.14)	(6.27)	(6.39)	(5.02)
Size	0.0140***	0.0138***	0.0136***	0.0136***	0.0136***
	(26.32)	(25.73)	(25.26)	(25.38)	(7.79)
Tangibility	0.1104***	0.1350***	0.1108***	0.1173***	0.1339***
	(19.15)	(25.29)	(19.23)	(20.28)	(6.22)
R&D	-0.2110***	-0.2160***	-0.2101***	-0.2188***	-0.2500***
	(-19.36)	(-19.68)	(-19.32)	(-20.01)	(-5.30)
R&D Missing	-0.0012	0.0006	-0.0020	-0.0001	0.0065**
	(-0.48)	(0.25)	(-0.75)	(-0.05)	(2.16)
Tax	0.0162***	0.0152***	0.0150***	0.0150***	0.0124***
	(6.67)	(6.33)	(6.26)	(6.28)	(3.06)
Liquidity	-0.0117***	-0.0114***	-0.0117***	-0.0116***	-0.0107***
	(-44.43)	(-43.03)	(-44.15)	(-43.62)	(-4.22)
OECD	-0.0213***	-0.0077	-0.0055	-0.0035	
	(-5.64)	(-1.45)	(-1.03)	(-0.65)	
Inflation	0.2504***	0.2246***	0.2082***	0.1929***	
	(6.65)	(5.89)	(5.55)	(5.27)	
GDP Growth	-0.0066	-0.0740*	-0.0478	-0.0153	
	(-0.17)	(-1.80)	(-1.17)	(-0.38)	
Clustering	Firm	Firm	Firm	Firm	Industry
Industry Fixed Effects	No	No	No	No	No
Country Fixed Effects	No	No	No	No	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	21.65%	21.31%	21.73%	22.06%	26.14%
N	115,626	115,626	115,626	115,626	122,702

Table 3-11: Robustness regressions

This table presents the results for various robustness tests. The regression specifications are similar to the specification in column (4) of Table 3-9, Panel B; the dependent variable is long-term market leverage. In Panel A, the alternative country-level measures of legal quality are used. The World Governance Indicators' average of Regulatory Quality, Rule of Law and Control of Corruption, the Economic Freedom of the World's index of legal structure and the index of the time, cost and number of procedures required for dispute resolution in contracts from the World Bank's Doing Business index (available from 2004) are used as the alternative measures of the quality of the legal system. All legal quality measures are normalized to obtain a value between zero and one. In Panel B, the industry-level measure of relationship-specificity is substituted. In the first column, relationship-specificity is calculated based on Rauch (1999)'s conservative estimate of the value of inputs to each industry that are traded on an exchange or referenced in trade publications. In the next two columns, the inputs that are reference-priced are instead included as relationship-specific inputs, in which the liberal or conservative estimate is used, respectively. In column four, a relationship-specificity dummy variable is created which is set equal to 1 when the industry-level relationship-specificity is above its sample median, and 0 otherwise. In the last column, a dummy variable is created, which is set equal to 1 when an industry belongs to one of the Cremers, Nair, & Peyer (2008)'s relationship industries, and 0 otherwise. In Panel C, firm-level annual Fama & MacBeth (1973) regressions are estimated. In columns (1) and (2), the results with country-level control variables and country fixed-effects are reported, respectively. The regression coefficients and *t*-statistics (appearing below in parentheses) are reported. *, **, and *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

	Panel A - Alternative Measures of Legal Quality				
Variable	WGI Legal	EFW Legal	DBEC Time	DBEC Cost	DBEC Procedure
RSI × Legal	0.1773***	0.1498***	0.1503***	0.2196***	0.3220***
	(8.51)	(5.58)	(6.02)	(3.05)	(6.99)
Relationship-Specificity	-0.1528***	-0.1406***	-0.1260***	-0.1140***	-0.1575***
	(-10.36)	(-7.05)	(-6.59)	(-3.61)	(-7.68)
Legal Quality	-0.0430***	-0.0498***	-0.1903***	-0.2123***	-0.3018***
	(-3.10)	(-2.96)	(-13.36)	(-5.01)	(-11.48)
ROA	-0.0762***	-0.0763***	-0.0829***	-0.0792***	-0.0822***
	(-23.50)	(-22.98)	(-22.47)	(-21.57)	(-22.33)
Growth	-0.0033***	-0.0034***	-0.0029***	-0.0030***	-0.0031***
	(-27.56)	(-27.17)	(-19.60)	(-20.32)	(-20.78)
Size	0.0111***	0.0110***	0.0122***	0.0116***	0.0109***
	(30.18)	(29.37)	(31.91)	(30.44)	(28.96)
Tangibility	0.1193***	0.1181***	0.1076***	0.1084***	0.1079***
	(28.78)	(27.60)	(25.03)	(24.94)	(24.96)
R&D	-0.0874***	-0.0862***	-0.0602***	-0.0632***	-0.0794***
	(-15.50)	(-15.02)	(-9.12)	(-9.35)	(-11.87)
R&D Missing	0.0013	0.0009	0.0038*	0.0002	-0.0016
	(0.73)	(0.50)	(1.91)	(0.10)	(-0.82)
Tax	0.0146***	0.0125***	0.0135***	0.0169***	0.0166***
	(8.49)	(6.94)	(6.63)	(8.24)	(8.12)

	Panel A - Alternative Measures of Legal Quality				
Variable	WGI Legal	EFW Legal	DBEC Time	DBEC Cost	DBEC Procedure
Liquidity	-0.0023***	-0.0023***	-0.0017***	-0.0020***	-0.0018***
	(-17.87)	(-17.20)	(-13.67)	(-15.64)	(-14.12)
OECD	-0.0028	0.0024	0.0203***	0.0091***	0.0138***
	(-0.89)	(0.85)	(8.26)	(3.74)	(5.64)
Inflation	0.2358***	0.2048***	0.2645***	0.5914***	0.4073***
	(7.68)	(6.84)	(8.45)	(19.01)	(12.86)
GDP Growth	-0.1559***	-0.1807***	-0.3661***	-0.3819***	-0.4522***
	(-6.14)	(-7.30)	(-13.81)	(-12.95)	(-17.12)
Clustering	Firm	Firm	Firm	Firm	Firm
Industry Fixed Effects	No	No	No	No	No
Country Fixed Effects	No	No	No	No	No
Year Dummies	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	18.38%	18.02%	21.34%	19.24%	20.12%
N	115,626	107,105	74,215	74,215	74,215

Table 3-11 – Continued

	Panel B - Alternative Measures of Relationship-Specificity				
Variable	Cons. R-S	Exg. R-S	Exg. Cons. R-S	High R-S	R-S_CNP08
R-S × RoL	0.1626***	0.1489***	0.1574***	0.0912***	0.0569***
	(8.18)	(4.03)	(3.10)	(9.53)	(6.21)
R-S Measure	-0.1430***	-0.1115***	-0.1107***	-0.0731***	-0.0500***
	(-10.11)	(-4.42)	(-3.19)	(-11.00)	(-7.65)
Rule of Law	0.0174	-0.0297	-0.0436	0.0577***	0.0869***
	(1.18)	(-0.86)	(-0.90)	(5.29)	(8.55)
ROA	-0.0763***	-0.0783***	-0.0783***	-0.0776***	-0.0784***
	(-23.49)	(-23.91)	(-23.92)	(-23.76)	(-24.02)
Growth	-0.0033***	-0.0033***	-0.0033***	-0.0033***	-0.0033***
	(-27.58)	(-27.68)	(-27.67)	(-27.27)	(-27.91)
Size	0.0115***	0.0116***	0.0116***	0.0115***	0.0116***
	(31.26)	(31.37)	(31.37)	(31.39)	(31.56)
Tangibility	0.1179***	0.1283***	0.1290***	0.1235***	0.1228***
	(28.64)	(31.69)	(32.19)	(29.59)	(30.63)
R&D	-0.0873***	-0.0879***	-0.0872***	-0.0902***	-0.0891***
	(-15.49)	(-15.12)	(-15.15)	(-15.32)	(-15.60)
R&D Missing	0.0019	0.0025	0.0025	0.0024	0.0017
	(1.08)	(1.39)	(1.42)	(1.35)	(0.92)
Tax	0.0152***	0.0154***	0.0155***	0.0155***	0.0152***
	(8.88)	(8.96)	(9.00)	(9.00)	(8.85)
Liquidity	-0.0024***	-0.0023***	-0.0023***	-0.0023***	-0.0024***
	(-18.30)	(-17.40)	(-17.53)	(-17.30)	(-17.94)
OECD	-0.0177***	-0.0195***	-0.0200***	-0.0182***	-0.0193***
	(-4.98)	(-5.42)	(-5.57)	(-5.10)	(-5.39)
Inflation	0.2743***	0.2895***	0.2898***	0.2744***	0.2817***
	(8.78)	(9.01)	(8.96)	(8.71)	(8.85)
GDP Growth	-0.1117***	-0.1341***	-0.1404***	-0.1090***	-0.1236***
	(-4.35)	(-5.21)	(-5.45)	(-4.23)	(-4.77)
Clustering	Firm	Firm	Firm	Firm	Firm
Industry Fixed Effects	No	No	No	No	No
Country Fixed Effects	No	No	No	No	No
Year Dummies	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	18.68%	18.23%	18.18%	18.63%	18.36%
N	115,626	115,626	115,626	115,626	115,626

Table 3-11 – Continued

	Panel C - Fama-MacBeth Regressions	
Variable	(1)	(2)
RSI × RoL	0.1646***	0.1080***
	(10.40)	(8.10)
Relationship-Specificity	-0.1419***	-0.0995***
	(-10.26)	(-9.97)
Rule of Law	0.0040	
	(0.31)	
ROA	-0.0885***	-0.1011***
	(-20.83)	(-23.63)
Growth	-0.0035***	-0.0034***
	(-12.60)	(-14.22)
Size	0.0124***	0.0124***
	(45.60)	(37.44)
Tangibility	0.1230***	0.1345***
	(20.11)	(24.08)
R&D	-0.0955***	-0.1294***
	(-10.34)	(-11.95)
R&D Missing	0.0055***	0.0128***
	(3.71)	(11.21)
Tax	0.0146***	0.0155***
	(5.34)	(7.61)
Liquidity	-0.0023***	-0.0021***
	(-13.28)	(-9.12)
OECD	-0.0123*	
	(-1.88)	
Inflation	0.4574***	
	(5.63)	
GDP Growth	-0.1266	
	(-0.89)	
Industry Fixed Effects	No	No
Country Fixed Effects	No	Yes
Adjusted R^2	19.61%	26.67%
N	115,626	122,702

Table 3-12: Logistic regressions of the probability of maintaining positive leverage

This table reports the results from firm-level logistic panel regressions of the leverage dummy variables on the main explanatory variables and the set of firm- and country-level control variables. The specifications are similar to Panel B of Table 3-9. Variables are as defined previously. Panel A reports the coefficient estimates and *Chi-square* statistics (appearing below in parentheses) for the long-term leverage dummy. Panel B reports the coefficient estimates and *Chi-square* statistics for the total leverage dummy. *, **, and *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

	Panel A - Long-Term Leverage Dummy				
Variable	(1)	(2)	(3)	(4)	(5)
Relationship-Specificity	-0.3940***		-0.3940***	-1.9405***	-1.4837***
	(104.91)		(104.82)	(180.71)	(107.30)
Rule of Law		1.8758***	1.8765***	0.7359***	
		(357.25)	(357.18)	(26.46)	
RSI × RoL				2.3229***	1.6733***
				(123.55)	(65.46)
ROA	-0.6759***	-0.7228***	-0.6910***	-0.7160***	-1.0375***
	(192.51)	(218.74)	(199.67)	(213.85)	(433.61)
Growth	-0.0237***	-0.0232***	-0.0230***	-0.0228***	-0.0171***
	(179.96)	(171.39)	(168.71)	(164.23)	(83.69)
Size	0.3205***	0.3371***	0.3375***	0.3364***	0.3470***
	(5487.36)	(5717.16)	(5723.78)	(5692.89)	(5325.44)
Tangibility	1.3310***	1.4870***	1.3361***	1.3972***	1.8224***
	(1030.52)	(1458.71)	(1030.94)	(1105.97)	(1747.08)
R&D	-0.4486***	-0.4714***	-0.4590***	-0.5104***	-0.6144***
	(20.95)	(23.02)	(21.84)	(26.98)	(36.77)
R&D Missing	-0.3524***	-0.3045***	-0.3263***	-0.3064***	-0.2493***
	(313.01)	(234.54)	(265.46)	(233.00)	(129.68)
Tax	0.1662***	0.1956***	0.1944***	0.1919***	0.0600**
	(29.03)	(39.57)	(39.11)	(38.07)	(3.94)
Liquidity	-0.1493***	-0.1494***	-0.1509***	-0.1499***	-0.1376***
	(2628.52)	(2619.04)	(2665.92)	(2625.66)	(2182.88)
OECD	0.0519**	-0.4099***	-0.3920***	-0.3818***	
	(4.23)	(139.89)	(127.78)	(121.00)	
Inflation	2.3022***	4.0391***	3.8122***	3.5508***	
	(72.22)	(191.87)	(172.63)	(152.96)	
GDP Growth	-5.1970***	-3.9607***	-3.7324***	-3.4428***	
	(224.58)	(126.89)	(112.40)	(95.03)	
Industry Fixed Effects	No	No	No	No	No
Country Fixed Effects	No	No	No	No	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes

Variable	Panel A - Long-Term Leverage Dummy				
	(1)	(2)	(3)	(4)	(5)
R^2	20.86%	21.03%	21.10%	21.19%	23.73%
N	115,626	115,626	115,626	115,626	122,702

Table 3-12 – Continued

	Panel B - Total Leverage Dummy				
Variable	(1)	(2)	(3)	(4)	(5)
Relationship-Specificity	-0.5944***		-0.5965***	-1.5183***	-1.9010***
	(140.30)		(141.07)	(52.22)	(88.06)
Rule of Law		-0.6110***	-0.6229***	-1.2963***	
		(20.90)	(21.67)	(41.55)	
RSI × RoL				1.3164***	1.6836***
				(20.39)	(35.72)
ROA	-0.8890***	-0.9299***	-0.8861***	-0.8956***	-1.0634***
	(251.19)	(275.39)	(250.17)	(255.12)	(353.24)
Growth	-0.0218***	-0.0221***	-0.0220***	-0.0219***	-0.0183***
	(114.85)	(118.09)	(116.88)	(115.46)	(75.99)
Size	0.3048***	0.2976***	0.2998***	0.2989***	0.2815***
	(3588.19)	(3312.55)	(3343.34)	(3325.77)	(2628.04)
Tangibility	0.9704***	1.1805***	0.9706***	0.9994***	1.3720***
	(356.97)	(601.44)	(357.67)	(373.30)	(653.49)
R&D	-1.3972***	-1.4001***	-1.3954***	-1.4084***	-1.4672***
	(173.86)	(175.17)	(173.57)	(176.97)	(180.71)
R&D Missing	-0.2662***	-0.2332***	-0.2719***	-0.2611***	-0.2968***
	(107.42)	(84.09)	(111.89)	(102.43)	(112.08)
Tax	0.0062	-0.0046	-0.0030	-0.0047	-0.0996***
	(0.03)	(0.01)	(0.01)	(0.02)	(6.92)
Liquidity	-0.1990***	-0.1966***	-0.1988***	-0.1983***	-0.1923***
	(4381.86)	(4298.11)	(4370.71)	(4341.53)	(4012.70)
OECD	-0.2394***	-0.1169**	-0.0890*	-0.0788*	
	(49.32)	(6.24)	(3.61)	(2.82)	
Inflation	1.5533***	1.3651***	1.0652***	0.9186**	
	(18.67)	(13.21)	(8.33)	(6.34)	
GDP Growth	0.0543	-0.7126	-0.3931	-0.2162	
	(0.01)	(2.13)	(0.65)	(0.19)	
Industry Fixed Effects	No	No	No	No	No
Country Fixed Effects	No	No	No	No	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
R^2	19.70%	19.62%	19.72%	19.73%	21.23%
N	115,626	115,626	115,626	115,626	122,702

Table 3-13: Realized cost of debt regressions

This table reports the results from firm-level OLS linear panel regressions of the realized cost of debt on the main explanatory variables and several firm- and country-level control variables. The realized cost of debt is total interest expenses divided by total debt. The cost of debt for each year t is the average of the costs for year t and $t-1$. Cash flow is the sum of income before extraordinary items and depreciation and amortization, scaled by total assets. Dummy variables are included to specify firms with negative or missing cash flows and dividend-paying firms. Additional country-, industry-, and firm-specific variables are defined according to Tables 3-3, 3-4 and 3-5, respectively. We allow for clustering of error terms at the firm-level. The regression coefficients and *t*-statistics (appearing below in parentheses) are reported. *, **, and *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)
Relationship-Specificity	-0.0087*		-0.0080	-0.0566**
	(-1.76)		(-1.62)	(-2.56)
Rule of Law		-0.0789***	-0.0785***	-0.1105***
		(-5.72)	(-5.70)	(-5.88)
RSI × RoL				0.0704**
				(2.31)
Leverage	-0.1683***	-0.1649***	-0.1655***	-0.1666***
	(-25.64)	(-25.61)	(-25.71)	(-25.62)
Market Cap.	-0.0032***	-0.0033***	-0.0033***	-0.0033***
	(-7.46)	(-7.75)	(-7.76)	(-7.62)
Tangibility	-0.0246***	-0.0221***	-0.0256***	-0.0236***
	(-5.06)	(-4.96)	(-5.28)	(-4.79)
Growth	0.0031***	0.0031***	0.0031***	0.0031***
	(10.88)	(11.00)	(11.02)	(11.02)
Cash Flow	-0.0000	-0.0000*	-0.0000*	-0.0000*
	(-1.53)	(-1.66)	(-1.68)	(-1.69)
Negative C.F.	0.0210***	0.0228***	0.0227***	0.0227***
	(9.09)	(10.01)	(9.98)	(9.99)
Dividend-paying	-0.0232***	-0.0223***	-0.0223***	-0.0223***
	(-12.47)	(-12.08)	(-12.08)	(-12.08)
OECD	-0.0028	0.0170***	0.0174***	0.0177***
	(-0.97)	(3.53)	(3.58)	(3.64)
GDP Growth	-0.0421	-0.0883***	-0.0859***	-0.0771**
	(-1.25)	(-2.67)	(-2.59)	(-2.31)

Variable	(1)	(2)	(3)	(4)
Clustering	Firm	Firm	Firm	Firm
Industry Fixed Effects	No	No	No	No
Country Fixed Effects	No	No	No	No
Year Dummies	Yes	Yes	Yes	Yes
Adjusted R^2	3.60%	3.72%	3.73%	3.74%
N	115,979	115,979	115,979	115,979

Table 3-14: Creditor rights regressions

This table presents the results of creditor rights regressions. The regression specifications are similar to the specification in column (4) of Table 3-9, Panel B; the dependent variable is long-term market leverage. The creditor rights index is described in Table 3-3. In column (1), the creditor rights index is used as the measure of legal quality. In columns (3)-(4), creditor rights and its interaction with relationship-specificity are used as control variables. Column (4) drops the country-level variables and introduces country fixed-effects. The regression coefficients and *t*-statistics (appearing below in parentheses) are reported in all three panels. *, **, and *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)
RSI × RoL		0.1716***	0.1840***	0.1148***
		(8.26)	(8.78)	(3.56)
RSI × Creditor	0.0294**		0.0488***	0.0640***
	(2.09)		(3.45)	(3.29)
Relationship-Specificity	-0.0459***	-0.1501***	-0.1826***	-0.1355***
	(-5.53)	(-10.19)	(-10.45)	(-5.49)
Rule of Law		0.0304**	0.0243*	
		(2.08)	(1.66)	
Creditor Rights	-0.0744***	-0.0773***	-0.0773***	-0.0954***
	(-22.88)	(-23.56)	(-23.59)	(-8.73)
ROA	-0.0035***	-0.0034***	-0.0034***	-0.0034***
	(-28.13)	(-28.05)	(-28.11)	(-9.74)
Growth	0.0103***	0.0110***	0.0110***	0.0120***
	(28.61)	(29.99)	(29.85)	(12.91)
Size	0.1133***	0.1178***	0.1164***	0.1289***
	(27.21)	(28.31)	(27.91)	(11.56)
Tangibility	-0.0948***	-0.1031***	-0.1032***	-0.1254***
	(-16.36)	(-17.54)	(-17.61)	(-6.31)
R&D	0.0012	0.0036**	0.0033*	0.0113***
	(0.67)	(2.01)	(1.81)	(4.87)
R&D Missing	0.0127***	0.0148***	0.0147***	0.0127***
	(7.31)	(8.59)	(8.53)	(6.28)
Tax	-0.0580***	-0.0466***	-0.0712***	
	(-7.00)	(-14.59)	(-8.50)	
Liquidity	-0.0024***	-0.0024***	-0.0024***	-0.0019***
	(-18.41)	(-18.47)	(-18.27)	(-4.70)
OECD	0.0017	-0.0252***	-0.0254***	
	(0.65)	(-6.85)	(-6.89)	
Inflation	0.2261***	0.2863***	0.2875***	
	(7.14)	(8.87)	(8.87)	

Variable	(1)	(2)	(3)	(4)
GDP Growth	-0.2182***	-0.1340***	-0.1318***	
	(-8.52)	(-5.10)	(-5.00)	
Clustering	Firm	Firm	Firm	Industry
Industry Fixed Effects	No	No	No	No
Country Fixed Effects	No	No	No	Yes
Year Dummies	Yes	Yes	Yes	Yes
Adjusted R^2	18.79%	19.52%	19.56%	25.66%
N	112,995	112,995	112,995	120,011

4. Political Value and SEC Enforcement Actions

4.1. Introduction

The role of the Securities and Exchange Commission (SEC) in enforcing securities laws is widely recognized by the media and extensively studied in the finance literature. Several studies explore the types of accounting problems and securities violations that induce enforcement actions (Feroz, Park, & Pastena, 2008), the effect of SEC's constraints and preferences on firms' compliance and their propensity for violations (Kedia & Rajgopal, 2011; Lohse, Pascalau, & Thomann, 2014), the consequences of SEC enforcement actions for firms targeted by the SEC and their managers (Feroz, Park, & Pastena, 2008; Karpoff, Lee, & Martin, 2008), and how firms are able to influence the enforcement decisions (Gadinis, 2012; Correia, 2014). In each enforcement action, the SEC faces three important decisions: the choice between an administrative proceeding and litigation, the sanctions brought against individual employees associated with the target firm, and the type and severity of penalties against the firm and individual defendants. These choices could be affected by the SEC's resource constraints as well as the firms' resources to fight the Commission's decisions, the complexity of violations and the size of the harm to investors, and whether violations involve extreme recklessness or intent.

In this paper, we focus on the relationship between political culture and SEC enforcement actions. The support for this relationship is provided in a study by Hutton, Jiang, & Kumar (2015), who show that political culture could indicate a firm's propensity for corporate misconduct. They argue that PAC contributions to political candidates associated with the Democratic or Republican Parties are an indicator of political environment within firms. Moreover, political culture could define the ethical boundaries of a firm and the tendency to misconduct across different domains. Hutton, Jiang, & Kumar state that since the Republican ideology promotes an economic system based on market discipline, compared to Democratic firms, Republican firms are less likely to commit securities fraud. In this study, we hypothesize that in SEC enforcement cases which involve firms with a Republican culture, the intent for violation is less likely. Therefore, Republican firms are expected to receive lower penalties. We find strong support for this hypothesis, especially in terms of sanctions against individual defendants in target firms.

The main contribution of this paper is to study the relationship between political culture and SEC enforcement actions. We build upon Hutton, Jiang, & Kumar (2014, 2015) and use political contributions as a signal for political culture. This paper also provides additional evidence on whether political connections, a signal for a firm's willingness to fight SEC enforcement decisions, and firm size, a proxy for a firm's legal resources, reduce the costs associated with SEC enforcement actions.

To assess the likely impact of these factors, we use a hand-collected sample of all SEC enforcement actions against the Standard & Poor's (S&P) 500 firms available through the SEC's Administrative Proceedings and Litigation Releases Archives from 1996 to 2014. We examine multiple decisions by the Commission in each enforcement action. In particular, we examine the choice between administrative and court proceeding, and the decisions regarding bar or suspension penalties against individual defendants, disgorgement,[42] and civil and criminal fines. Our estimates indicate that a $10 increase in long-term average annual PAC contributions to Republican candidates reduces the odds of a bar or suspension penalty by 2.78%, while the same dollar increase in PAC contributions to Democratic candidates increase the odds by 4.88%. These effects are economically and statistically significant and robust to alternative specifications. Our results also show that larger firms are significantly less likely to be brought to court or receive a bar or suspension penalty against their executives. Finally, we find that total PAC contributions, our measure of political connections, reduces disgorgement.

The rest of this chapter is organized as follows. Section 4.2 provides a review of the related literature and develops our main hypotheses. Section 4.3 explain the data and the main dependent and explanatory variables. Section 4.4 explains the

[42] Disgorgement is the restitution of ill-gotten gains to those affected by fraud or violations of securities laws (e.g., shareholders) and includes any accrued interest between the time of the violations and the enforcement date. Disgorgement could be imposed on firms or individual defendants.

empirical methodology and discusses the main results and robustness tests. Section 4.5 concludes the chapter.

4.2. Literature Review and Hypotheses

Our study is related to the research that links finance to politics and corporate law. Firstly, this paper contributes to the literature that investigates the role of political culture and preferences in shaping corporate policy and a propensity for misconduct. Although the finance literature identifies several determinants of corporate misconduct,[43] few studies consider corporate culture as an indicator of white-collar crime. In a recent study, Hutton, Jiang, & Kumar (2015) examine how political ideology affects the likelihood that a U.S. firm will be subject to a particular type of litigation. They show that firms with a Democratic ideology are subject to securities fraud and intellectual property rights-related litigation more frequently than firms with a Republican ideology. They follow Hong & Kostovetsky (2012) and measure political ideology, or culture, using the political contributions by a firm's political action committee (PAC), its top managers and residents located in the firm's state of residence. They argue that political contributions could be regarded as a signal of political values and, consequently, the choice of political values is an indicator of corporate culture. Therefore, since

[43] For example, Kedia & Rajgopal (2011) find that relative geographical proximity to SEC offices or to areas with high past SEC enforcement activity reduces firms' tendency to restate their financial statements.

the Republican Party ideology promotes market discipline and property rights, firms associated with the Republican Party are less likely to be in violation of securities or intellectual property laws.

Secondly, many studies explore the benefits of political connections with respect to scrutiny and enforcement actions by independent regulating agencies such as the SEC. This literature is divided into two sub-streams. One stream of the literature discusses the overall usefulness of private versus public enforcement actions. For example, La Porta, Lopez-de-Silanes, & Shleifer (2006) investigate whether public enforcement benefits the financial market by examining the effects of securities law on stock market development. There are two opposing views on the subject. On the one hand, it is argued that securities markets should be left unregulated as publicly-traded firms have an incentive to disclose all available information to obtain higher prices and avoid reputational, legal and contractual penalties. On the other hand, it is argued that reputational and contractual penalties are insufficient to prevent firms from cheating since the payoffs from cheating are large and contract litigation is expensive. The proponents of the latter argument offer two alternative levels of government intervention: either the law should standardize the private contracting framework by specifying liability standards and mandating certain disclosures, or, alternatively, the market should establish an independent public enforcer, such as the SEC, which supports trade and is able to intervene ex-ante to prevent a crisis or ex-post to respond to a crisis. Overall, La Porta, Lopez-de-Silanes, & Shleifer find little evidence in favour of public

enforcement benefits; however, they find that mandatory disclosure regulations and private enforcement through liability rules have a positive effect on stock market development. Jackson and Roa (2009) explore resource-based evidence on public and private enforcement of securities regulations. They confirm the findings of La Porta, Lopez-de-Silanes, & Shleifer regarding disclosures, but find opposite results on both liability standards and public enforcement. Using the securities regulators' resources as a proxy for regulatory intensity, they report that public enforcement is also important in explaining financial market development and even more important than private liability rules. This is despite the fact that public actors have mixed and often weak incentives and poor market and firm-specific information.

The second sub-stream, which is of most relevance to our study, specifically investigates the enforcement actions by the SEC. For example, Hochberg, Sapienza, & Vissing-Jørgensen (2009) provide evidence that unlike investors, corporate insiders and business groups lobbied politicians against strict implementation of the Sarbanes-Oxley Act of 2002. They further find that those corporate insiders belong to firms characterized by agency problems. Therefore, their actions are not likely to be motivated by concerns over compliance costs of the new regulations. Feroz, Park, & Pastena (2008) investigate the SEC's Accounting and Auditing Enforcement Releases (AAERs) and report that the Commission mainly prosecutes firms in the event of material breaches; that is, financial disclosure violations which affect the reported income by over 50%. They also report serious consequences for the target firm's managers and its auditors and

find that investors strongly react to such information. Specifically, they observe a two-day abnormal return of -13% at the time of the disclosure of violations. Even in cases where the accounting error was announced earlier, there is still a strong negative reaction (an abnormal return of -6%) to the disclosure of the investigation.

In a study directly related to our paper, Gadinis (2012) looks at SEC enforcement actions against investment banks and brokerage houses and find that bigger firms fare better compared to smaller firms with respect to SEC enforcement actions. For instance, he finds that relative to small firms, SEC actions against big firms are more likely to only involve administrative actions, rather than court proceedings and lower sanctions. In related research, Karpoff, Lee, & Martin (2008) study the validity of the popular notion that managers mostly get away with financial misrepresentation to investors. They explore consequences of SEC and Department of Justice (DOJ) enforcement actions against financial misrepresentation for the managers of the target firms. Contrary to popular belief, the study finds that individual managers responsible for financial misconduct face a variety of significant disciplinary actions such as job termination, financial penalties, restrictions on future jobs, and jail sentences.

This study is also related to a growing literature on political connections and their costs and benefits with regard to a firm's financial decisions and performance. The positive firm-level outcomes, especially from the shareholders' perspective, are reported for both the developing and the developed world. Faccio (2006) argues that politically connected firms are more prevalent in countries with poor legal

systems, whereas Goldman, Rocholl, & So (2009) and Cooper, Gulen, & Ovtchinnikov (2010) report the prevalence of politically connected firms in countries with well-functioning legal systems, such as the U.S. The importance of political connections is highlighted through direct (when either a firm's executive or large shareholder enters politics or when a politician joins the board of directors of a firm) as well as indirect (when a firm contributes to a political campaign or incurs significant lobbying expenditures) channels.

With respect to the benefits of political connections, the literature documents the effects of firm-level political connections on better business opportunities, lower tax rates, reduced regulatory requirements, preferential access to government funding, lower cost of equity, lower cost of private debt, higher stock return, higher firm value, more profitability, and higher likelihood of a bailout during a financial crisis (Boubakri, Guedhami, Mishra, & Saffar, 2012; Blau, Brough, & Thomas, 2013; Kim, Pantzalis, & Park, 2012; Houston, Lin, Lin, & Ma, 2014; Yu, Zhang, & Zheng, 2015). For instance, using a sample of U.S. firms, Houston, Lin, Lin, & Ma (2014) find that the political connections of public firms not only lower the cost of bank loans but also reduce the likelihood of certain restrictive covenants through two channels: the "borrower channel" (political connected firms have lower credit risk), and the "bank channel" (banks are willing to grant favourable terms to connected firms in order to access key politicians). They argue that the relative importance of each channel depends on country-specific factors, such as the level of corruption, functioning of the legal system, independence of the press, and

government ownership of banks. Faccio (2006) and Houston, Lin, Lin, & Ma (2014) find support for the borrower channel in countries with private banks, an independent press, lower corruption and a well-functioning legal system. They argue that lenders offer favourable terms to connected firms since they believe that political connections reduce the credit risk of the borrower. Khawaja and Mian (2005), on the other hand, show that in emerging financial markets, such as Pakistan, with relatively high corruption and an underperforming legal system, lenders favour connected firms even though connected firms experience a higher default rate relative to unconnected firms. Their findings support the bank channel. Recently, using a cross-country sample, Boubakri, Guedhami, Mishra, & Saffar (2012) find that investors consider politically connected firms less risky and hence require a lower cost of capital from such firms, conditional on the institutional environment (less democratic environment, poorly developed stock market, high level of corruption, less freedom of the press, and high likelihood of bailouts) and firm characteristics (larger and older firms).

Next, several studies report a positive effect of political connections on stocks returns, firm value and firm performance (Cooper, Gulen, & Ovtchinnikov, 2010; Goldman, Rocholl, & So, 2009; Faccio, 2006; Faccio, Masulis, & McConnell, 2006; Chaney, Faccio, & Parsley, 2011; Ovtchinnikov & Pantaleoni, 2012). Cooper, Gulen, & Ovtchinnikov (2010) find that the extent of a firm's support to political candidates is positively correlated with future returns and the relationship is even stronger if the firm supports a local, House or Democratic candidate.

Similarly, Goldman, Rocholl, & So (2009) report that the announcement of a politically connected member on the board of directors results in positive abnormal stock returns. They also find that during the 2000 election of the Republican president, firms connected to the Republican Party gained value at the cost of those connected to the Democratic Party. Ovtchinnikov & Pantaleoni (2012) assert that political contributions by individuals are targeted at politicians with jurisdiction over firms or industries in their Congressional district. They find that this targeted contribution improves the individuals' well-being by increasing the performance of the firms in the district.

Gropper, Jahera, & Park (2013) find that banks headquartered in a state with a local politician who serves as the chairman of the respective banking committee in Congress (either the House or Senate) tend to outperform banks headquartered in other states. This effect is more pronounced if the chair is more aligned with other politicians, for more experienced chairs and when the bank headquarters are clustered in the state. Using a sample of Thai firms, Civilize, Wongchoti, & Young (2015) report high realized returns for politically connected firms and show that returns are even stronger if connected firms are regulated, have a higher level of political connections and have politicians as shareholders. Kim, Pantzalis, & Park (2012) show that firms' proximity to political power in the U.S. reduces the exposure to uncertainty about the government's future policies. In the same way, firms located in states with higher alignment to the ruling party outperform those located in other states. Finally, Yu, Zhang, & Zheng (2015) study corporate

scandals in China and find that the political connections of a firm or its top managers reduce the contagion effect of scandals on non-state-owned peers.

Several studies have investigated the costs of political connections. For example, agency and governance issues arising from political affiliation of a firm's management could result in rent-extracting activities by politicians at the expense of other stakeholders (Boubakri, Guedhami, Mishra, & Saffar, 2012). Specifically, compared to non-connected firms, politically-connected firms are found to have lower earnings quality (Chaney, Faccio, & Parsley, 2011), less accurate analyst forecasts (Chen, Ding, & Kim, 2010), poor post-IPO stock returns for newly privatized firms (Fan, Wong, & Zhang, 2007), and lower profits, especially during election years and in politically contested areas (Bertrand, Kramarz, Schoar, & Thesmar, 2006).

Finally, a few researchers have investigated firms' motivation for making political donations. Kroszner & Stratmann (1998) explore campaign contribution patterns by proposing a theory that aims at explaining how interest-group competition operates and how it shapes the organization of Congress. They argue that in the absence of a formal contract, it is in the interest of the legislators to establish specialized committees to facilitate long-term relationships between PACs and the members of such committees. This would, subsequently, lead to an equilibrium with high political contributions and high legislative effort. According to the study, organized interest groups may influence legislators' activities in order to seek votes in the interest-group's favour or impose pressure on "independent"

regulatory agencies through budgetary control, oversight hearings, and in the Senate, confirmation processes. Similarly, Shleifer & Vishny (1994) study the political influence on both public and private enterprises using a game theory approach that models the interaction between the public, politicians, and managers. Based on the assumption that the public is disorganized, they show that politicians end up catering to interest groups instead of focusing on the median voter. Zingales (2015) considers the role of political donations, especially by large banks, as insurance against the negative public sentiments under stress. When anti-finance sentiment surges after a financial crisis, the enforcement of financial contracts is difficult. Under these circumstances and due to the lack of public support, financiers need political support to operate. Therefore, some financiers pay heavily for lobbying to obtain that support.

4.2.1. PAC Contributions and Political Connections

As discussed above, the empirical findings mainly support the idea that political connections, either through explicit relationships between politicians and firms or through political expenditures by firms, are valuable. These expenditures, by way of lobbying expenses or PAC contributions, are traditionally viewed as long-term investments in politicians' election and career progress in exchange for possible future favours (Baron, 1989; Snyder Jr., 1992; Grossman & Helpman, 1994). In the case of SEC enforcement actions, the political favour could be increased pressure on the Commission if it decides to prosecute a connected firm. Since the SEC has a limited budget and faces resource constraints (the "constrained cop" hypothesis),

it will be unwilling to pursue politically connected firms when faced with the possibility of added pressure (Kedia & Rajgopal, 2011). In line with this argument, Correia (2014) finds that politically connected firms are less likely to be the target of an enforcement action by the SEC. She uses political contributions by a firm's PAC and its executives together with lobbying expenses as a proxy for political connections. Additionally, Correia shows that, conditional on an enforcement action, connected firms are subject to lower penalties. We re-examine this hypothesis and formulate it as follows:

H1: If prosecuted by the SEC, politically connected firms receive lower penalties.

The long-term relationship between firms and politicians may not necessarily lead to a political favour. The pre-existence of a relationship could signal to the SEC the increased costs of prosecution against such firms. For example, Gordon & Hafer (2005) suggest that political contributions convey a firm's willingness to battle a government agency's actions against the firm and act as a deterrence to future complaints or prosecutions. Although theoretically different, the "signalling" argument is empirically equivalent to the "constrained cop" hypothesis. Therefore, our first hypothesis cannot distinguish between the two alternative explanations of the relationship between political connections and SEC enforcement actions.

4.2.2. Firm Size and Bargaining Power

Considering the SEC's budget constraint and lack of bureaucratic resources, it is expected that the Commission only pursues cases in which there is a high probability of winning.[44] This may prevent the SEC from pursuing high-profile cases concerning firms with means to battle the enforcement action. Consistent with this argument, Gadinis (2012) finds that large financial firms (i.e., brokers and dealers) are less likely to end up in litigation and, on average, less likely to receive any sanctions against their individual employees, compared to their smaller counterparts. Although Gadinis' study focuses exclusively on the financial industry, the same outcome could be expected in the SEC's actions against firms in other industries. Similarly, Feroz, Park, & Pastena (2008) examined accounting-related enforcement actions and found that when the SEC prosecutes a firm's auditor, higher penalties are more likely to be levied against smaller audit firms.[45] We examine this relationship empirically with the following hypothesis:

H2: If prosecuted by the SEC, larger firms receive lower penalties.

According to the Securities Act of 1934, the SEC has broad authority over all aspects of the securities industry and the power to require disclosure of material information and to enforce disciplinary actions against regulated entities and

[44] For example, Lohse, Pascalau, & Thomann (2014) find that an increase in the SEC's budget is translated into increased activity of the Commission and improved compliance by firms.

[45] Although the present study only considers S&P 500 firms, there is a significant variation in firm size between the firms in our sample (see Table 4-1, Panel D).

individuals associated with them. Proponents of the "public interest" view of regulation assert that the SEC induces publicly traded firms to disclose an optimal level of information to their investors and, subsequently, improves social welfare. By contrast, advocates of the "private interest" view perceive the regulatory process as a means to transfer wealth to small but concentrated interest groups (Stigler, 1971; Peltzman, 1976). This view of regulation could place the SEC's activities in contrast to its mandate, especially since the Commission's reach appear to have expanded significantly after the Sarbanes-Oxley (SOX) Act of 2002 (Romano, 2005; Smith, 2007; Mulherin, 2007). For example, Romano argues that the SOX mandates are at odds with the extant literature, which highlights the inefficacy of the proposed regulations; however, the legislators used the collapse of WorldCom and Enron as the justification for the implementation of corporate governance initiatives through SOX.

It is possible that the SEC favours cases against large firms that are politically connected. Although bringing actions against those firms could prove more difficult for the SEC, if successful, they could help advertise the Commission's activities. This is crucial in light of the expansion in the SEC's jurisdiction and recent increase in its budget (Mulherin, 2007; Lohse, Pascalau, & Thomann, 2014). Moreover, large political expenditures by big firms can implicate them if a violation occurs; and if the SEC proves that the management has acted "intentionally" or displayed "recklessness" in their violation, it can impose significant sanctions and civil penalties on the firm. In order to empirically test this conjecture, we can

examine the join effect of firm size and political connections on SEC administrative actions. In particular, we propose the following hypothesis:

H3: If prosecuted by the SEC, firms which are larger and, at the same time, politically connected, receive higher penalties.

4.2.3. PAC Contributions and Political Values

Political contributions are commonly regarded as a "signal" for political connections. Additionally, contributions could indicate a firm's political orientation or that of its management. Firms (individuals) that contribute to the campaigns of Republican or Democratic candidates can be viewed as having a Republican or Democratic orientation, respectively. Hutton, Jiang, & Kumar (2015) examine the relationship between political culture and corporate litigation. They argue that the contributions of a firm's PAC, of its top managers and of local residents in the firm's headquarters state (a proxy for preferences of lower-level employees) to different political parties indicate the firm's political leaning or party identification. Moreover, party identification is stable over time and is associated with distinct ideologies and values (Goren, 2005). For example, the Republican Party's ideology underlines the principles of equal opportunity, limited government and the protection of property rights.

Hutton, Jiang, & Kumar (2015) find that firms with a Republican culture are less often the subject of securities fraud and intellectual property rights litigation since they are less likely to violate securities or intellectual property laws.

Similarly, Hutton, Jiang, & Kumar (2014) find that Republican managers – that is, individual managers who exclusively contribute to the Republican Party in most election cycles – maintain lower leverage and undertake less risky investments. They argue that since the Republican Party is associated with more conservative personal behaviour, Republican managers are more likely to adopt conservative corporate policies. Therefore, one can expect firms with a Republican culture to assume corporate policies that are more in agreement with securities regulation which directly fall into the SEC's mandate. In other words, firms that contribute to the Republican Party more often than the Democratic Party are, on average, expected to violate the SEC regulations less frequently or intentionally. Consequently, if persecuted by the SEC, Republican firms are expected to receive lower monetary penalties and less severe sanctions against individuals associated with them since intent is less likely. We propose the following hypothesis to test this empirically:

H4: If prosecuted by the SEC, firms with a Republican culture receive lower penalties.

4.3. Data Description

In order to examine the relationship between political connectedness, political values and SEC enforcement actions, a sample is created which consists of firms included in the S&P Composite 500 index from 1995 to 2013 for a minimum of one year. The list of firms in the sample is then matched with the SEC's

"Administrative Proceedings" and "Litigation Releases" for the same time period. Ninety-one cases are identified which directly involve a firm or at least one of the firm's senior management. Separately, each firm in the sample is matched with the PAC directly sponsored by the firm, if any. Eventually, 85 cases comprising 80 unique firms are selected with market capitalization data in the year preceding the first action or settlement of the case (i.e., the case year).

The list of S&P 500 firms is obtained from the Compustat Index Constituents file. The SEC enforcement action data are retrieved directly from the SEC website. The political contribution data for PACs sponsored by each firm are retrieved from the Center for Responsive Politics (CRP) data files. The original data come from the Federal Election Commission (FEC).[46] The accounting information is obtained from the Compustat Fundamental Annual tables. Finally, the daily stock return and market return data, which are used for the event analysis, are obtained from the Center for Security Prices (CRSP) files. Table 4-1 shows the summary statistics for the SEC enforcement cases included in the sample, the PAC contributions made by the firms, and the main control variables used in the regression specifications.

4.3.1. The SEC Enforcement Variables

The SEC enforcement action data are compiled directly from the administrative proceeding and litigation release documents provided by the SEC. For each case,

[46] The data are available on http://www.opensecrets.org/.

we identify the type of enforcement action (administrative proceeding or litigation), the relevant dates on which the decisions or settlements are made, the list of senior managers prosecuted or sanctioned, the administrative or court orders, and any disgorgement of ill-gotten gains, civil penalties or criminal fines imposed on the firm or on top executives of the firm. The data are then aggregated for each case to create the main variables of interest. Litigation is a dummy variable which takes the value of one if a civil lawsuit is brought by the SEC against the firm in federal court, and is set to zero otherwise. Bar/suspension is a dummy variable which takes the value of one if an individual in the firm is barred from serving as an officer or director of a public company (either temporarily or permanently) or is suspended from appearing or practicing before the SEC as an accountant or an attorney (either temporarily or permanently), and is set to zero otherwise. Regulatory Period is the number of months between the first enforcement action or settlement and the concluding action, if any. While most cases involve only one enforcement action (generally a settlement) on a single date, high-profile cases span several years.

Direct Costs are the natural logarithm of charges to the firm's pre-tax income in U.S.$ millions subsequent to a fraudulent activity or material misrepresentation by the firm as reported by the SEC. Total monetary penalties include disgorgements and imposed fines (civil penalties and criminal fines) in U.S.$ paid by the firm and its top executives according to the settlement agreement or the court order. The natural logarithm of penalties is used in the regression analysis.

4.3.1.1. The SEC Investigation and Enforcement Process

The SEC enforcement variables used in this paper are in line with the previous literature and related to the Commission's investigation and enforcement process. Feroz, Park, & Pastena (2008) study 188 accounting and auditing-related enforcement cases from 1982 to 1989. They examine the enforcement actions from the restatement event, which triggers the investigation, through the settlement, administrative proceeding or court order. They identify the nature of the accounting misstatement and its income effect, the duration of the violation and investigation periods, the type of action at settlement, and the enforcement against the auditors involved. In another study, Karpoff, Lee, & Martin (2008) use one of the largest samples of SEC enforcement actions, which consists of 788 enforcement actions initiated against U.S. firms by the SEC and DOJ from 1977 through 2006. Each "action" in their sample typically starts with a trigger event following a violation period. The event that triggers the action is generally initiated by the firm via self-disclosure, restatement, delayed SEC filings or similar actions. The trigger event is then followed by an informal inquiry or formal investigation initiated by the SEC or other federal agencies.

The SEC's investigation decision is initially handled by the Commission's staff which will present their recommendations to the SEC commissioners. The commissioners then decide whether to file for an administrative action or bring a civil lawsuit to the court and which penalties or sanctions to demand (SEC, 2014). Finally, the regulatory filing typically results in one or multiple settlements and

may be followed by additional lawsuits or DOJ sanctions and criminal penalties until the case is either closed or dismissed. Figure 4-1 shows the typical timeline of an enforcement action as depicted in Correia (2014). Karpoff, Lee, & Martin's database of enforcement actions identifies the type of violation, the type of proceeding, the number of respondents (CEOs, top executives and non-executive employees), and the type and amount of penalties and sanctions imposed on the firms and individual respondents. These data and variables are used in subsequent studies (Kedia & Rajgopal, 2011; Correia, 2014).

4.3.2. Political Connection and Political Value Variables

Political contribution data are created from Committee (PACs), Candidate and PAC to Candidate data files provided by the CRP. The combined data file includes the information regarding each committee's contribution to any of the congressional (House or Senate) or presidential candidates. The file identifies the name and political party affiliation of the candidates as well as the dollar amount of the contributions. We aggregate the data to compile the average annual contributions by each firm's main PAC to each of the primary political parties (i.e., the Democratic and Republican parties) and independent candidates for the five years preceding the case year. We follow Correia (2014) and calculate the long-term PAC contribution variable as the five-year average of annual contributions. The five-year average PAC contribution is better able to capture long-term relationships between firms and politicians (when the aggregate contributions to

both political parties and independent candidates are considered) or the political orientation of the firm (when the party contributions are considered separately).

4.3.2.1. Corporate PAC Contributions as Signals of Political Connections and Political Values

Campaign contributions from PACs are often used in the empirical literature to represent political connectedness (Milyo, Primo, & Groseclose, 2000). In this context, PAC contributions are either considered a form of "interested money", donations in the hope of influencing future policies, or a means by which firms "flex their muscles" to regulators (Gordon & Hafer, 2005). PAC contributions are currently governed by federal regulations established in 1976 which restrict PACs' funding to donations by individuals, parties or other PACs. All "hard money" contributions through PACs are essentially derived from individual donors and subject to strict limits (Milyo, Primo, & Groseclose, 2000). There are different types of PACs – namely, corporate PACs, trade associations, membership organizations and health (T/M/H) PACs and labor PACs. Corporate PACs account for the major share of total campaign contributions by all types of PACs and their significance has increased over time compared to other types of PACs. However, total PAC contributions are still very small compared to direct "soft money", lobbying, and philanthropic expenditures. For that reason, Milyo, Primo, & Groseclose argue that the importance of corporate PAC contributions in determining political connections is overstated in the literature.

Nonetheless, contributions through corporate PACs could signal a firm's political connections as suggested by the theory. In other words, firms may not necessarily use PAC contributions to directly obtain political favours in the future. Instead, they could communicate their political connections and their willingness to fight the SEC in court. Therefore, PAC contributions may act as a viable signal even if their size is small in comparison to other types of political expenditures. For example, Correia (2014) finds a significant negative association between PAC contributions and the penalties imposed on firms and sanctions against individuals in enforcement actions. However, they find no meaningful relationship between lobbying expenditures and the penalties or sanctions. Similarly, Gordon & Hafer (2005) show that only "political" expenditures, rather than more general expenditures such as philanthropic donations, would effectively signal political connections. Finally, Hutton, Jiang, & Kumar (2014, 2015) show that although most firms and individuals donate to both Democratic and Republican Parties, leaning toward one of the major parties could indicate political orientation and values. We maintain that using PAC contributions as a proxy for political connections and political values is justified.

4.3.3. Control Variables

The firm-specific accounting variables, size, growth, return-on-assets (ROA) and leverage, are employed to mitigate the concern that these firm-level characteristics vary significantly among the firms in the sample which, in turn, would affect our results. Size is the natural logarithm of market capitalization in

U.S.$ millions. Market capitalization is the closing stock price multiplied by the number of shares outstanding at the end of the fiscal year prior to the case year. Growth is measured by the 3-year geometric average growth rate in net sales. ROA, the measure of profitability, is operating income before depreciation divided by total assets. Finally, leverage is calculated as the sum of long-term debt and debt in current liabilities scaled by total assets.

4.4. Empirical Analysis

This study employs Logistic and Ordinary Least Squares (OLS) cross-sectional regression models. In litigation and bar/suspension regressions in which the dependent variable is a dummy variable, the models are estimated with the logistic regression approach. On the other hand, in regressions in which the dependent variable is a monetary penalty, the models are estimated with the OLS regression approach. Finally, event study methodology is used in order to further investigate whether the resolution of SEC cases and their correlation with political contributions was anticipated by investors. The return of each individual stock is regressed on the return of the market portfolio and the estimated coefficients are used to calculate the cumulative abnormal returns over the event window. The event window includes the 61 days around each enforcement or settlement date, including the resolution date itself, pertaining to each SEC case.

4.4.1. The Choice of SEC Enforcement Action

After a violation is detected and investigated by the SEC, the Commission is faced with a major decision which involves the choice between an administrative proceeding or filing a civil lawsuit against the firm in federal court. Gadinis (2012) finds that the SEC is more likely to rely on administrative proceedings than civil lawsuits against larger firms in the financial industry. He argues that against larger firms and defendants with sophisticated legal teams, the Commission may choose less aggressive actions through administrative proceedings in order to be able to quickly turn its limited resources to other cases. Correia (2014) shows that firms with long-term political connections, which have had restated their financial statements, are less likely to be prosecuted by the SEC. The Commission's officials could favour connected firms if they seek to increase their chances of career advancement. We would expect the SEC to make a similar decision with respect to an administrative rather than court proceeding against politically connected firms.

On the other hand, the SEC could litigate cases against well-known firms with substantial bargaining power or political connections. This would showcase the Commission's action against fraud. In order to test the SEC's choice between the two venues, administrative proceeding or litigation, and its relationship with bargaining power and political connections, we run the following logit regression:

$$\text{Logit}(Litigation_{it}) = \alpha + \beta_1 PAC(T)_{i,t-1} + \beta_2 Size_{i,t-1} + \beta_3 PAC(T)_{i,t-1} \times Size_{i,t-1} + \beta_4 Control_{i,t-1} + \varepsilon_{it} \quad (1)$$

The dependent variable takes the value of one if a civil lawsuit is brought by the SEC against the firm or its executives in federal court, and is set to zero otherwise. $PAC(T)_{i,t-1}$ is the natural logarithm of the 5-year average total annual political contributions by firm i's PAC from year $t-5$ to year $t-1$; that is:

$$PAC(T)_{i,t-1} = \ln\left(\sum_{k=1}^{K} Annual\_PAC(T)_{i,t-k}/K\right)$$

where $K = 5$ and t is the case year.[47] $Size_{i,t-1}$ is the natural logarithm of firm i's market capitalization in year t. We follow the literature and control for the size of the harm to investors and complexity of violations and several firm characteristics (Karpoff, Lee, & Martin, 2008; Correia, 2014; Hutton, Jiang, & Kumar, 2015). Specifically, we include a dummy variable, Long, for whether the regulatory period is longer than one year. We also control for direct costs of the violations to the firm, growth opportunities, return on assets, and leverage, as explained in the previous section. Whether the SEC would litigate violations that are more sophisticated or have caused more harm to shareholders is an empirical question. The SEC may choose an administrative proceeding for most complicated violations to engage in "rulemaking by adjudication". However, Gadinis (2012) finds that the Commission distributes the cases evenly between administrative and court proceedings irrespective of the size of the harm to investors or complexity of the violations.

[47] Substituting the 3-year average annual contributions does not materially change the results presented in this paper.

Table 4-2 presents the results of the probability of litigation regressions. The probability that the SEC files a civil lawsuit against a firm in violation is lower for larger firms. This supports the finding of Gadinis (2012). The coefficient estimate for firm size ranges from –0.2264 to –0.7468 and is statistically significant in most specifications. In particular, a $1 billion increase in market capitalization around the $10.85 billion average value is estimated to reduce the odds[48] of litigation between 4.10 to 12.89 percent. On the other hand, the estimates of the effect of long-term total PAC contributions on the probability of litigation is not significant. The effect is negative when the interaction between PAC contributions and firm size is included in the regressions and is positive in regressions without the interaction variable. Finally, the interaction between firm size and PAC contributions is positively associated with the probability of litigation, but the coefficients are only statistically significant at the 10% level. These results indicate that although the SEC is less likely to take a larger firm to court, the effect is mitigated if the firm is politically connected. This could be due to the added complexity of cases which involve large political connected firms.

4.4.2. PAC Contributions, Size and Penalties

Subsequent to an enforcement action, the SEC could impose monetary penalties on the firm or its individual defendants, compel them to disgorge or repay ill-gotten

[48] If $p = Prob(Litigation_{it} = 1)$, then the odds of litigation will be equal to $\frac{p}{1-p}$.

gains, bar the individual defendants from serving as an officer or director of a public company, or suspend them from practicing law or professional accounting. Firstly, penalty theory suggests that the size and severity of the penalty should be in proportion to the seriousness of the violation (Becker, 1968). In the case of securities violations, severe penalties would be more likely if the potential harm caused by the violations to investors is higher. Therefore, the monetary value of the penalties should be positively correlated with the size of the harm. Moreover, sanctions against individual defendants are expected when extreme recklessness or intent is likely. The monetary value of the penalties should also depend on the ability of the firm or defendants to pay (Waldfogel, 1995). Specifically, larger firms are expected to receive higher disgorgement orders.

Secondly, a firm could utilize its bargaining power or political connections to reduce the penalties. Gadinis (2012) reports that the employees of big brokers and dealers are likely to receive temporary or permanent bars from the industry. Correia (2014) finds that connected firms on average receive lower monetary penalties and fewer sanctions against their employees compared to non-connected firms. Political connections could signal a firm's willingness to fight the SEC or be used to put pressure on the Commission if it imposes harsh penalties on the firm. Moreover, politically-connected firms could use politicians' expertise to reduce the probability of being detected if they commit a fraud or alleviate penalties when the fraud is detected. Finally, SEC could seek harsher penalties when violations are more likely to be intentional. Inasmuch as political contributions indicate political culture and,

consequently, determine the probability of committing securities fraud, Republican firms are expected to receive lower penalties.

We test our main hypotheses in this section by studying the relationship between penalties associated with each enforcement action in our sample and the explanatory variables discussed above – namely, political culture, political connections and firm size. First, we focus on sanctions against individual executives. Table 4-3 presents the results from the regressions of the bar or suspension penalties. The dependent variable takes the value of one if one of the defendants is barred from serving as an officer or director of a public company or suspended form professional practice at the end of the SEC enforcement action, and is set to zero otherwise. The models are estimated using logit regressions. Panel A of the table examines the relationship between bar/suspension penalties and political connections and firm size. The regression models are variations of the model in equation (1). Consistent with the results reported by Gadinis (2012), we find that the probability of a bar or suspension penalty is lower for larger firms. In the model with the full set of control variables, the coefficient estimate is -1.6860 and is statistically significant at the 5% level. That is, ceteris paribus, a $1 billion increase in market capitalization is estimated to reduce the odds of a bar or suspension penalty by 26.77 percent. We do not find a clear relationship between bar/suspension penalties and total PAC contributions, our measure of political connections. However, in regression specifications which include the $PAC(T)$ variable and its interaction with firm size, we find a similar pattern to the probability

of litigation regressions. That is, defendants in politically-connected firms are less likely to receive a bar or suspension penalty, but only for smaller firms. Both effects are statistically significant at the 10% level.

Bar or suspension penalties are also positively and significantly affected by the direct costs of violations, which measure the size of the harm to investors. However, the effect of direct costs becomes insignificant in regression specifications which include the long dummy variable. The enforcement cases which take longer to resolve involve multiple defendants and complex violations. Moreover, intent is more likely in complex violations. Thus, the defendants involved in complex violations are expected to receive more severe bar or suspension penalties. Our results support this argument. We further examine the association between the intention for misconduct and penalties imposed on individual defendants in regressions which include measures of political culture or ideology as the main explanatory variable. Specifically, we calculate $PAC(D)$ ($PAC(R)$) as the natural logarithm of the 5-year average annual political contributions by each corporate PAC to Democratic (Republican) candidates. The logit regression estimates are reported in Panel B of Table 4-3. We find that a Republican (Democratic) culture is negatively (positively) associated with the probability of a bar or suspension penalty. The coefficient estimates of $PAC(D)$ and $PAC(R)$ are statistically significant at the 5% level. In economic terms, an average $10 more annual contribution to Democratic candidates increases the odds of a bar or suspension penalty by 4.88%. Conversely, an average $10 more annual contribution to

Republican candidates reduces the odds of a penalty by 2.78%.[49] Firms in our sample on average donate $421 and $624 annually to Democrats and Republicans, respectively, over the 5-year period prior to each case year. Given that the unconditional probability of a bar or suspension penalty is 25.88%, the effect of a $10 additional contribution is economically significant.

As a robustness test, we reestimate the models by introducing a ratio variable. In particular, the PAC ratio for each corporate PAC is the 5-year average ratio of the annual political contributions to Republican candidates to the sum of contributions to both Republican and Democratic candidates. That is:

$$PAC\_Ratio_{i,t-1} = \ln\left(\sum_{k=1}^{K} \frac{Annual\_PAC(R)_{i,t-k}}{Annual_{PAC(R)_{i,t-k}} + Annual\_PAC(D)_{i,t-k}} / K\right)$$

where $K = 5$ and t is the case year. Additionally, we include a dummy variable which is set to one if a firm had no PAC contributions to either of the two major parties over the past 5-years, and zero otherwise. The results are presented in Panel C of Table 4-3. Consistent with the results presented earlier, the coefficient estimates of the ratio variable are negative and statistically significant at the 5% level. Taken together, these findings are consistent with political contributions to

[49] The change in odds are calculated using the coefficient estimates in column (6) of Table 4-3, Panel B as follows: The average value of $PAC(D)$ is 6.0423 (see Table 4-1). A $10 additional average annual contribution to Democrats would increase the logit value by $2.0302 \times [\ln(e^{6.0423} + 10) - 6.0423] = 0.0477$. Thus, the odds would change by $e^{0.0477} - 1 = 4.88\%$. Similarly, the average value of $PAC(R)$ is 6.4355. A $10 additional average annual contribution to Republicans would reduce the logit value by $-1.7703 \times [\ln(e^{6.4355} + 10) - 6.4355] = -0.0282$. Thus, the odds would change by $e^{-0.0282} - 1 = -2.78\%$.

the Republican party being indicative of a Republican culture, which, consequently, would make the intent for securities market violations less likely (H4).

Next, we investigate how monetary penalties are affected by PAC contributions and firm and violation characteristics. Monetary penalties include disgorgement of ill-gotten payments and civil or criminal fines. According to the penalty theory, monetary penalties should depend more on the ability of the firm or defendants to pay rather than other factors, such as the size of the harm or intentionality (see for example, Waldfogel, 1995). This argument should hold particularly for disgorgement actions. Historically, the SEC has sought the disgorgement of illegal profits in enforcement actions to discourage similar misconduct in the future rather than to obtain monetary remedies for private individuals harmed by the violations (Ellsworth, 1977). For example, in its Annual Report to Congress for the year 1975, the Commission states that:

> The SEC's primary function is to protect the public from fraudulent and other unlawful practices and not to obtain damages for injured individuals. Thus, a request that disgorgement be required is predicated on the need to deprive defendants of profits derived from their unlawful conduct and to protect the public by deterring such conduct by others. (SEC, 1975, pp. 97-98)

Therefore, we expect disgorgement to be positively affected by the ability of the firm or defendants to pay and negatively by the ability of the SEC to win the case in federal court. Table 4-4 examines the association between political

connections, firm size and disgorgement. The models are estimated using OLS linear regressions. All monetary penalty regressions include the litigation dummy as an explanatory variable since higher penalties are expected in litigation cases. The results from disgorgement regressions support our initial conjecture. Specifically, we find that larger firms on average pay higher disgorgement although the effect is only marginally significant. On the other hand, the disgorgement amount is lower for politically connected firms. The coefficient estimates range from -0.2278 to -0.3312 and are statistically significant at the 10% level or above. That is, a 1% increase in long-term PAC contributions reduces disgorgement by 0.23% to 0.33%. This supports our hypothesis regarding the benefits of political connections (H1) and the finding of Correia (2014). Disgorgement is also positively associated with litigation and a long regulatory period.

Table 4-5 reports the results from OLS regressions of imposed fines on our main explanatory variables. Imposed fines consist of both civil and criminal fines. The association between imposed fines and political connections, political culture, and size is less obvious than the other types of penalties. On the one hand, similar to other monetary penalties, fines should be affected by the ability of the firm or defendants to pay. On the other hand, fines could reflect the complexity of violations, harm to investors, and intentionality of misconduct. In order to further investigate each of these effects, we estimate three separate series of imposed fines which are presented in Panels A, B and C. The results are consistent with our earlier findings regarding the factors that influence the probability of a bar or suspension

penalty, but the coefficient estimates are generally not statistically significant. Nevertheless, we find that a Republican culture, measured either using the long-term PAC contributions to Republican candidates or the ratio of contributions to Republican candidates to total contributions, is associated with lower fines. This provides further support for our hypothesis that since the Republican ideology promotes market discipline, intent is less likely in securities violations committed by firms or individuals associated with a Republican culture.

4.4.3. Additional Analysis

Our results thus far indicate that political contributions made through corporate PACs act as a signal for political connections and political culture. The SEC considers these signals as a firm's intention to fight the Commission's decisions or an intention for misconduct which, consequently, influences the penalties imposed on the firm or individuals associated with the firm. If these impacts are recognized by investors, then we would expect the market to react to enforcement actions accordingly. However, identifying the event that triggers an investigation which, eventually, leads to an enforcement action is not always possible. The SEC does not provide the information about the decision to investigate a firm until an enforcement action is filed and the firm has the discretion on whether to disclose this information. Therefore, an analysis of the market reaction to enforcement actions may not be an unbiased estimate of the expected penalties or enforcement costs. Nonetheless, we examine market reaction to the filing of SEC enforcement

actions to identify any systematic patterns across different levels of our explanatory variables consistent with the observed variation in penalties.

We measure market reaction by the mean cumulative abnormal returns (CARs) around all the dates associated with each particular case. The CARs are estimated using the market model. The mean CARs for multiple event windows are presented in Table 4-6. The abnormal returns are computed for 80 SEC enforcement actions for which the return data are available. Figure 4-2 plots the CARs during the 101-day period around the event date starting at 50 days before the filing of an enforcement action. The Table shows a cross-sectional difference between the SEC enforcement cases for the mean CAR(-30, -1) and CAR(-30, +30) and the magnitude of market reaction is 1.58% and 2.41%, respectively. However, time-series test statistics are not significant for any of the reported event windows. Further cross-sectional regression analysis (untabulated) does not show any particular pattern in the mean CARs. One possible explanation is that the SEC enforcement actions are typically filed years after the initial violations. Therefore, the market could have already incorporated the impact of PAC contributions and penalties on returns prior to the administrative or court proceedings.

4.5. Conclusion

In this paper, we examine whether corporate PAC contributions affect penalties resulting from SEC enforcement actions. On the one hand, firms could use political contributions to communicate their willingness to challenge the SEC's enforcement

decisions (Gordon & Hafer, 2005). On the other hand, political contributions could indicate the firm's political culture which could affect the intention for misconduct (Hutton, Jiang, & Kumar, 2015). Consistent with the argument that the Republican ideology promotes market discipline, we find that firms with a Republican culture receive lower penalties in SEC enforcement actions. In particular, individual defendants associated with Republican firms are significantly less likely to receive a bar or suspension penalty. Our analysis is based on a small but recent sample of SEC enforcement actions against S&P 500 firms which includes cases from 1996 to 2014.

Our results also show that total PAC contributions and firm size, both proxies for a firm's ability to fight the SEC's enforcement decisions, reduce enforcement costs. Cases which involve larger firms are less likely to be assigned to court. Moreover, larger firms receive lower fines and their executives are less likely to be the subject of a bar or suspension penalty. Political connections, on the other hand, are effective in reducing disgorgement.

4.6. References

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Table 4-1: Summary statistics

This table contains descriptive statistics for PAC contributions, SEC enforcement actions and firm characteristic variables for the sample of SEC enforcement cases. The sample includes 85 observations (i.e., administrative actions) and 80 unique firms. Panel A reports the statistics for the natural logarithm of the 5-year average political contributions in U.S.$ by each firm's political action committee (PAC) and the 5-year average number of candidates supported by each PAC. The contributions are reported separately for the Democratic, Independent and Republican candidates. Panel B reports the statistics for the regulatory period in months, the number of individual respondents and the natural logarithm of the direct costs. The direct costs are the pre-tax charges to the firm's income in U.S.$ millions subsequent to a fraudulent activity or material misrepresentation as reported by the SEC. This panel also shows the number and the percentage of cases which involve litigation (civil lawsuit in federal court) and a bar or suspension imposed on individual respondents, respectively. Panel C reports the statistics for the natural logarithm of the different types of penalties imposed on the firms or individual respondents. The penalties include disgorgement of ill-gotten gains and civil or criminal fines in U.S.$. Panel D reports the statistics for firm level variables. Size is the natural logarithm of market capitalization in U.S.$ millions. Growth is the 3-year geometric average in net sales. Profitability, measured using return on assets (ROA), is operating income before depreciation divided by total assets. Leverage is the sum of long-term debt and debt in current liabilities divided by total assets.

Panel A – Long-Term PAC Contributions

Variable	Mean	Median	Std. Dev.	Min	Max
5-Year Average PAC Contributions					
Democrats	6.0423	8.7160	5.0785	0.0000	12.5787
Independent	1.2329	0.0000	2.8137	0.0000	9.1050
Republicans	6.4355	9.5324	5.3892	0.0000	12.7219
Total	6.7041	9.7851	5.6056	0.0000	13.2988
5-Year Average Number of PAC Contributions					
Democrats	27.6500	5.6667	53.2178	0.0000	253.4000
Independent	0.2353	0.0000	0.5855	0.0000	3.0000
Republicans	42.4839	9.8000	65.5793	0.0000	261.6000
Total	70.1347	18.2000	116.5639	0.0000	492.2000

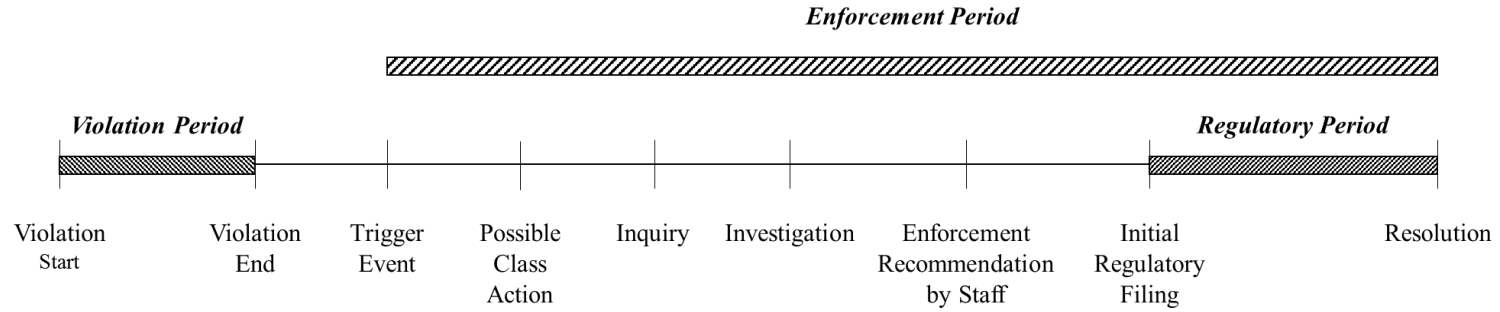
Panel B – SEC Enforcement Actions

Variable	Mean	Median	Std. Dev.	Min	Max
Regulatory Period	10.4922	0.0000	23.7827	0.0000	103.9333
Number of Respondents	1.0824	0.0000	1.8271	0.0000	8.0000
Direct Costs	6.9174	8.8537	5.9521	0.0000	15.4642

Variable	N	Percentage
Litigations	59	69.41%
Bars/Suspensions	22	25.88%

Table 4-1 – Continued

Panel C – Monetary Penalties					
Variable	Mean	Median	Std. Dev.	Min	Max
Disgorgement					
The Firm	3.8104	0.0000	6.8385	0.0000	18.9917
Executives	4.0615	0.0000	6.4729	0.0000	21.6791
Total	7.6681	9.4242	7.6481	0.0000	21.6791
Imposed Fines					
The Firm	7.9713	12.3239	7.6894	0.0000	19.5193
Executives	4.2811	0.0000	6.0490	0.0000	16.2337
Total	9.6882	12.7657	7.0610	0.0000	19.5231
Total Monetary Penalties					
The Firm	9.1343	12.8992	7.8419	0.0000	19.5193
Executives	4.9236	0.0000	6.8427	0.0000	21.6804
Total	11.1354	13.8643	7.0814	0.0000	21.7181
Panel D – Firm Characteristics					
Variable	Mean	Median	Std. Dev.	Min	Max
Size (Market Capitalization)	9.2922	9.2377	1.7383	4.3047	12.8815
3-Year Growth in Sales	0.0612	0.0524	0.1520	-0.3696	0.7089
Return-On-Assets (ROA)	0.1272	0.1288	0.0839	-0.2142	0.3269
Total Book Leverage	0.2773	0.2237	0.2080	0.0000	1.1991



This figure shows the typical timeline of an SEC enforcement action. The figure is a slight modification of Figure 1 in Karpoff, Lee, & Martin (2008) as depicted in Correia (2014).

Figure 4-1: Timeline of an SEC enforcement action

Table 4-2: Probability of litigation

This table reports the results from logistic cross-sectional regressions of the litigation dummy variable on the total PAC contributions, firm size and their interaction, and a set of case- and firm-level control variables. The dependent variable takes the value of one if a civil lawsuit is brought by the SEC against the firm in federal court, and is set to zero otherwise. The explanatory and control variables are explained in Table 4-1. The coefficient estimates and *Chi-square* statistics (appearing below in parentheses) are reported. *, **, and *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	3.1624**	7.1414**	3.0640*	7.2201**	1.9200	6.4522*	1.7841	5.8157*
	(4.76)	(5.51)	(3.70)	(4.88)	(1.15)	(3.65)	(1.01)	(3.01)
PAC Contribution (T)	0.0714	-0.4706	0.0798	-0.4531	0.0833	-0.5328	0.0928	-0.4621
	(2.16)	(2.25)	(2.11)	(1.96)	(2.21)	(2.51)	(2.66)	(1.84)
PAC (T) × Size		0.0578*		0.0569*		0.0659*		0.0592
		(2.99)		(2.74)		(3.38)		(2.67)
Size	-0.2989*	-0.7468**	-0.3043*	-0.7453**	-0.2401	-0.7358**	-0.2264	-0.6748*
	(3.34)	(4.83)	(2.80)	(4.34)	(1.62)	(3.97)	(1.40)	(3.30)
Long							1.9716*	1.8132
							(3.16)	(2.65)
Direct Costs					0.0636	0.0779*	0.0315	0.0480
					(2.00)	(2.80)	(0.43)	(0.94)
Growth			1.6387	0.9683	2.0055	1.2654	1.9023	1.2593
			(0.72)	(0.24)	(0.96)	(0.37)	(0.78)	(0.32)
ROA			-0.6490	-0.9142	-0.0930	-0.2270	-0.2395	-0.1617
			(0.04)	(0.07)	(0.00)	(0.00)	(0.00)	(0.00)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Leverage			0.2959	-0.3389	0.3544	-0.3365	0.1395	-0.3201
			(0.05)	(0.05)	(0.06)	(0.05)	(0.01)	(0.04)
R^2	4.65%	8.57%	5.50%	9.01%	7.75%	12.07%	12.62%	15.83%
N	85	85	85	85	85	85	85	85

Table 4-3: Probability of bar/suspension

This table reports the results from logistic cross-sectional regressions of the bar/suspension dummy variable. This variable takes the value of one if an individual in the firm is barred from serving as an officer or director of a public company (either temporarily or permanently) or is suspended from appearing or practicing before the SEC as an accountant or an attorney (either temporarily or permanently), and is set to zero otherwise. In Panel A, the dependent variable is regressed on the total PAC contributions, firm size and their interaction, and a set of case- and firm-level control variables.

Panel A – Total PAC Contributions

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	4.7995***	9.2827**	3.9577**	8.7318**	1.7155	8.4670*	2.7871	11.5316*
	(7.15)	(5.94)	(4.17)	(4.78)	(0.64)	(3.60)	(1.28)	(3.55)
PAC Contribution (T)	0.0522	-0.5257	0.0241	-0.5459	0.0230	-0.8453*	0.0717	-0.9238*
	(0.90)	(2.06)	(0.14)	(2.17)	(0.12)	(3.71)	(0.72)	(3.06)
PAC (T) × Size		0.0679		0.0667		0.1004**		0.1191*
		(2.47)		(2.37)		(3.91)		(3.42)
Size	-0.6929***	-1.2451***	-0.5682**	-1.1207**	-0.4888*	-1.2910**	-0.6256**	-1.6860**
	(10.12)	(6.98)	(5.61)	(5.44)	(3.82)	(5.73)	(4.15)	(4.86)
Long							2.6807***	2.9313***
							(10.11)	(8.87)
Direct Costs					0.1549**	0.1841***	0.0690	0.0801
					(6.22)	(7.67)	(1.00)	(1.17)
Growth			0.6930	0.4510	1.1781	0.9233	1.2787	1.3700
			(0.14)	(0.06)	(0.42)	(0.23)	(0.36)	(0.40)
ROA			-3.6546	-4.2608	-2.3141	-3.4539	-2.9255	-3.8650
			(0.85)	(1.12)	(0.36)	(0.75)	(0.46)	(0.74)

Panel A – Total PAC Contributions								
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Leverage			1.0657	0.4028	1.1401	0.1660	0.9903	-0.0566
			(0.53)	(0.07)	(0.56)	(0.01)	(0.28)	(0.00)
R^2	15.43%	18.24%	16.90%	19.52%	24.07%	28.27%	34.35%	37.85%
N	85	85	85	85	85	85	85	85

Table 4-3 – Continued

In Panel B, the dependent variable is regressed on the PAC contributions to the Democratic and Republican parties, firm size and the set of control variables. In Panel C, the dependent variable is regressed on the ratio of PAC contributions to the Republican Party, firm size and the set of control variables. The ratio is calculated as PAC contributions to the Republican Party divided by the sum of contributions to the Democratic and Republican parties. A dummy variable, No PAC Contributions, is also included which is set to one if the firm has no PAC contributions in the five years preceding the administrative action, and zero otherwise. The explanatory and control variables are explained in Table 4-1. The coefficient estimates and *Chi-square* statistics (appearing below in parentheses) are reported. *, **, and *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Panel B – PAC Contributions by Political Party

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	5.8309***	5.6963**	5.6627***	6.0871**	3.1320	4.7080
	(9.42)	(6.10)	(6.68)	(4.85)	(1.78)	(2.58)
PAC Contribution (D)	1.7149**	1.9702**	1.6783**	2.0325**	1.8087**	2.0302**
	(5.50)	(5.66)	(4.66)	(5.18)	(4.72)	(5.11)
PAC Contribution (R)	-1.5472**	-1.7133**	-1.5247**	-1.7504**	-1.6452**	-1.7703**
	(5.05)	(4.99)	(4.39)	(4.66)	(4.45)	(4.65)
Size	-0.8217***	-0.9532***	-0.7707***	-1.0092***	-0.6701**	-0.8986**
	(12.58)	(10.38)	(8.27)	(7.04)	(6.04)	(5.80)
Long		3.3398***		3.3692***		2.9263***
		(14.39)		(14.02)		(9.46)
Direct Costs					0.1656**	0.0749
					(6.53)	(1.05)
Growth			0.4178	0.7225	0.7385	0.6981
			(0.05)	(0.10)	(0.16)	(0.09)
ROA			-2.1558	0.2196	-0.1985	0.6219
			(0.24)	(0.00)	(0.00)	(0.02)
Leverage			0.0633	-0.4550	-0.0931	-0.5134
			(0.00)	(0.05)	(0.00)	(0.07)
R^2	22.06%	37.93%	22.30%	38.07%	29.33%	38.85%
N	85	85	85	85	85	85

Table 4-3 – Continued

Panel C – The Ratio of PAC Contributions to the Republican Party						
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	11.2383***	12.1379***	10.7965***	12.5834***	9.2853**	11.3622**
	(11.03)	(9.22)	(7.66)	(6.91)	(5.21)	(5.68)
PAC Contribution Ratio	-7.8376**	-8.6904**	-7.6603**	-8.8263**	-9.0764**	-9.3038**
	(5.51)	(5.38)	(4.64)	(4.95)	(5.29)	(5.18)
No PAC Contribution	-5.6787**	-6.9582***	-5.4301**	-7.1844**	-6.3908**	-7.3024**
	(6.45)	(6.97)	(4.96)	(5.89)	(5.60)	(5.98)
Size	-0.7843***	-0.8838***	-0.7300***	-0.9067***	-0.6466**	-0.8152**
	(12.51)	(10.25)	(8.35)	(7.09)	(6.16)	(5.90)
Long		3.2819***		3.2941***		2.8246***
		(14.63)		(14.38)		(9.49)
Direct Costs					0.1727***	0.0851
					(6.96)	(1.35)
Growth			0.3910	0.6996	0.7016	0.6983
			(0.04)	(0.09)	(0.14)	(0.09)
ROA			-2.2995	-0.4684	0.0341	0.3494
			(0.27)	(0.01)	(0.00)	(0.00)
Leverage			0.1261	-0.3830	-0.1334	-0.5347
			(0.01)	(0.04)	(0.01)	(0.07)
R^2	21.77%	37.62%	22.04%	37.74%	29.61%	38.75%
N	85	85	85	85	85	85

Table 4-4: Disgorgement

This table reports the results from OLS cross-sectional regressions of the disgorgement variable on the total PAC contributions, firm size and their interaction, and a set of case- and firm-level control variables. The dependent variable is total disgorgement imposed on the firm or individual respondents by the SEC or federal court. The explanatory and control variables are explained in Table 4-1. The coefficient estimates and heteroskedasticity-consistent *t*-statistics (appearing below in parentheses) are reported. *, **, and *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-1.5861	-3.7883	-2.6109	-4.0148	-1.9381	-0.9757
	(-0.41)	(-1.05)	(-0.59)	(-0.96)	(-0.37)	(-0.22)
PAC Contribution (T)	-0.2708**	-0.2278*	-0.3299**	-0.2677*	-0.3312**	-0.2623*
	(-2.16)	(-1.82)	(-2.13)	(-1.78)	(-2.15)	(-1.79)
Size	0.5594	0.7379*	0.7182	0.8290*	0.6783	0.6537
	(1.35)	(1.88)	(1.49)	(1.78)	(1.33)	(1.41)
Litigation	8.4588***	7.3131***	8.5539***	7.4137***	8.6303***	7.5724***
	(6.75)	(5.33)	(6.71)	(5.34)	(6.73)	(5.54)
Long		5.5810***		5.5213***		6.5689***
		(4.22)		(4.24)		(4.44)
Direct Costs					-0.0407	-0.2000
					(-0.30)	(-1.48)
Growth			-3.2539	-3.0287	-3.4216	-3.8100
			(-0.70)	(-0.68)	(-0.73)	(-0.85)
ROA			-1.8988	-1.4336	-2.2604	-3.1215
			(-0.21)	(-0.14)	(-0.25)	(-0.33)
Leverage			1.1547	-0.1555	1.1265	-0.5425
			(0.34)	(-0.05)	(0.33)	(-0.18)
R^2	26.11%	33.43%	26.74%	33.78%	26.83%	35.52%
N	85	85	85	85	85	85

Table 4-5: Imposed fines

This table reports the results from OLS cross-sectional regressions of the imposed fines variable. This variable is total civil or criminal fines imposed on the firm or individual respondents by the SEC or federal court. In Panel A, the dependent variable is regressed on the total PAC contributions, firm size and their interaction, and a set of case- and firm-level control variables. In Panel B, the dependent variable is regressed on the PAC contributions to the Democratic and Republican parties, firm size and the set of control variables. In Panel C, the dependent variable is regressed on the ratio of PAC contributions to the Republican Party, firm size and the set of control variables. The ratio variable is explained in Table 4-3. The explanatory and control variables are explained in Table 4-1. The coefficient estimates and heteroskedasticity-consistent *t*-statistics (appearing below in parentheses) are reported. *, **, and *** denote the statistical significance of the coefficients at the 10%, 5%, and 1% levels, respectively.

Panel A – Total PAC Contributions				
Variable	(1)	(2)	(3)	(4)
Intercept	11.5330***	19.2811***	-0.7037	0.1338
	(2.71)	(4.48)	(-0.19)	(0.04)
PAC Contribution (T)	0.0335	-1.2046	-0.1375	-0.2584
	(0.21)	(-1.65)	(-1.11)	(-0.50)
PAC (T) × Size		0.1339*		0.0131
		(1.74)		(0.26)
Size	-0.2227	-1.1236**	0.5174	0.4287
	(-0.43)	(-2.12)	(1.31)	(1.13)
Litigation			10.9788***	10.9269***
			(9.90)	(9.81)
Long			3.2173***	3.1941***
			(2.65)	(2.70)
Direct Costs			-0.1524	-0.1482
			(-1.41)	(-1.33)
Growth			0.0219	-0.0892
			(0.01)	(-0.03)
ROA			-5.6461	-5.7446
			(-0.75)	(-0.75)
Leverage			0.1855	0.0150
			(0.08)	(0.01)
R^2	0.24%	3.43%	56.47%	56.50%
N	85	85	85	85

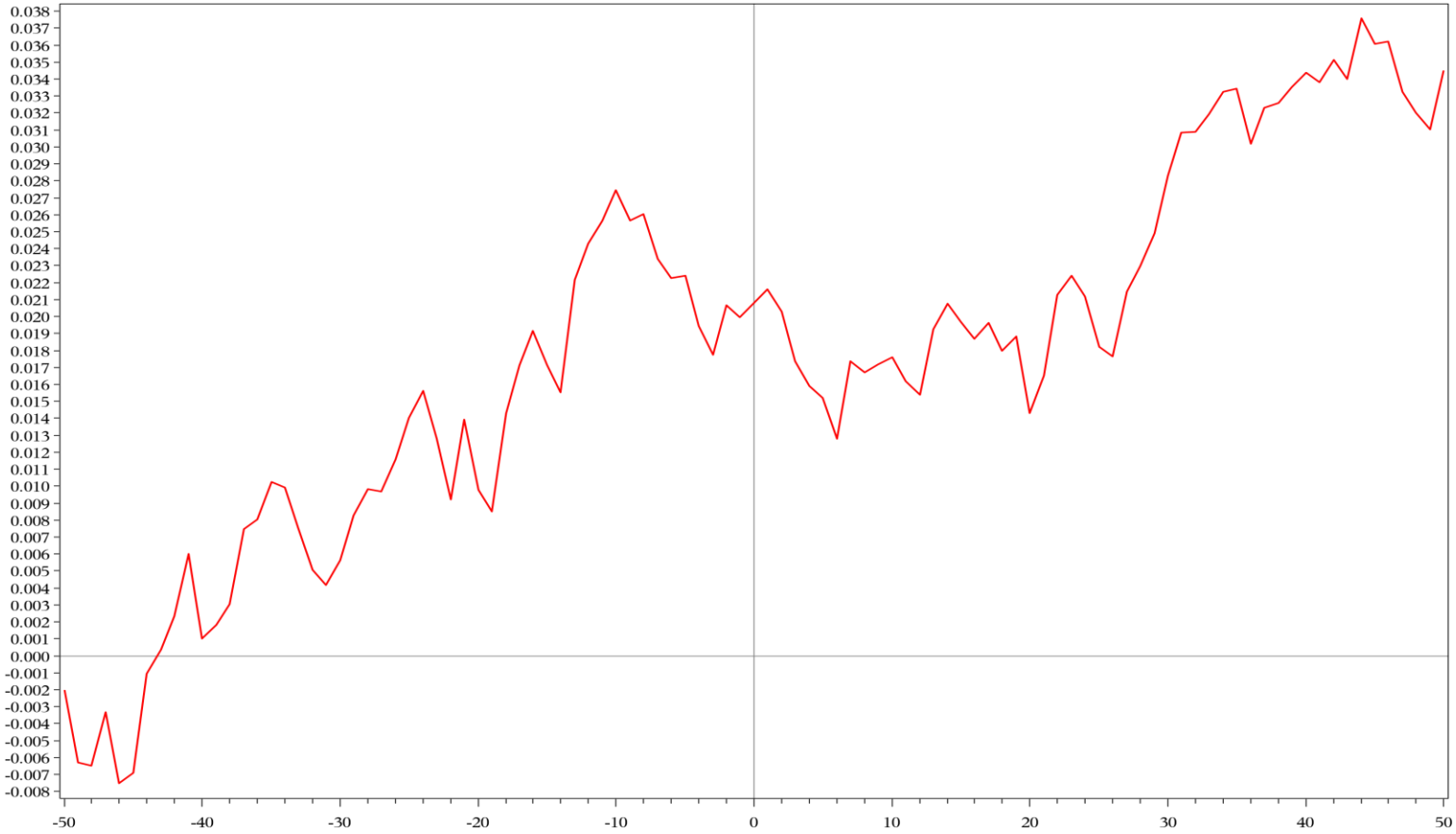
Table 4-5 – Continued

	Panel B – PAC by Party		*Panel C – Ratio of PAC*	
Variable	(2)	(3)	(4)	(5)
Intercept	12.9425***	0.5720	21.0857***	4.2183
	(3.04)	(0.15)	(2.92)	(0.64)
PAC Contribution (D)	2.0468	1.1946		
	(1.41)	(0.99)		
PAC Contribution (R)	-1.8706	-1.2358		
	(-1.38)	(-1.09)		
PAC Contribution Ratio			-11.8147*	-6.7827
			(-1.77)	(-1.17)
No PAC Contribution			-8.1380*	-3.2913
			(-1.71)	(-0.79)
Size	-0.3857	0.3537	-0.3796	0.3012
	(-0.74)	(0.90)	(-0.77)	(0.80)
Litigation		10.9166***		10.8634***
		(9.74)		(9.67)
Long		3.0928**		3.0446**
		(2.64)		(2.59)
Direct Costs		-0.1411		-0.1344
		(-1.33)		(-1.27)
Growth		-0.1752		-0.1064
		(-0.07)		(-0.04)
ROA		-3.6262		-2.8725
		(-0.53)		(-0.41)
Leverage		-0.5316		-0.6303
		(-0.24)		(-0.29)
R^2	2.52%	57.26%	3.27%	57.34%
N	85	85	85	85

Table 4-6: Market reaction to SEC enforcement events

This table reports the mean cumulative abnormal returns (CARs) for multiple event windows around 80 SEC Enforcement events where the return data are available. The CARs are calculated using the market model. For cases with more than one enforcement event, the CARs are averaged over the multiple events. The table also reports several time-series and cross-sectional test statistics for the significance of the CARs. Rank *Z*-statistics (time-series) and Wilcoxon *W*-statistics (cross-sectional) are associated with nonparametric tests. *, **, and *** denote the statistical significance of the CARs at the 10%, 5%, and 1% levels, respectively.

Event Window	Mean Cumulative Abnormal Returns	Time-Series Standard Deviation Test *t*	Cross-Sectional Test *t*	Rank Test *Z*	Wilcoxon Signed-Rank Test *W*
(-30, -1)	1.58%	1.060	1.355*	0.829	289.000*
(-10, -1)	-0.57%	-0.664	-0.871	-0.616	-178.00
(-5, -1)	-0.23%	-0.386	-0.463	0.248	-33.000
(-3, -1)	0.05%	0.106	0.141	0.402	46.000
(0, +1)	0.16%	0.427	0.405	0.707	156.000
(0, +3)	-0.26%	-0.476	-0.559	0.087	-149.00
(0, +5)	-0.48%	-0.715	-0.855	-0.187	-129.00
(0, +10)	-0.23%	-0.260	-0.311	-0.170	-124.00
(0, +30)	0.83%	0.551	0.752	0.910	138.000
(-1, +1)	0.09%	0.196	0.197	0.494	41.000
(-3, +3)	-0.21%	-0.291	-0.360	0.329	-25.000
(-5, +5)	-0.71%	-0.788	-0.934	0.029	-103.00
(-10, +10)	-0.81%	-0.647	-0.865	-0.548	-110.00
(-30, +30)	2.41%	1.137	1.368*	1.230	279.000*



This plot shows the event-period running average cumulative abnormal return. The event period ranges from 50 days before the SEC enforcement action through to 50 days after the action.

Figure 4-2: Cumulative abnormal returns (CARs) around SEC enforcement events

5. Conclusion

This thesis makes several contributions in the areas of capital structure, law and finance, industrial organization, and international capital markets. The first two essays focus on how the interaction between relationship-specificity and the contracting environment affects corporate financial policy and performance. A large body of economics literature investigates how relationship-specific investments affect the governance form of supplier-buyer transactions, such as relational contracting or vertical integration. However, the implications of relationship-specificity for overall corporate strategy are relatively unexplored. The study of relationship-specific investments from this perspective, therefore, can significantly enhance our understanding of the economic determinants of a firm's financing and investment decisions and help answer important questions in empirical corporate finance.

The first essay investigates how the interaction between firms with specialized assets and their contracting parties affects the firms' value and financial performance. Specifically, it examines how the value of specialized investments is affected by the quality of governmental contract enforcement. I find that firms in relationship industries have higher valuations, measured by Tobin's Q, when they are located in countries with a legal system that is able to strongly enforce contractual agreements. I also show that as legal quality improves, firms in relationship industries exhibit lower operating profitability, likely due to a lower

hurdle rate for non-salvageable relationship-specific investments. Further analysis of the cross-section of stock returns supports this explanation. The findings are robust to a variety of empirical specifications and regression methods. To my knowledge, this is the first study that directly examines the joint effect of relationship-specificity and contract enforcement on firm value and financial performance.

The second essay examines the joint effect of relationship-specificity and the contracting environment on a firm's choice of capital structure. Firms in bilateral relationships with their customers or suppliers invest in relationship-specific assets to recognize long-term economic benefits. When assets are tied to specific relationships and contracts are incomplete, contracting parties are susceptible to ex-post opportunism and hold-up problems. Absent governmental contract enforcement, suppliers of specialized goods are more likely to rely on implicit contractual guarantees when they are required to make non-redeployable relationship-specific investments. Moreover, they would be more sensitive to the uncertainty of their contracting parties' cash flows. It is hypothesized that one way a purchaser of these specialized goods in countries with weak contract enforcement could induce relationship-specific investments from suppliers is through reduced leverage. In support of this hypothesis, I find that firms in industries in which relationship-specificity is important have higher debt ratios when they, simultaneously, reside in countries with good quality contract enforcement. In other words, a lower debt ratio and strong enforcement become substitutes, as either

could encourage suppliers to make relationship-specific investments. This essay contributes to the empirical capital structure literature in several important ways. First, it provides new evidence to support the transaction-cost view of capital structure. Second, it highlights the importance of incorporating the effect of the contracting environment in studies that examine the association between relationship-specificity and corporate financial policy. Third, it employs a finer proxy for relationship-specificity than has been used previously to measure the degree of contract-intensity in a given industry.

The third essay investigates whether political values and political connections, both measured using corporate PAC contributions, influence the penalties imposed on firms and individual defendants in the United States' Securities and Exchange Commission (SEC) enforcement actions against S&P 500 companies. I find that firms that primarily contribute to Republican candidates, which would indicate a Republican culture, receive lower penalties in SEC enforcement actions. In particular, individual executives associated with these firms are significantly less likely to receive a bar or suspension penalty. Moreover, political connections and firm size, proxies for a firm's ability to fight the SEC's enforcement decisions, reduce enforcement costs. Specifically, larger firms receive lower fines, and are less likely to be subject to litigation or a bar or suspension penalty against their executives. This essay contributes to a growing literature that studies the implications of political culture and political connectedness for corporate law and financial policy.

Overall the three studies investigate important issues in empirical capital structure, international asset pricing, politics, and corporate law. Transaction cost economic theory has developed significantly over the past thirty-five years. However, empirical research that studies the financial implications of transaction costs and relationship-specific investments is scarce. I attempt to fill this gap in the first two essays by arguing that the nature of the relationship between a firm and its buyers and suppliers influences its financing and investment decisions. In the third essay, I show that political values, political connections and bargaining power could impact SEC enforcement actions brought against large U.S. firms.